SL IB Psychology

Reliability of Cognitive Processes

Contents

Reconstructive Memory: The Effect of Schema on Memory

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What is reconstructive memory?

- Memory is not like a camera, it does not record an event faithfully or with 100% accuracy, rather it is **retrieved** as fragments of the event, sometimes omitting key pieces of information or inserting information which was not present at the time of the event; sometimes recalling the **sequences** of the event in a different order to the original; sometimes being influenced by other people's recall of the event or by media reports of the event
- **Information after the event** is one way in which **reconstructive memory (RM)** may be manifest i.e. you are present at a birthday party but your **recall** of the party will be influenced by discussing it with others afterwards, by viewing photos of the party on social media, by your memories of other birthday parties you have attended in the past
- **Confabulation** is another way in which RM occurs in which recall of the event is impacted by **distortion** of the information, **fabrication** of details (e.g. inserting details not present at the time of the event), **misinterpretation** of the information

What is the relevance of schema and reconstructive memory?

- A schema is a set of pre-existing ideas, beliefs and concepts an individual has about people, places, events, ideas etc. which means that schemas may give rise to **distorted memory**
- When you experience an event either directly or indirectly it is usual for **schematic activation** to guide your understanding/expectation of that event e.g. you plan a holiday to Italy where you expect to see a lot of people waving their arms around in an excitable way and eating pasta (not at the same time of course!) hence schemas also contribute to **stereotypes**
- The problem with having set and pre-determined schemas is that they can **interfere** with accurate **recall**– this happens when someone recalls an event not as it truly happened but as a result of **schematic interference** i.e. their schemas 'got in the way' of 100% accurate recall of the event (generally people are unaware of this happening)
- Schemas are relevant to RM as they produce **biased** recall e.g. you are in a pub and there is a fight, the police ask you what you witnessed and you say that one man was bleeding but in fact this is not true – your schema for 'fight' added blood at the scene because it fits your schema for 'fight'
- **Cultural schemas** may lead to incorrect and faulty recall of material which does not align with or fit into a person's schema based on their own culture

Which research studies investigate reconstructive memory and schema?

- **Bartlett (1932)** – cultural schemas produce distorted recall of a culturally unfamiliar story

Bartlett (1932) is available as a separate Key Study – just navigate the Reliability of Cognitive Processes section of this topic to find it (Two Key Studies of Reconstructive Memory). Bartlett's study is also included in Two Key Studies of Cognitive Processing which can be found in the Cognitive Processing section of this site

Reconstructive Memory: Eye Witness Testimony

Reconstructive Memory: Eyewitness Testimony

What is reconstructive memory?

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- **Information after the event** is one way in which **reconstructive memory (RM)** may be manifested i.e. you are present at a birthday party but your **recall** of the party will be influenced by discussing it with others afterwards, by viewing photos of the party on social media, by your memories of other birthday parties you have attended in the **past**
- **Confabulation** is another way in which RM occurs in which recall of the event is impacted by **distortion** of the information, **fabrication** of details (e.g. inserting details not present at the time of the event) and **misinterpretation** of the information

What is the relevance of reconstructive memory & eyewitness testimony?

- When someone is present at a **crime** then they become an **eyewitness (EW)** to that crime; when they give an account of what they saw and heard at the crime scene this is known as **eyewitness testimony (EWT)**
- EWs generally want to help the police - they have sincere intentions about telling the 'truth, the whole truth and nothing but the truth' to the police who take their original EWT and in court when they are acting as a witness (usually for the **prosecution**)
- One of the reasons for EWT lacking accuracy is the very fact that EWs have this need to help: they may work too hard to recall what they witnessed and in doing so they may fall prey to the manifestations of RM outlined above (e.g. confabulation)
- Another key – and highly researched – error when obtaining EWT is when leading questions are used by the police (or in court – though this is officially not permitted)
  - A **leading question** is one in which the answer is contained in the question, there is the assumption that there is one 'true' response to the question e.g. What attracted you to your billionaire husband? i.e. the interviewer 'leads' the witness to the response
- A leading question is an example of **information after the event** as it provides an extra layer of information to that which was witnessed at the scene, it may insert (or remove) key information that could lead to the real culprit of the crime getting away with it (or even worse, to an innocent person being convicted of the crime)
  - An example of a leading question is: So did you see him with the weapon? as opposed to 'So did you see him with a weapon?';
  - The use of 'the' suggests that there definitely was a weapon (and that he must have been holding it) whereas 'a' leaves it open as to there even being a weapon present at all

- The police may not be aware that they are using leading questions with EWs but this is something that they should address as **juries** tend to find EWT very compelling and in the absence of **DNA** evidence they may use it to come to a **verdict**

Which research studies investigate reconstructive memory & eyewitness testimony?

- **Loftus & Palmer (1974)** – the use of leading questions has an effect on EWT

Loftus & Palmer (1974) is available as a separate Key Study – just navigate the Reliability of Cognitive Processes section of this topic to find it (Two Key Studies of Reconstructive Memory)

Worked example

ERQ (Extended Response Question) - 22 marks

To what extent could memory be said to be reconstructive? [22]

The command term 'To what extent' requires you to offer arguments as to how far memory could be said to be reconstructive but also to identify and discuss why this may not always be the case e.g. because the research method used lacks ecological validity so cannot be a true reflection of real life memory in action

Have a look at this paragraph for an example of how to use this command term for this essay:

Loftus and Palmer (1974) suggested a hypothesis of reconstructive memory to explain why true and accurate recall of an event may become impaired and distorted. This explanation is as follows: a person receives two sources of information regarding an event that they have witnessed – the first is the information obtained from perceiving the event itself; the second is the information supplied or acquired after the event. If there is some difference between the two sources, integration of post-event information can lead to memory distortions. Loftus & Palmer's research demonstrates how external cues, such as leading questions, made available after an event, can affect an eyewitnesses' subsequent memory of that event, suggesting that memory is reconstructive to a very great extent.

Two Key Studies of Reconstructive Memory: Bartlett (1932) & Loftus & Palmer (1974)

Key Study: Bartlett (1932)

Aim: To investigate the effect of **cultural schemas** on reconstructive memory

Participants: 20 male undergraduate students from the University of Cambridge in the UK

Procedure: Bartlett instigated a procedure known as **serial reproduction**, in which one participant read the story then reproduced it in writing; this was then read to a second person who then wrote his own memory of the story which was then read to a third person who then produced his own version of the story and so on.

Results: Bartlett found that the resulting stories bore little similarity to the original Native American folk tale. The changes made by the participants included:

- **Omission**: Key details of the story were ignored or missed out, particularly unfamiliar or unpleasant details such as a contorted face or black coming out of a mouth. Participants even omitted the key idea that ghosts were fighting which is surprising as this is the title of the story. Ghosts were soon dropped from the re-telling of the story as they do not fit with the way that adult males see the world, particularly in relation to war; details such as a contorted face were omitted as they may have caused unpleasant memories.
- **Assimilation and sharpening**: Story details were changed to suit the participants' own cultural schemas e.g. 'canoes' became 'boats'; 'paddling' became 'rowing'. Details such as the spirit wound were re-interpreted as a flesh wound with words such as 'therefore' and 'because' inserted to explain the events.
- **Levelling**: The story became shorter - the original story was approximately 350 words and the participants' version was around 180 words

Conclusion: Cultural schemas contribute to the **reconstructive** nature of memory i.e. memory is not a passive state in which events are recorded like a camera would record them, instead memory is an active process in which pre-existing information and expectations may interfere with the accuracy and **reliability** of the memory

Evaluation of Bartlett (1932)

Strengths

- Bartlett's study was one of the first pieces of research to highlight the role of schema in reconstructive memory e.g. two people who witness the same event may give very different accounts of what they have seen
- Understanding the ways in which schemas may interfere with accurate recall of events has good **application** to educational settings in terms of how learning takes place and to the **criminal justice system** in terms of **eye-witness testimony** (see **Loftus & Palmer 1972** below and the Revision Note on Eye Witness Testimony)

Limitations

- This is very dated research: university students in the UK are much more aware of wider **multi-cultural issues** today than they were in the 1930s which means that the results may lack **temporal validity**

- It is unclear as to whether the memory distortions were the product of **schematic interference** or to other factors such as poor overall memory, lack of **attention**, **personal learning styles** (some people are **visual learners** for example so an **aural** task would not suit them as much as viewing a cartoon of the story)

Key terms:

- **Assimilation**
- **Levelling**
- **Reconstructive memory**

Key Study: Loftus & Palmer (1974)

Aim: To investigate the effect of **leading questions** on **eyewitness testimony (EWT)**

Participants: 45 undergraduate students from the University of Washington, USA for Experiment 1; 150 participants from the same university for Experiment 2

Procedure: Two **lab experiments** which used an **independent measures design** for both **Experiment 1** and **Experiment 2**

- **Experiment 1**: Participants were shown seven film clips of traffic accidents. After each film they filled in a **questionnaire** based on what they had witnessed about the accident – the questionnaire included several 'filler' questions and a **critical question**
- The critical question (**independent variable**) was: 'About how fast were the cars going when they smashed/hit/bumped/collided/contacted each other?' Each participant was in one of the five **conditions** i.e. each participant was asked only one of the critical questions containing only one of the five verbs. Participants had to **estimate** the speed in miles per hour
- **Experiment 2:** 150 participants divided into three groups of 50 each. All participants watched a one-minute film of a multiple-car accident. They then answered some questions about the film
- The critical question was, 'How fast were the cars going when they hit/smashed each other?' Each participant was **randomly allocated** to either the 'smashed', 'hit' or control condition. The **control group** were not asked any questions about the speed of the cars

The participants were asked to return a week later. They were asked several questions about the accident in the film. The critical question was, 'Did you see any broken glass?' with the response being 'yes' or 'no'. There was not, in fact, any broken glass in the film

Results:
Experiment 1: Participants in the 'smashed' condition estimated the highest speed out of all the five conditions at 40.8 mph; participants in the 'contacted' condition estimated the lowest speed out of all the five conditions at 31.8 mph

Experiment 2: 43 participants in the 'Smashed' condition reported having seen broken glass as opposed to 7 participants reporting seeing broken glass in the 'Hit' condition

Conclusion: Leading questions may lead to **unreliable** EWT by providing **information after the event**

Evaluation of Loftus & Palmer (1974)

Strengths

- This research has huge implications for the ways in which EWTs should be questioned hence it has great **application** to the wider world
- The **standardised procedure** and **control of variables** make this study easy to **replicate** which increases its **reliability**

Weaknesses

- Watching recorded footage of a traffic accident is not the same as experiencing the event in real life so the study lacks **ecological validity**

- The participants might have been prone to **response bias** – i.e. the **emotive quality** of the words may have prompted the participants to think that a higher or lower speed estimate was expected of them (e.g. 'smashed' sounds like it should be given a high estimate)

Key terms:

- **Eyewitness testimony**
- **Information after the event**
- **Response bias**

Cognitive Biases: Illusory Correlation

Cognitive Biases: Illusory Correlation

What is cognitive bias?

- A **cognitive** bias is a faulty or **distorted** way of **perceiving** or understanding the world
- A cognitive bias is a kind of **heuristic** i.e. a short-cut way of thinking which minimises **cognitive effort and energy** and maximises quick, easy solutions to problems and to decision-making
- Cognitive biases are not the same as **prejudice or discrimination**, but it could be argued that they contribute to the **formation of stereotypes** and to the establishment and perpetuation of limited, sometimes harmful, problematic attitudes
- Cognitive biases include (but are not limited to):
  - **illusory correlation;**
  - **confirmation bias;**
  - **the availability heuristic;**
  - **anchoring bias;**
  - **the just-world hypothesis** (which is covered in a separate **Cognitive Bias** Revision Note in the **Reliability of Cognitive Processes**)
- A cognitive bias has the characteristics of **System 1 thinking** (see the Revision Note on **Thinking & Decision-Making: the Dual Process Model** included in **Cognitive Processing**) in that it is based on **intuitive**, **automatic thinking** which requires little or no **analysis or reflection**

What is Illusory Correlation?

- **Illusory Correlation (IC)** is a cognitive bias which occurs when people assume that there is a **relationship** between two variables when in fact this relationship does not exist or is based on stereotypical assumptions which lack tangible **evidence**
- Some examples of everyday ICs are:
- Blondes have more fun (the IC is the linking of hair colour and enjoyment of life);
- Italians are highly excitable (the IC involves generalising a specific behaviour to a whole nation);
- A gambler who believes that wearing their 'lucky shirt' will help them to win at the roulette table (the IC is the belief that arbitrary factors such as clothing choice can have any influence over the outcome at a gambling game)
- All ICs are not necessarily negative or harmful e.g. My right knee is aching which means that rain is on the way, but some ICs can be at the root of **bigoted** behaviour such as racism, sexism, homophobia etc.
- One explanation for the development of ICs is the **cognitive miser** explanation: the world is a complex, busy place and we are bombarded on a daily basis with a multitude of messages and information so using ICs to understand the world means that less cognitive energy needs to be expended than if one were to fully focus on the subtle and varied explanations for specific behaviours/types of people

Which research studies investigate illusory correlation?

- **Hamilton & Gifford (1976)** – illusory correlation favours the majority rather than the minority in terms of group size

Hamilton & Gifford (1976) is available as a separate Key Study – just navigate the Reliability of Cognitive Processes section of this topic to find it (Two Key Studies of Cognitive Biases)

This study can also be found as part of the Sociological Approach topic Formation of Stereotypes which you can find as a separate Revision Note on this site

Worked example

SAQ (Short answer question): 9 marks

Explain one theory of one cognitive bias using one relevant study. *[9]*

The command term 'Explain' requires you to give good detail and some depth of both the theory and the supporting study.

Have a look at this paragraph for an example of how to use this command term for this SAQ:

Hamilton and Gifford (1976) use the theory of illusory correlation to explain how stereotypes develop. Illusory correlation is when two events occur simultaneously, and incorrect inference is drawn from this co-occurrence, particularly if the event or behaviour is notable or unusual. They argued that negative behaviours are relatively rare, and that people from minority groups are also relatively rare (because, logically, there are not as many of them as there are of the majority group), so when one sees a minority person performing a negative act, it is more memorable than when one sees a person from a majority group performing the same act.

Cognitive Biases: Just World Hypothesis

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What is cognitive bias?

- A **cognitive bias** is a faulty or **distorted** way of **perceiving** or understanding the world
- A cognitive bias is a kind of **heuristic** i.e. a short-cut way of thinking which minimises **cognitive effort** and **energy** and maximises quick, easy solutions to problems and to decision-making
- Cognitive biases are not the same as **prejudice** or **discrimination**, but it could be argued that they contribute to the **formation of stereotypes** and to the establishment and perpetuation of limited, sometimes harmful, problematic attitudes
- Cognitive biases include (but are not limited to)
  - **illusory correlation;**
  - **confirmation bias;**
  - **the availability heuristic;**
  - **anchoring bias;**
  - **the just-world hypothesis** (which is covered in a separate Cognitive Bias Revision Note in the Reliability of Cognitive Processes)
- A cognitive bias has the **characteristics** of **System 1** thinking (see the Revision Note on **Thinking & Decision-Making: the Dual Process Model** included in **Cognitive Processing**) in that it is based on **intuitive**, **automatic thinking** which requires little or no **analysis** or **reflection**

What is the Just-World Hypothesis?

- The **Just-World Hypothesis (JWH)**, proposed by **Lerner (1960)** is a cognitive bias theory based on the (mistaken) idea that the world is a fair place in which good people are rewarded and bad people are punished ('just' i.e. that justice will be done)
- The JWH can be explained in terms of people wishing to believe in a rational world which (to them at least) makes sense because the alternative (that bad things do happen to good people) is a frightening one to contemplate
- The JWH is a factor in **victim-blaming** - i.e. if the world is a fair and just place then bad things should only happen to bad people, so if someone is homeless then they've probably brought it on themselves; if a woman is attacked then she probably encouraged the attack via her clothing or behaviour; if someone collapses on the pavement then they're probably drunk, it's their own fault etc.
  - Victim-blaming also involves finding reasons not to help people who are not 'worthy' of help because (according to the JWH) they have contributed to their own hardship or misfortune
  - This can make the individual feel better about not helping them, as it eases the burden of guilt
- The JWH may be explained as a means by which people avoid having to dwell on their own **vulnerability** as potential victims of crime or disaster - i.e. hearing about increasing poverty levels in their own country might lead to thoughts such as, "I work hard, that could never happen to me. Those people who can't pay their bills must be lazy."
- The JWH may also be explained as a mechanism used to manage **anxiety** as it (mistakenly) enables the individual to feel that the world is a safe place as long as they behave in a way which will protect them from harm - i.e. by being a 'good' person

Which research studies investigate the just-world hypothesis?

- **Piliavin et al. (1969)** – the JWH is a factor in the type of victim who is given help (drunk or disabled)

Piliavin et al. (1969) is available as a separate Key Study – just navigate the Reliability of Cognitive Processes section of this topic to find it (Two Key Studies of Cognitive Biases)

Worked example

ERQ (Extended Response Question) - 22 marks

Discuss one or more cognitive biases. *[22]*

This essay question requires you to examine research in the light of specific theories.

Have a look at these paragraphs for an example of how to analyse the theory and also how to conclude an essay (something which students often struggle to do successfully):

The just-world hypothesis – that victim-blaming may account for the lack of help in the 'drunk' condition – may not be the only explanation for Piliavin et al.'s (1969) findings. An alternative explanation might be that people are more likely to be wary of someone who appears to be drunk: their behaviour may be unpredictable; they may turn violent; they may vomit, all of which may well put people off helping them. Additionally, the 'drunk' condition was used on 38 trials compared to the 65 trials for the 'cane' condition: if an equal number of trials had been used for each condition, then the results would be more comparable. It is also possible that some participants may have witnessed the procedure more than once as it was run on the same stretch of track over a period of a few months which would give rise to demand characteristics possibly resulting in a disinclination to help.

In conclusion there appears to be some strong evidence to suggest that the just-world hypothesis is a key factor in victim-blaming as evidenced in the lower number of people who helped in the 'drunk' condition. Piliavin's research does point to the just-world hypothesis as one valid explanation of bystanderism based on type of victim and their 'worthiness' in terms of how much people perceive that they have contributed to their own misfortune.

Two Key Studies of Cognitive Biases: Hamilton & Gifford (1976) & Piliavin et al. (1969)

Key Study: Hamilton & Gifford (1976)

Aim: To investigate **illusory correlation** as a cognitive bias

Participants: 40 undergraduate students from a university in New York state, USA (20 males; 20 females)

Procedure:

- The participants were presented with two **hypothetical** groups - i.e. these were not real groups consisting of real people with given characteristics. The participants were told that Group A consisted of 26 members and that Group B consisted of 13 members
- The participants then read a series of statements which each described a particular behaviour performed by either a member of A or B e.g. John, a member of A, visited a friend in hospital
- The behaviours described in the statements were **classified** as either desirable or undesirable. Both A and B were assigned more positive than negative behaviours at a **ratio** of 9:4 (positive to negative) and two thirds of the statements overall were **attributed** to members of A
- Thus, members of A were presented as performing more behaviours overall than B and positive behaviours were more frequent from both groups than negative behaviours

The participants were then asked to provide **ratings** for the following measures:

1. Given a list of 20 attributes, assign each to either group A or B
2. Given a particular example of a behaviour, say whether this behaviour was performed by a member of A or B
3. Estimate how many negative behaviours can be attributed to either A or B

Results: The **mean scores** showed that participants attributed more desirable social behaviours (6.7) to members of Group A than to members of Group B (6.0); undesirable social behaviours were attributed more to Group B (5.6) than to Group A (4.4)

Conclusion: The results suggest that illusory correlation may be based on group size: the smaller group, B, appears more **distinctive** than the larger group A so that any undesirable behaviours are linked more often to the minority group, B, than to the majority group A. This has implications in terms of how minority groups are viewed by society

Evaluation of Hamilton & Gifford (1976)

Strengths

- The **measures** (rating scales) used in the study could be **cross-referenced** by the researchers to check for **consistency** across them which should ensure both **reliability** and **internal validity**
- The findings could be used to inform awareness-raising as a means to reduce **prejudice** and increase tolerance of minority groups

Weaknesses

- The **procedure** does not fully reflect how people respond in real-life situations where they are exposed to minority groups which reduces **ecological validity**
- The study is rather **simplistic** in its use of statements about hypothetical people and situations which makes it difficult to draw very meaningful conclusions from the findings

Key terms:

- **Illusory correlation**
- **Minority**
- **Majority**

Key Study: Piliavin et al. (1969)

Aim: To investigate the degree of help given to a victim who appeared to be either drunk or disabled

Participants: A **field experiment** which used an **opportunity sample** of 4,450 passengers (55% white; 45% black) using the New York subway between Harlem and The Bronx during the hours of 11am until 3pm over the course of several months. The journey lasted 7.5 minutes without any stops

Procedure:

- A staged (fake) procedure which was conducted inside one carriage of the aforementioned Harlem/Bronx subway route. 4 **confederates** were used: 2 females as **observers**, 1 white male aged 24 – 29 to **model** helping behaviour and 1 male victim aged 26 – 35 (either white or black, dressed identically; the '**drunk**' victim smelled of alcohol and the '**cane**' victim had a cane to indicate that he was disabled)
- 103 trials were conducted by alternating teams of researchers over the total course of the research's duration
- The female confederates took seats and kept notes, while the male victim and male model stood near a pole in the centre of the train
- After passing the first station (approximately 70 seconds into the journey) the victim collapsed
- In the "no help" **condition**, the model did nothing until the train slowed to a stop, and then helped the victim to his feet
- In the "helping" condition, the model came to the victim's assistance
- The collapse occurred in what the researchers referred to as the **critical area** which was in the immediate vicinity of the victim

There were four different helping conditions used in both "drunk" and "cane" situations:

1. **Critical** area **early**: the model stood in the critical area and waited approximately **70 seconds** after the collapse to help
2. **Critical** area **late**: the model stood in the critical area and waited approximately **150 seconds** after the collapse to help
3. **Adjacent** area **early**: the model stood a little further way, adjacent to the critical area and waited approximately **70 seconds** after the collapse then helped the victim
4. **Adjacent** area **late**: the model stood a little further way, adjacent to the critical area and waited approximately **150 seconds** after the collapse then helped the victim

Results: The victim in the 'cane' condition received **spontaneous** help on 95% of the trials (62 out of 65 times) - i.e. there was very little need for the model to help first; people helped the apparently disabled man immediately upon his collapse. The 'drunk' condition received help on 50% of the trials (19 out of 38 times)

Conclusion: The results support the Just-World Hypothesis as the victim in the 'cane' condition was helped 50% more than the victim who appeared to be drunk. It is possible that

people operate a system of judgement when deciding who to give help to - i.e. does the victim 'deserve' help or not?

Evaluation of Piliavin et al. (1969)

Strengths

- The study is high in **ecological validity** due to the use of the **natural setting** and **unartificial** behaviour of the **naïve participants**
- The use of two observers should ensure inter-rater reliability

Weaknesses

- The procedure is likely to have been affected by a range of **extraneous variables** that were impossible to control e.g. **individual differences** such as personality and mood; some of the participants experiencing the procedure more than once if they used that route regularly; participants in the carriage obscuring the view of the observers
- The **ethics** of the study are **problematic**: no **informed consent**; **deception** of participants; possible **psychological harm**; no **right to withdraw** or **debriefing**

Key terms:

- **Just-World hypothesis**
- **Field experiment**
- **Confederates**