



HUMAN PERFORMANCE

Practical Applications of Memory: Eyewitness Memory



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ESSENTIAL READING

- Esgate et al. (2005). *An introduction to applied cognitive psychology*. Psychology Press.
 - Available online as E-book through library system.
- Any work related to Eyewitness Memory by:
- **Professor Amina Memon, Professor Aldert Vrij,**
- **Professor Ray Bull**
- **Dr Annelies Vredeveldt -**
<https://annelies.vredeveldt.com/publications/>

MEMORY IN THE REAL WORLD

- Eyewitness memory:
 - Involve one-time events: e.g., witnessing a crime.
 - Basics of encoding, storage & retrieval is the same.
 - Following event, witness is asked to recognise/identify suspect involved.
- SDT can be applied to the study of EW memory.
- SDT Matrix can also be implemented:

Suspect is:

Eyewitness Response

		"Yes"	"No"
Present	Absent	Hit	Miss
		False alarm	Correct rejection

RELEVANCE

- Criminal justice system & protection of society served by maintaining high level of sensitivity, while beta is kept neither:
- Too high = many misses would lead to criminals going free.
- Too low = greater FA would lead to innocent people being convicted of crimes they did not commit.

EYEWITNESS MEMORY

- What influences an EWs ability to ID a suspect?
- Aspects to consider:
 - Eyewitness memory: importance & confidence
 - Eyewitness suggestibility
 - Police questioning & interviewing techniques
 - Recognising suspects: Describing faces
 - Recognising suspects: Police line-ups
 - Violence & Weapon Focus
- Research into EWM performance has influenced policy & procedure in police & legal profession

EYEWITNESS MEMORY: IMPORTANCE

- Devlin report (1976): even when only evidence is EW ID = 74% conviction rate.
 - EW ID accepted even when contradicted by physical &/or expert evidence
- Eyewitnesses:
 - Perceived as being independent
 - No vested interest in outcome of trial
 - (Usually) have no scientific, legal, or Ψ expertise
 - Are peers of the jury, lay-people
 - Not paid to give testimony
 - No perceived prestige factor

EYEWITNESS MEMORY: IMPORTANCE

- Jury's can be suspicious of "Experts" as they are paid to present case.
 - An EW has likely paid & made their own way to court & could be waiting around all day to be called.
- However, EWs are not always independent
 - They may be getting something out of it
 - Do genuine acts of altruism really exist?
- CPS sometimes use a co-accused (who will get a lesser sentence) as a witness.
 - E.g., Michael Stone case: cell mate used as prosecution witness – claims Stone admitted murders.
 - Would have received some kind of reward?

EXPERT WITNESS SURVEY RESULTS FROM THE EXPERT WITNESS ADVISORY GROUP

- Aim: to gain better understanding of experiences of BPS Psychologists working as expert witnesses in civil & criminal courts.
- Some Key Findings:
 - Less than 2/3 report receiving specific training.
 - New civil & family procedure rules resulted in changes to instruction, including capped fees & revised timescales.
 - Half admitted there had been occasions where they had been asked to change their opinion/conclusions by the person who had instructed them.
 - Half indicated that they never/seldom received feedback on their work
- See: www.bps.org.uk/who-we-are/professional-practice-board/expert-witness-group

EYEWITNESS MEMORY: IMPORTANCE

- Loftus (1974): Undergrad students as mock jury presented with “evidence” about a murder during a robbery.....

Type of “Evidence”	% Conviction
1. Circumstantial	18%
2. Circumstantial + EW ID	72%
3. Circumstantial + EW ID but with expert contradicting EW	68%

- Rattner (1988): 205 cases of exoneration by physical evidence in US.
 - Mistaken EW ID the main source of errors
 - Executions halted in Illinois.

EYEWITNESS MEMORY: IMPORTANCE

- Brandon & Davies (1973); Huff, Rattner, & Sagarin (1986):
 - Examined over 1000 wrongful convictions
 - Primarily due to EW error.
- Introduction of physical evidence e.g., finger printing, much more reliable.
 - EW can pick out innocent person.
- Wells (1993) can never remove problem of ID error but can improve ratio of accurate to false IDs.
- False IDs are often “honest errors”
 - Perhaps due to over eagerness to be helpful?

IMPORTANCE

- Most common method to identify a suspect:
 - Line-up: EW presented with number of individuals
 - One of which is the suspect
 - The remainder are “foils”
 - The line-up is considered a 2 stage process.
 1. Is the suspect in the line-up
 2. If so, which person is the suspect.

IMPORTANCE

- By applying SDT, researchers attempt to understand characteristics of line-up procedure that might influence how the witness responds.
- Variables that impact line-up process include:
 - Presentation method:
 - Inc. simultaneous vs. sequential; live vs. pictures
 - Instructions provided to witnesses.
 - Content
 - Behavioural influences

Wells & Olson (2003)

THE EFFECT OF LINE-UPS

- Inappropriately designed line-ups can impact EWs ability to ID a suspect.
- Wells, Seelau, Rydell, & Luus (1994):
 - Verbal descriptions should be obtained prior.
 - Foils should resemble suspect description.
 - Clothing of members in line-up must be considered.
 - Instructions must not be biased

THE EFFECT OF LINE-UPS

- Cutler, Fisher, & Chicvara (1989):
 - Generally photographic line-ups are inferior to live ones
 - However, correct & false IDs are roughly similar in both.
- Photographic line-ups also have the following advantages:
 - Suspect/foils/EW do not have to be present at the station
 - Easier to construct fair line-up due to larger pool of photographs
 - Suspects in live line-ups can inadvertently draw attention to themselves.

THE EFFECT OF LINE-UPS

- Simultaneous line-ups:
 - Risk that witness will use **Relative judgment** Strategy:
 - Selecting line-up member most similar to “memory” of culprit – process of elimination (Lindsay, 1999).
 - May be acceptable if culprit is in the line-up.
 - But – what if true culprit not in line-up? False alarm.
- Sequential line-ups = less likely EW chooses innocent line-up member as it encourages conservative response criterion (Lindsay & Wells, 1985; Steblay et al., 2001).
 - EWs don't know size of line-up, which discourages relative judgements.
- However, this means hit rate will be greatly reduced (Grondlund et al., 2009; Meissner et al., 2001).

THE EFFECT OF LINE-UPS

- But: is there loss in accuracy with sequential line-up?
 - Memon & Gabbert (2003): 30% drop in accuracy with sequential.
 - Wells (2003): only a % of accurate IDs in simultaneous line-up come from relative judgement.
 - EW with weak memory may still choose suspect – An EW that's guessing will still be correct a certain % of the time.
 - But this EW may not be able to ID suspect in a sequential line-up
 - An EW in a sequential line-up usually has a strong memory
 - “Guessers” are not present in sequential line-ups.
 - So, drop in accuracy due to removal of weak witnesses: which is good thing!
- Speed of decision: 10-12 second rule:
 - Dunning & Perretta (2002) – time to ID linked to accuracy
 - Fast (less than 10-12 secs) – automatic and likely to be accurate
 - Slow – conscious deliberate process – perhaps trying to justify choice to themselves?

THE EFFECT OF LINE-UPS

- Line-up number: should be large enough to avoid guessing innocent person.
 - Usually 1 suspect & at least 5 foils
 - But foils need to be acceptable
- Luus & Wells (1991): foils that resemble suspect promote similarity, making it difficult to ID the suspect.
 - EW then needs to make use of extra-recognition info
- One technique used to identify weak witnesses is through “Dual line-ups”:
 - First line-up is “blank” line-up – where the target is absent.
 - If the EW does not choose anyone then a target present line-up goes ahead.

IMPORTANCE

- Instructions given to witness can also impact how they respond (Wells & Olson, 2003).
 - E.g., telling EW that suspect may **not** be in line-up reduces FAs – i.e., mistaken identification (Malpass & Devine, 1981).
 - As a result the US dep. of justice has added this instruction in to a set of guidelines for law enforcement (Technical Working Group for Eyewitness Evidence, 1999).
 - Thoughts????

EW CONFIDENCE

- Once EW has made selection, usually they are told if they have selected the suspect from the line-up.
- This can impact EWs confidence levels in their judgement
- Wells & Bradfield (1998): post-identification suggestions lead to “false certainty” that culprit was correctly identified.
- Even when true culprit was not in the line-up, FAs were accompanied by inaccurate overconfidence in judgement.

EW CONFIDENCE

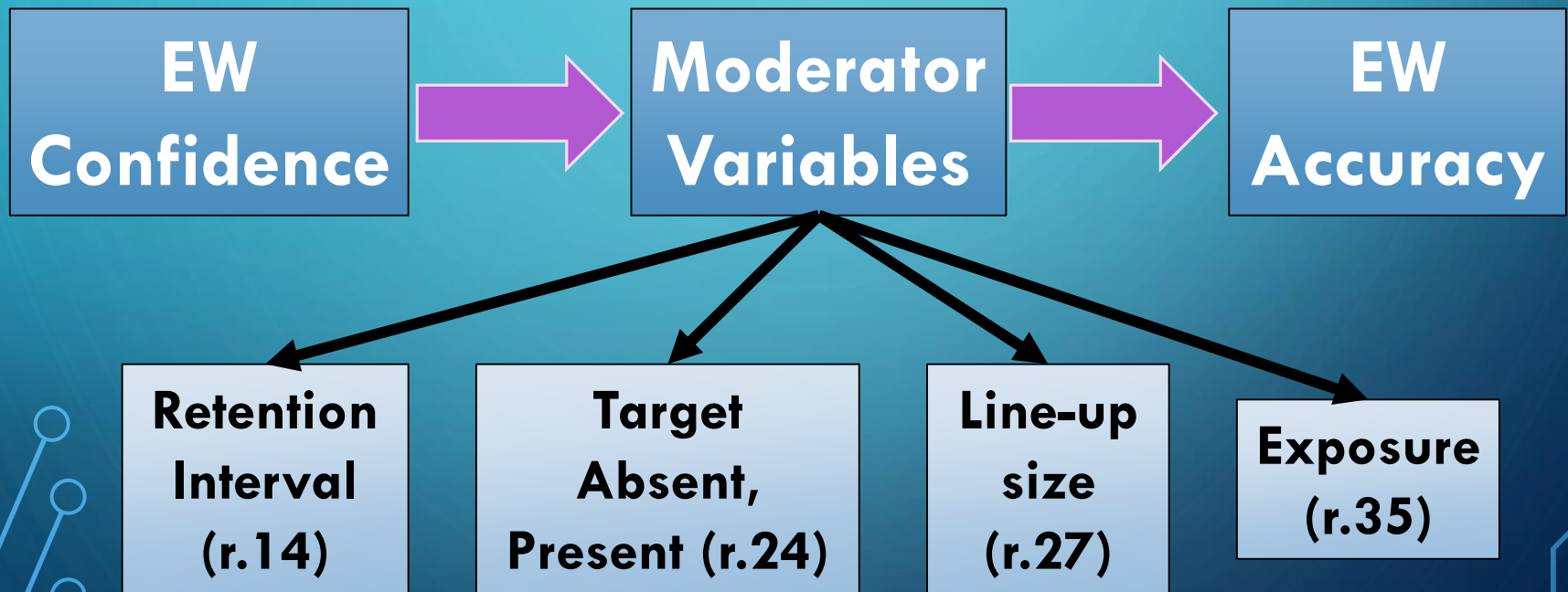
- When these type of EWs appear in court to testify against a suspect:
 1. They are more convinced the suspect is the culprit
 2. Jury's are more easily convinced by their confidence
- General assumption:
 - A highly confident EW is an accurate EW.
 - Cutler, Penrod, & Dexter (1990): juries rates of conviction only affected by EW confidence.
 - Wells, Lindsay, & Ferguson (1979): perception of EW confidence accounts for 50% variance in juror's judgement of EW accuracy.

EW CONFIDENCE

- US Supreme court: 1 of 5 criteria for evaluating reliability of EW ID is their confidence.
- Wells & Murray (1984): no significant relationship between confidence of EW and accuracy.
 - Thus, juries should not use confidence as a measure of accuracy.
- Wells & Olson (2003): Line-ups should thus be administered by someone who does not know which line-up member is the suspect (if indeed present).

MODERATOR VARIABLES

- Bothwell, Deffenbacher, & Brigham (1987):
 - Meta analysis of 40 exps. from 35 studies
 - Average Confidence Accuracy (CA) relationship = .25 (moderate but sig)



- Strength of relationship is mediated by variables – shows the need to measure these in real-life cases.

MODERATOR VARIABLES

- Factors affecting quality of memory also influence confidence
- The confidence accuracy relationship is strongest when encoding & retrieval conditions are optimal.
 - Length of time to view suspect (Deffenbacher, 1980)
 - Distinctiveness (Cutler & Penrod, 1989).
- However: quality of “foils” in line-up impact CA

Line-up Conditions	Mean Confidence
1. Foils similar to witness description	3.68
2. Foils similar to suspect	3.80
3. Foils resemble neither	4.46



**Police usually use this –
Should they?
Does it bias choice?**

Wells, Rydell, & Seelau (1993)

MODERATOR VARIABLES

- Wells et al. (1993): foil selection has influence on accuracy while confidence is related to encoding conditions.
 - Good encoding conditions = higher confidence
 - Good line-up conditions = better accuracy
- Confidence can also be altered in the opposite way:
 - E.g., “Are you really sure?” “Do you want another look?”
 - Wells & Bradfield (1998, 1999)
 - Can influence memory retrospectively.
- Garrioch & Brimacombe (2001): Line-up administrators can influence post-ID confidence even without any post-ID feedback.
 - E.g., through intonations, tone of voice, agitation, & other non-verbal behaviour.

POST-IDENTIFICATION FEEDBACK

- Although, post-ID feedback can work to an advantage
- EWs with strong memory not influenced by post-ID feedback (Bradfield, Wells, & Olson, 2002).
 - Strength of internal cues to accuracy vs. external cues.
 - When internal cues are weak, EWs rely on external cues
 - EWs with poor memory look to info during line-up to make decision

Semmler, Brewer, & Wells (2004):

Show Ps a video: Thief = 70 secs; full/partial view = 23.1 secs

LINE-UP: 8 members; TA/TP

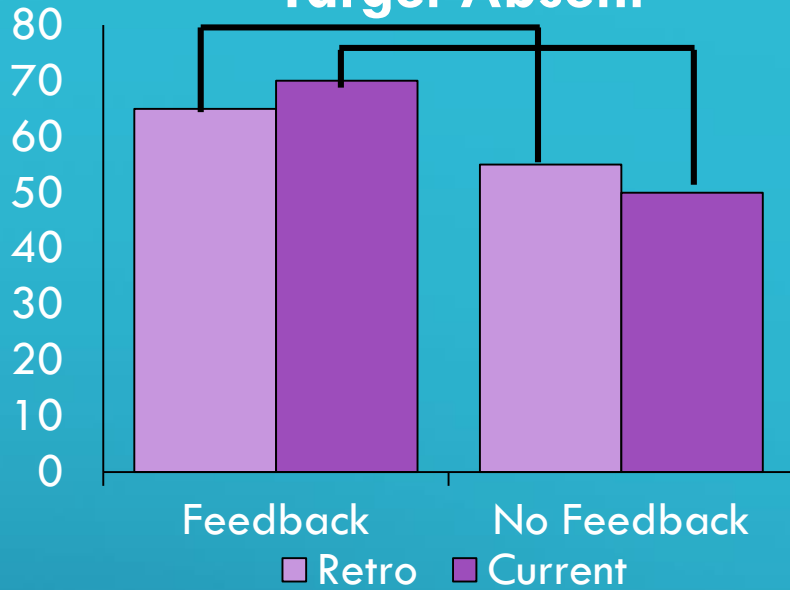
FEEDBACK: “84/87 made same decision as you”

NO FEEDBACK

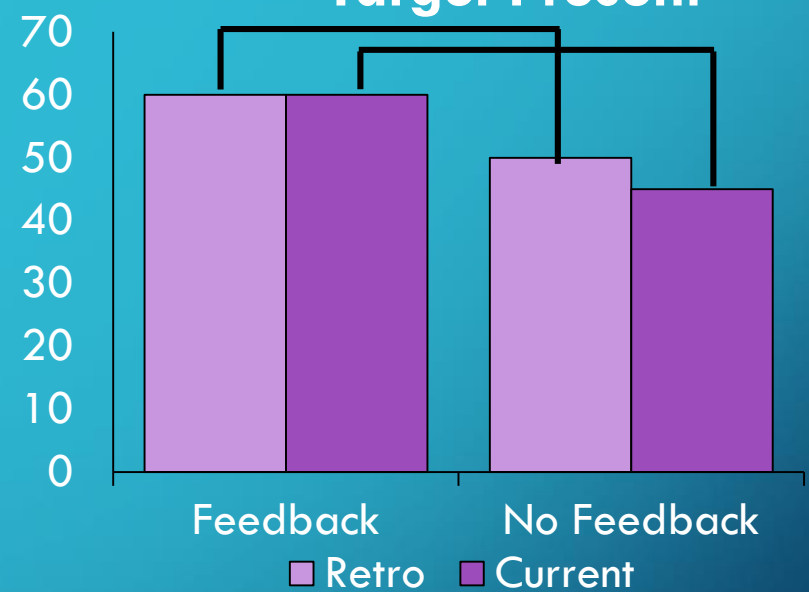
CONFIDENCE: retrospective & Current

SEMMLER, BREWER, & WELLS (2004)

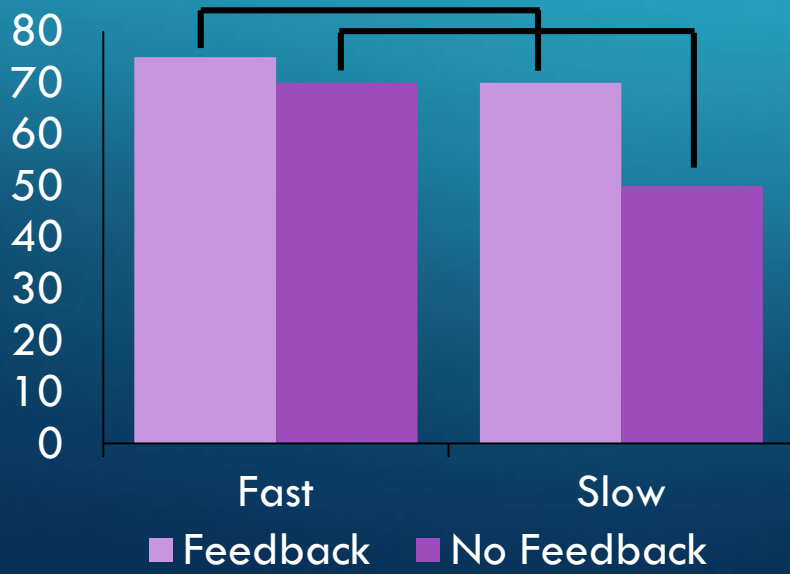
Target Absent



Target Present



Current Confidence



Retrospective Confidence



EYEWITNESS MEMORY

- EWs make honest errors
 - However, jurors misinterpret confidence
- Seems to be a relationship between C & A.
 - However, there are many variables that influence this relationship
 - Some are counterintuitive
- Confirming or disconfirming feedback during line-ups affects EWs with weak memories
 - Fast choosers have stronger memories & higher confidence (and accuracy?) than slow choosers.
 - However, post-ID feedback can abolish this effect.

SUGGESTIBILITY

- Misleading info can intentionally &/or unintentionally be communicated to EWs:
 - Leading questions from investigators
 - Content of questions
- Misinformation can “fill-in” gaps in memory/contradict memory.
- Co-witness effects:
 - In time between witnessing event & police arriving, EW may talk to other witnesses who may have seen something different (possibly due to difference in interpretation, difference in viewpoint, etc.), which can **contaminate** the EWs memory.
- Lots of experimental work by Elizabeth Loftus:
 - Loftus & Palmer (1974): Video of car accident
 - PEQ: “How fast were cars travelling when they hit/smashed/bumped/etc.
 - 1 week later: “Did you see broken glass”: response dependent on wording
 - Reports of car speed ranged depending on wording.

SUGGESTIBILITY

- Loftus suggests 2 types of info are encoded to memory:
 - Info encoded during initial event
 - Info encoded after event (e.g., by learning new info)
 - Info from both sources becomes integrated to single memory representation
 - Memory is updated either by adding/subtracting info.
- Loftus, Miller, & Burns (1978): Ps shown car sat at stop sign.
 - PEQ: “Did another car pass while the red car was stopped at the give-way sign?”
 - Ps given recognition test for original vs. misleading slide
 - Sig decrease in recognition accuracy for original slide when misleading info given
- How does misinfo affect memory? Destructive Updating.....
 - We have single memory representation, which can be updated with leading info
 - New or contradictory post-event info may integrate into existing memory
 - Original memory trace destroyed and replaced by post-event misleading trace
 - In EW situations there is no opportunity to re-encode the info.
- However, Loftus’ work has received major backlash & criticism.

SUGGESTIBILITY – NON RETENTION ACCOUNT

- McCloskey & Zaragoza (1985): even if misinfo has no effect on memory, misled Ps will still choose original items less than controls
 - Why? Because perhaps the original item has decayed anyway or was never encoded to begin.
 - Thus, PEQ provides a source of memory
 - Ps who cannot remember the original item can base their choice from the misinfo in the PEQ.
- Major issue with suggestibility research = Demand characteristics
 - Is there an actual change or do Ps go along with it because they assume experimenter must be correct? Shows there is a problem with the paradigm.
- Control Ps:
 1. Remember original item → choose original (50% of Ps are correct straight away)
 2. Do not remember original item → $\frac{1}{2}$ guess original, $\frac{1}{2}$ guess misinfo
- Misled Ps
 1. Remember original item → choose original
 2. Do not remember original or misinfo → $\frac{1}{2}$ guess original, $\frac{1}{2}$ guess misinfo
 3. Remember original & Misinfo → $\frac{1}{2}$ guess original, $\frac{1}{2}$ guess misinfo
 4. Remember misinfo → choose misinfo

SUGGESTIBILITY – NON RETENTION ACCOUNT

- McCloskey & Zaragoza (1985): modified test.
 - Remove misinfo as a choice at test
 - Equilises guessing rates across conditions
 - Removes demand characteristics
 - If memory for original item remains, misled Ps should choose original
 - If original memory decayed, misled Ps should perform at chance
- However:
 - Misinfo effect with modified test:
 - Chandler (1989, 1991); Chandler & Gargano (1998)
 - Belli et al. (1992)*
 - Ceci et al. (1987)*
 - Toglia et al. (1992)*

* = retention intervals 3-7 days
 - NO misinfo effect with modified test:
 - Belli (1993); Belli et al (1992)#
 - Bonto & Payne (1991)#
 - Loftus et al. (1989)#
 - McCloskey & Zaragoza (1985)#; Zaragoza et al. (1987)#

= retention intervals 30 minutes or less

REVISION OF DESTRUCTIVE UPDATING HYPOTHESIS

- Loftus & Hoffman (1989): original trace not destroyed by misinfo
 - Introducing misinfo simply weakens original trace leading to disintegration of features of trace
 - Original trace may remain in memory in degraded form & thus retrievable under some conditions.
 - McCloskey & Zaragoza found no misinfo effect because their Ps had just enough features of original trace left.
- Reversed suggestibility effect: Lindsay & Johnson (1989):
 - Ps read narrative describing cluttered office scene
 - Some info consistent with yet to be seen slide
 - Some info inconsistent with yet to be seen slide (8 additive items suggested)
 - Ps then view slide depicted from narrative
 - Yes/no test for items in picture
 - Misled Ps state they have seen the suggested items more than controls.
 - Shows source monitoring error.

RETRIEVAL FAILURES

- Based on Tulving's Encoding specificity principle
- If cues at retrieval do not match those at encoding, Ps are more likely to make an error.
- Presentation order of information (sequential or random) can also impact accuracy of misled Ps (Bekerian & Bowers, 1983)
- So can witnesses be misled?
 - To some degree, but not as easily as we might think.
 - Need to consider social factors or demand characteristics
 - Shouldn't underestimate EW wanting to be helpful
 - Weak memories likely to be most vulnerable
 - Blending of memories may be possible
 - Retrieval failures and source misattribution need to be considered.

EW MEMORY – INTERVIEWING TECHNIQUES

- 1970s: recognised that although police spent most of their shift talking to the public, very few had formal training.
- Mid 1980s: 'Standard Police Interview' used to gather account of an EW.
 - Interviewer driven and consisted of question-answer format
 - But lots of interruptions
- Shift then to request narrative from the EW
 - Specific Qs asked in order to clarify points & expand on info
 - Repeated questioning used to test for consistency
 - No specific memory techniques to aid recall.
 - Gives an implication of standardisation but in fact it is not.
 - Instead based on experience of interviewer
 - Involves aspects of common sense but no indication of how it works.

EW MEMORY – INTERVIEWING TECHNIQUES

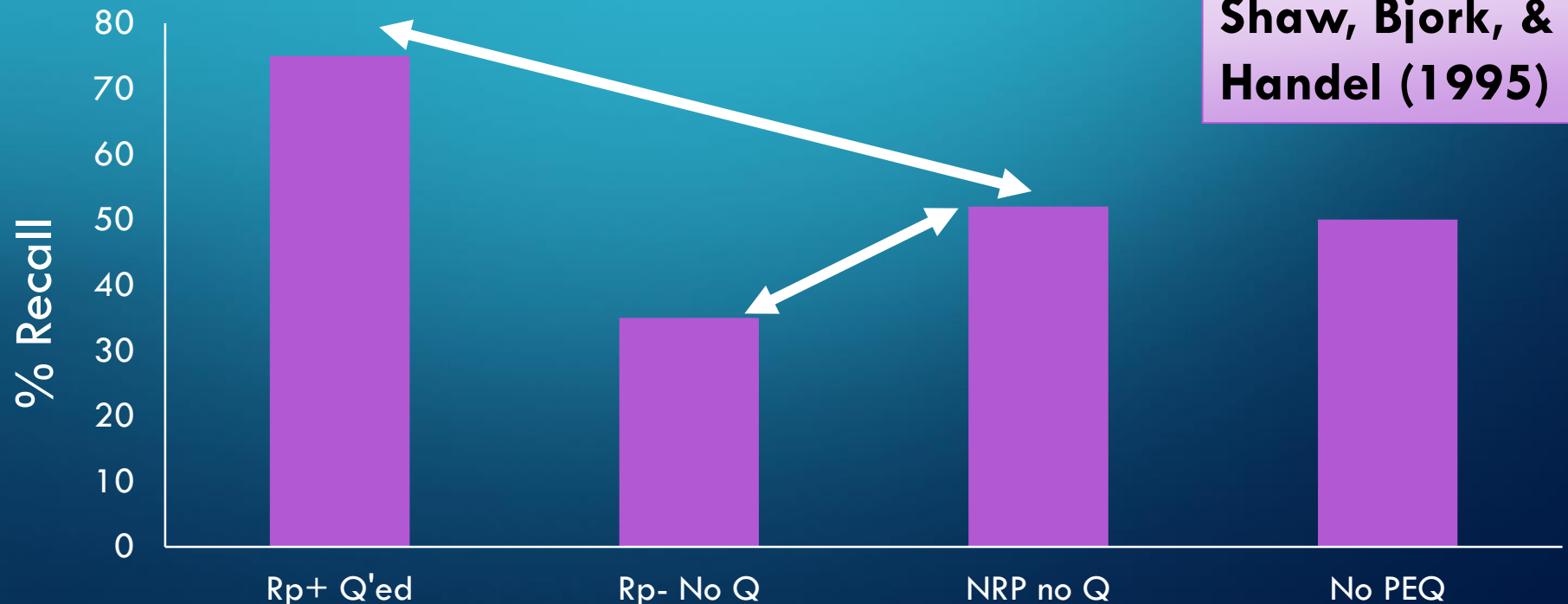
- Phrasing of Qs critical: Loftus & Zanni (1975) – use of definite (“the”) vs. indefinite article (“a”).
- Ordering of Qs critical: Hillgard & Loftus (1979):
 - EW should report incident in own words first – aims to reduce interviewer influencing EW with leading Qs or post-event info.
 - Info provided from free recall Q more accurate than info given in response to specific Q.
- Repeated questioning critical: strengthens memory and facilitates performance (good if there’s a long time between event & court case)
 - However, difficult to continuously go over everything, so items that have not been questioned are forgotten – sometimes even more so than if no questioning was conducted at all (RIF effect).

INTERVIEWING TECHNIQUES – REPEATED QUESTIONING

**Wallet stolen from student halls: Police called & Ps view slides:
8 sweatshirts / 8 textbooks**

**Incomplete PEQ takes place for ½ items from one category.
No items from another category questioned**

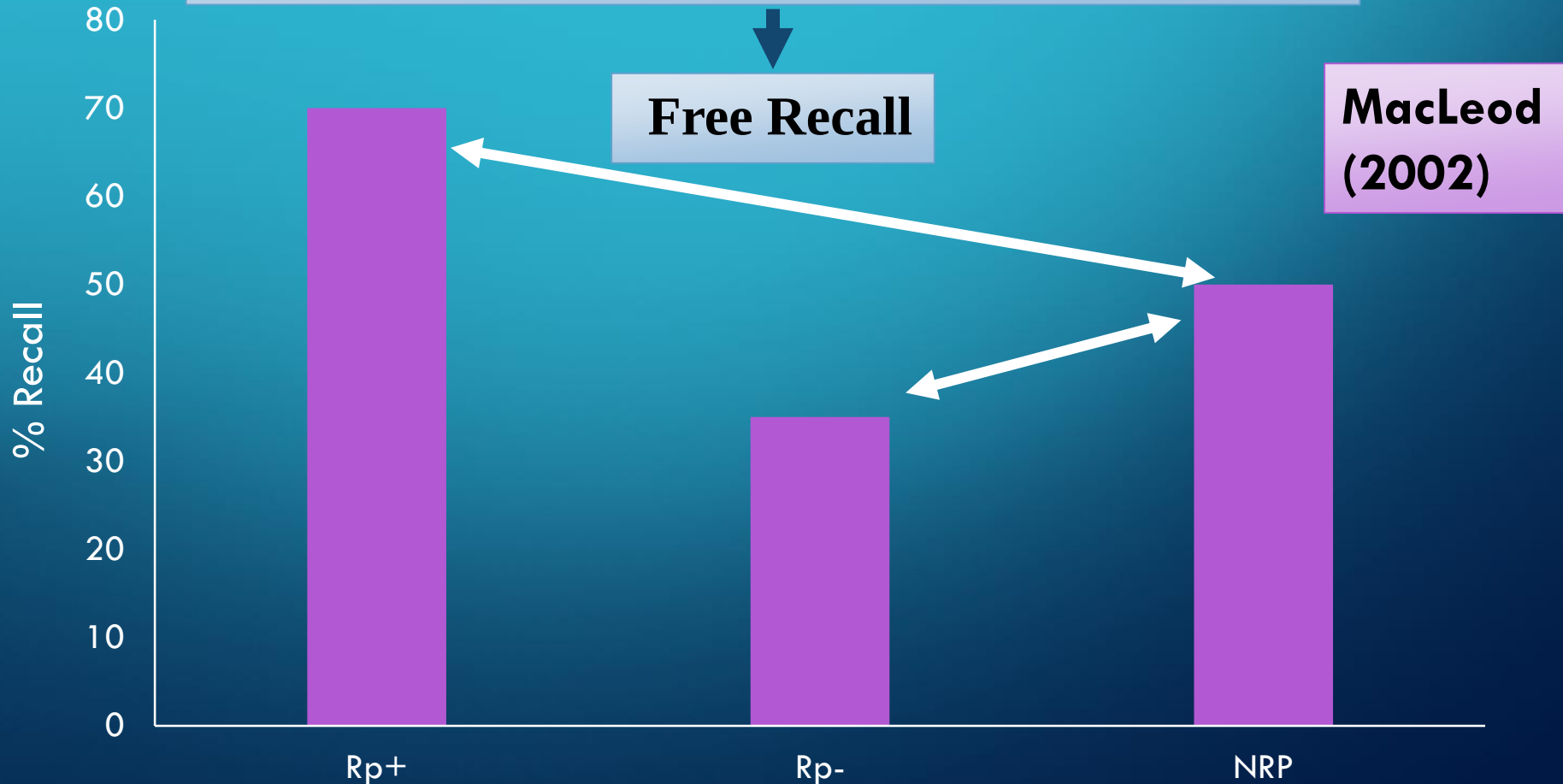
Free Recall



INTERVIEWING TECHNIQUES – REPEATED QUESTIONING

Ps presented with slides: Blond woman/Brunette woman

Incomplete PEQ for $\frac{1}{2}$ items from one category.
No items from another category questioned



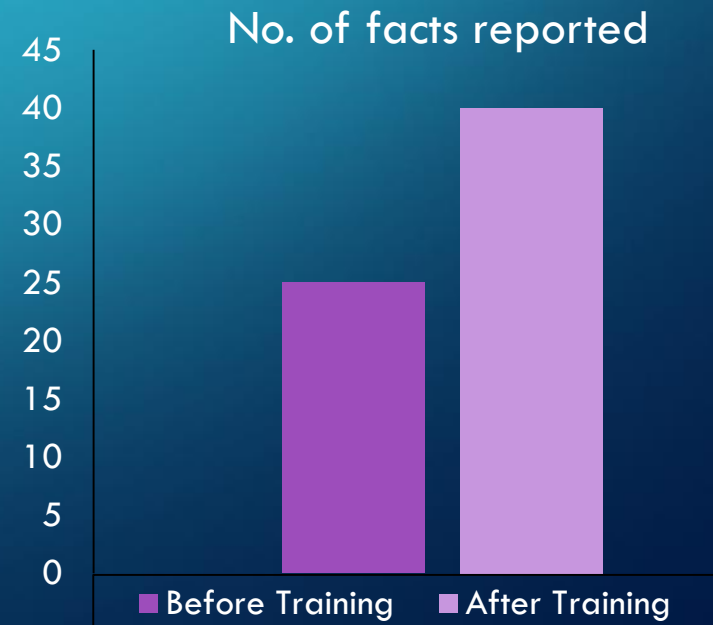
THE STANDARD COGNITIVE INTERVIEW

- Based on Tulving's Encoding specificity Principle:
 - Degree of overlap between trace & cue
 - Inappropriate cues = non-optimal retrieval
 - Many retrieval routes to a single memory trace
 - Employment of appropriate cue(s) will successfully retrieve target trace.
- Four General components of the Cognitive Interview:
Geiselman, Fisher, MacKinnon, & Holland (1985)
 1. Reinstatement context of event (physical, emotional, environmental)
 2. Report every detail (even if unimportant & not confident)
 3. Recall event from different temporal orders (retrieving event in chronological order may lead EW to interpret how they *think* the event should have occurred).
 4. Recall event from different viewpoints/perspectives (but need to be cautious of confusion)
- Police & EWs not keen on 3rd & 4th components

THE STANDARD COGNITIVE INTERVIEW

- Increases % of info recalled to between 10-98%.
- Variance between studies based on a number of factors:
 - Level of cooperation between interviewer & EW
 - High = sig increase in success of CI
 - Level of emotional arousal of EW
 - High = sig decrease in success of CI
 - Redesigned CI to increase cooperation = Enhanced CI

- Enhanced CI in the Field:
- Fisher, Geiselman, & Amador (1989)



THE GUIDED MEMORY INTERVIEW (GMI)

- Based on principles of context reinstatement
- Encourages EW to mentally reinstate environmental & emotional context of event to guide memory.
- Malpass & Devine (1981):
 - Ps witness act of vandalism
 - Ps view photo line-up 5 months later
 - Ps guided through GMI for each step of incident
 - Asked for full description & asked to visualise each sequence of events
 - Form image of suspect, describe appearance
 - Findings: recognition of suspects better than controls.
- So, can EW memory be improved through interviewing.....
 - Techniques based on well-known Cognitive principles have some success
 - Better than no technique – but experience of interviewer helps.
 - Social factors sometimes underestimated
 - Vulnerable EW may not respond well with Cognitive technique.
 - Questioning can improve memory but underestimates negative consequence of incomplete repeated questioning.

DESCRIBING FACES

- EW needs to be able to describe face of a suspect in order for the police to know who to look for.
- However, how do they put a visual image in to words?
 - Dual-code theory:
 - Visual code: global info- how face fits together (not just component parts).
 - Verbal code: specific info containing verbal labels
 - Independent & additive – e.g., “They had a big round nose”
 - Advantage = If they cannot remember one type then hopefully they have the other as a back-up.
- Consequences of verbal processing:
 - Positive:
 - Elaboration – meaningful labels are associated with new stimuli.
 - Repetition – rehearsal helps the memory of visual info
 - Negative:
 - Discriminating targets from distractors is difficult if they are similar

DESCRIBING FACES – VERBAL OVERSHADOWING (VO) EFFECT

Ps watch video of bank robbery

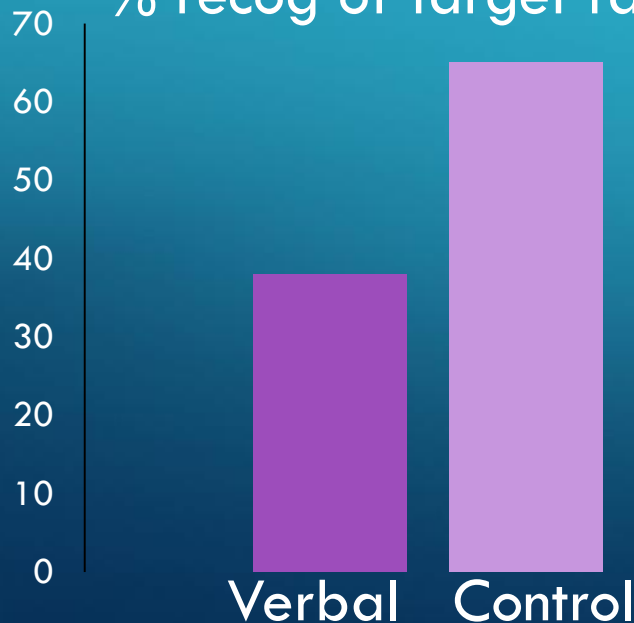
Describe culprits face for 5 mins

Controls do distracter task

Shown slides of 8 verbally
similar faces

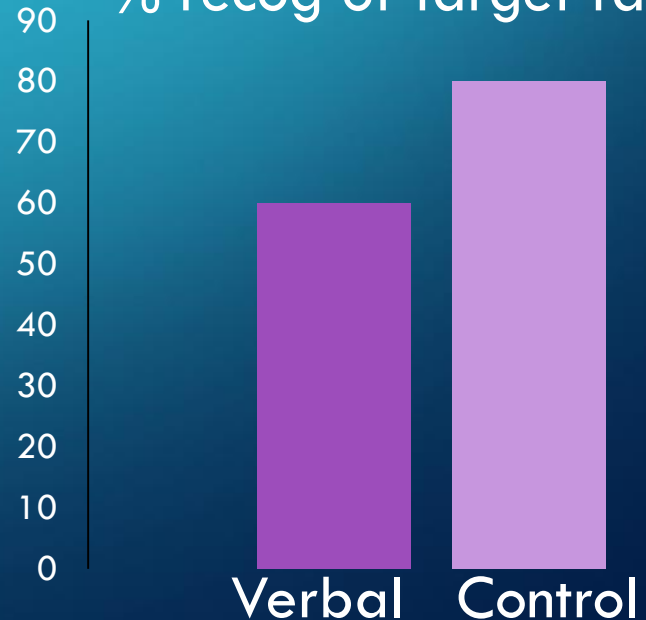
**Schooler & Engstler-
Schooler (1990)**

% recog of target face



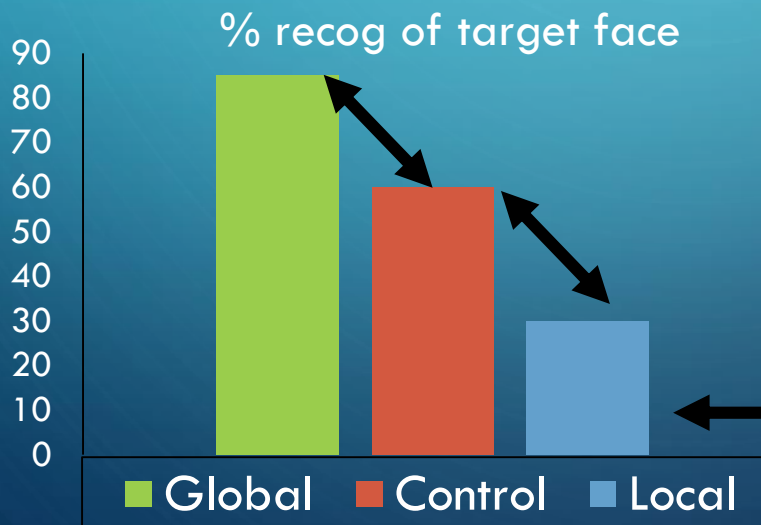
**48 hours
later**

% recog of target face



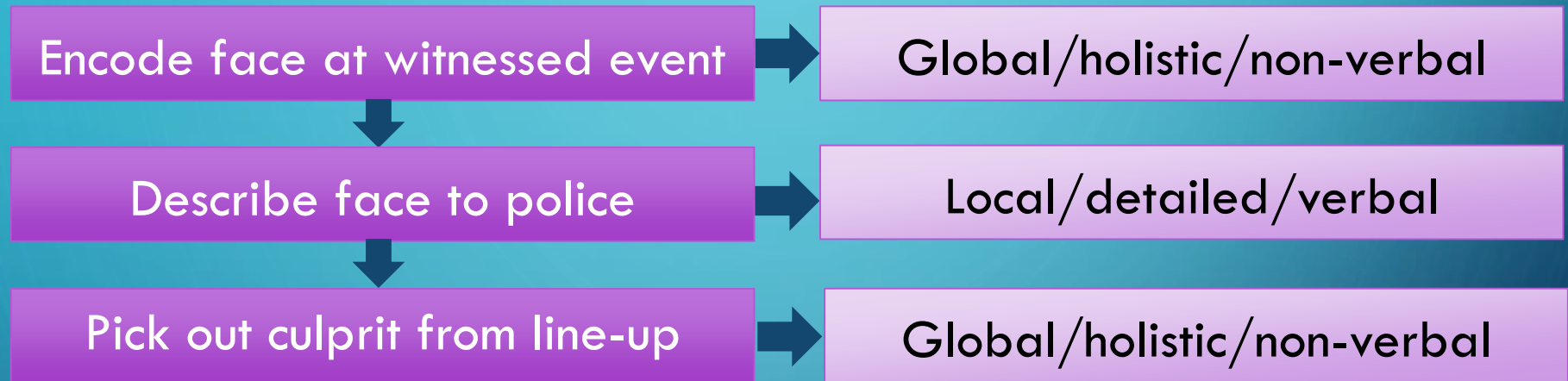
VO: RETREIVAL ACCOUNT

- Recoding Interference: verbal memory accessed but loss of retrieval availability to visual memory.
- Global vs Local processing: Macrae & Lewis (2002)
 - Letter ID task with 100 mismatching letters
 - 1. Global processing condition
 - 2. Local processing condition
- Face recognition test



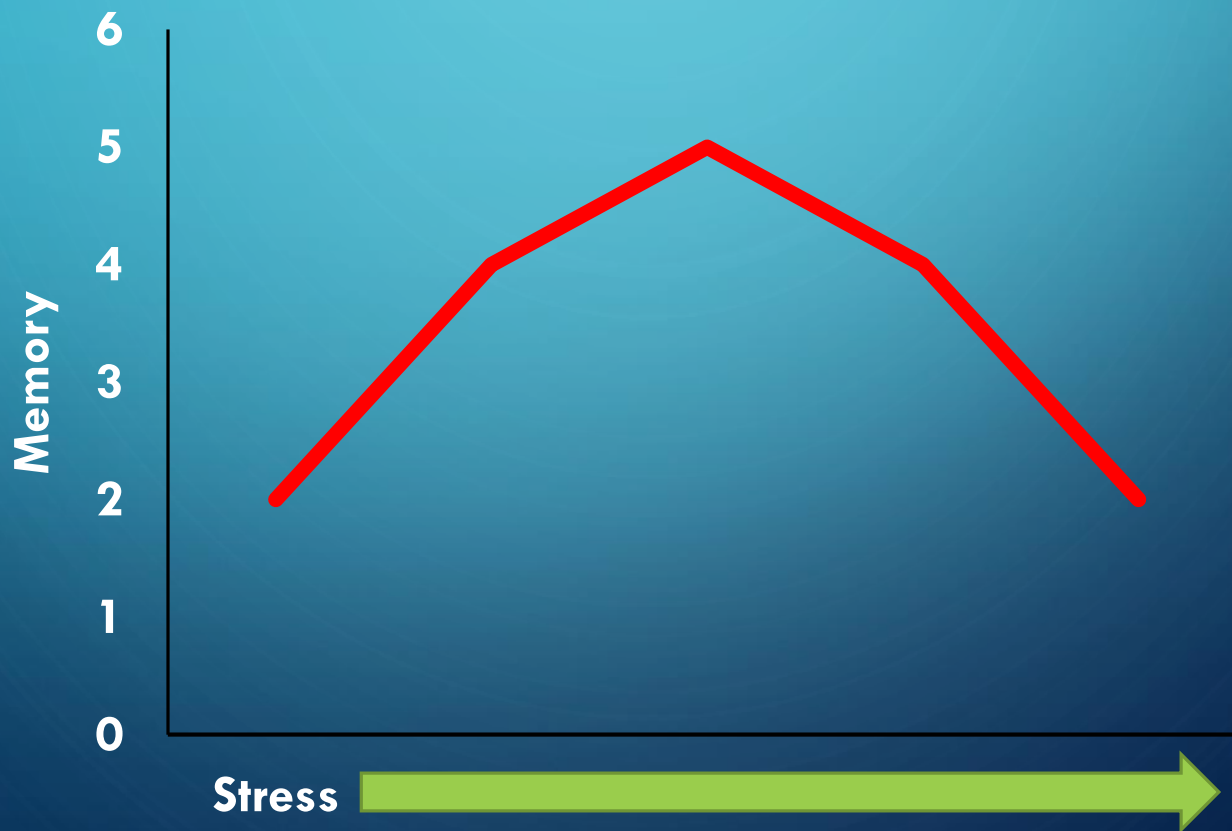
VO effect

MODALITY MISMATCH



VIOLENCE & WEAPON FOCUS

- Stress, high emotion, & violence of event are thought to be detrimental to an EW's memory.
- Easterbrook (1959): Cue-utilisation hypothesis



VIOLENCE & WEAPON FOCUS

- **Weapon Focus:** when attention is directed towards a weapon (due to threatening nature), less attention is allocated to other stimuli.
 - E.g., the suspects face, clothing, voice, etc.
 - The weapon becomes the central component of the event and impacts how the EW encodes other info.
 - Memories are formed from where attention is allocated.
 - Using techniques to try to retrieve memory will not work if the “other” info was not encoded in the first place.
- **However:** is the EWs detrimental memory due to weapon focus?
 - Loftus (1980): suggests it's high emotion/stress during encoding not the weapon itself.

EMOTIONAL ACCOUNT OF WEAPON FOCUS

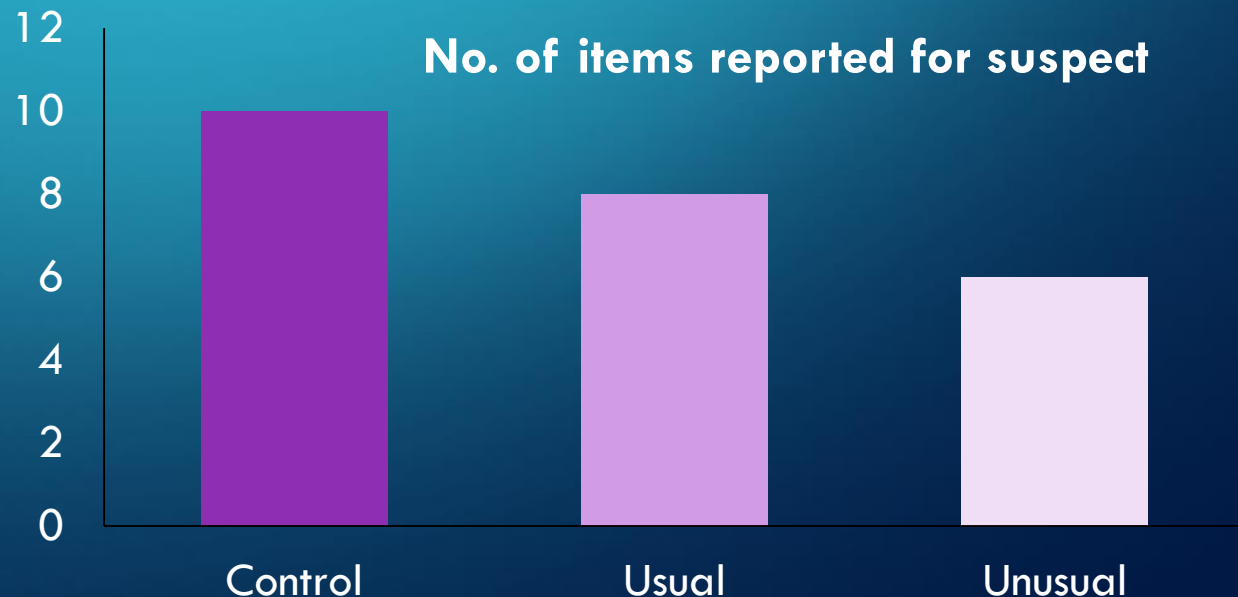
- Christianson (1992): Difference between central & peripheral details of event:
 - Central details: memory for negative emotional events better than neutral
 - Peripheral details: memory for negative emotional events poorer than neutral.
- Loftus, Loftus, & Messo (1987): Attention, eye fixation, & memories are connected.
 - When Ps shown man in a bank holding a weapon, sig less Ps could ID him compared to when he was holding a cheque.
 - In concordance, eye fixation time was sig more on the weapon than on the cheque.
 - However: can poor ID of suspects by EWs purely be explained through the emotional arousal of weapon focus???.....

THE ROLE OF UNUSUALNESS

- Pickel (1998): The chicken in the hairdressers study.
 - Manipulated threat & unusualness:
 - Ps watched video of man entering hair salon:

1. Scissors (high threat, low unusualness)
2. Gun (high threat, high unusualness)
3. Wallet (low threat, low unusualness)
4. Raw chicken (low threat, high unusualness)

- Dangerousness of object had no effect.
- But unusualness did.



WEAPON FOCUS IN REAL CASES

- For real EW, it is not as simple as the lab work implies
- Tollestrup, Turtle, & Yuille (1994): examined archival analysis of victims & EWs to robbery:
 - Expected better memory from witnesses compared to victims – but no difference found.
 - Weapon present did not decrease number or accuracy of details
 - Weapon present did decrease accuracy of suspect ID.
- Christianson & Hubinette (1993): 110 real victims & EWs to robbery:
 - Victims remembered more than bystanders (accurate, detailed, & long-lasting).
- Yuille & Cutshall (1986): Only way to study effect of stress is through real cases – lab work cannot simulate threatening situation.
 - Lab & field work lead to formation of qualitatively different memories.

WEAPON FOCUS IN REAL CASES

- Christianson (1992): but stress cannot be measured objectively in the field – there is no neutral comparison.
- So, does violence impact EW memory?
 - Different outcomes from lab & field studies
 - Lab work suggests there is memory impairment
 - Field work is very mixed
 - Some find detriment to memory
 - Some find enhancement of memory
 - Some find no difference
- In sum: there are a number of different aspects that can impact an EWs memory for an event.
 - Further research is needed to ensure appropriate mechanisms are put in to place to ensure best possible outcome for all involved.