What Have We Learned About Eyewitness Memory?

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Studies about Misinformation

1. Encode Event
2. Post-event narrative
3. Memory test

Watch some episode 5min – 2 weeks Narrative or related questions 5min – 1 week Final Test – What Did You Originally See
Semantic Integration of Verbal Information into Visual Memory

Loftus, Miller, & Burns, 1978
Misleading post-event information negatively affects memory for the original event
Can Investigators Rely on Witness Reports?
What does misinformation do to memory for what was originally experienced?

Most people believe that memory is reproductive in nature. This belief results in limited critical evaluation of “retrieved” information. We retrieve something, we generally think that it must have happened.

What happens if people are given information about how memory works? What if witnesses are encourage to think about how and why some information came to mind? Might this information result in changes in the way they approach evaluation of memory?
Exercising Metacognitive Control Over Memory
Towards a Psychology of Memory Accuracy
General Scope of this Talk

I. How a witness is questioned matters

II. How often a witness is questioned matters

III. Who the witnesses are matters

IV. How the witnesses feel matters
How to Question a Witness
From a drawer that holds valuables, he removes a piece of **jewelry**. (neutral)

From a drawer that holds valuables, he removes a **necklace**. (misleading)
When Told to Generally Question Information

Watch some episode
5min

Narratives
5min

General Warning

Final Test – What Did You Originally See
“You will have to answer questions regarding the episode you previously watched. We just played a narrative of that episode; however, we are uncertain as to the source of the narrative. Therefore, we were unable to verify the accuracy of the narrative. As such, base your answer only on what you saw in the episode, and not on what you heard in the narrative.”
When Told to Generally Question Information

Video Recall Accuracy

No Warning
- Neutral: 0.6
- Misleading: 0.44

General Warning
- Neutral: 0.63
- Misleading: 0.58

Thomas, Bulevich, & Chan (2010) JML
Telling the Witness that Some Information is Known to be Incorrect

What does the thief take from the drawer? (hint: it is not a necklace)
From a drawer that holds valuables, he removes a **necklace**.

What did the thief remove from the drawer?

**Hint:** not necklace
We Know This Specific Information is Wrong

Video Recall Accuracy

- No Warning: Neutral 0.6, Misleading 0.44
- General Warning: Neutral 0.64, Misleading 0.58
- Specific Warning: Neutral 0.63, Misleading 0.65

Thomas, Gordon, Hughes & Bulevich (in progress)
Warnings at retrieval encourages metacognitive processes
Retrieval-based monitoring
Forcing Responding vs. Encouraging Accuracy: Retrieval Based Control

Watch some episode | 5 min | Narratives | 5 min | Final Test – What Did You Originally See

Forced Recall | Free Recall
Forcing Responding vs. Encouraging Metacognitive Control

Bulevich & Thomas (2012) JML
What Do These Studies Tell Us About How to Question a Witness?

Post-event information (misinformation) does not overwrite, destroy, memory for original details.

General and specific warnings about interfering information can improve the efficacy of the search for original event details.

Allowing people to exercise control (use metacognitive processes) when answering questions improves accuracy.
When and How Often to Question a Witness
Introducing Retrieval Before Misinformation

Watch episode 10 min Narratives 5min Final Test – What Did You Originally See

Watch episode 5min First Test – What Did You See Narratives 5min Final Test – What Did You Originally See
Does Early Testing Help?

- Standard Test:
  - Neutral: 0.72
  - Misleading: 0.63

- Repeated Test:
  - Neutral: 0.79
  - Misleading: 0.49

Chan, Thomas, & Bulevich, 2009
Introducing Retrieval *Before* Misinformation and Warning

Watch episode  
10 min  
Narratives  
5 min  
General Warning  
Final Test – What Did You Originally See

Watch episode  
5 min  
First Test – What Did You See  
Narratives  
5 min  
General Warning  
Final Test – What Did You Originally See

Thomas et al. (2010)
Warning in the Context of Repeated Retrieval

Thomas et al. (2010)
Introducing Retrieval Before Misinformation

Watch episode 10 min Narratives 5 min Final Test – What Did You Originally See
Watch episode 5 min First Test – What Did You See Narratives 5 min Final Test – What Did You Originally See
Watch episode 10 min Narratives 48 hours Final Test – What Did You Originally See
Watch episode 5 min First Test – What Did You See Narratives 48 hours Final Test – What Did You Originally See

Thomas, Cernasov, Gordon, & Bulevich (2017) CRPI
Timing of Tests

Thomas, Cernasov, Gordon, & Bulevich (2017) CRPI
What Do These Studies Tell Us About How Often to Question a Witness?

Retrieval can cut both ways (double edge-sword)

Increase errors when retrieval occurs prior to misinformation

Repeated retrieval improves long term retention and source discrimination
Who The Witness is Matters

Focus on Older Adults
Older Adults Encouraged to be Accurate: Metacognitive Control at Retrieval

- Watch episode
- 5min
- Narratives
- 5min
- Final Test – What Did You Originally See

Forced Recall

Free Recall
Encouraging Accuracy is Not Enough

- Watch episode: 5min
- Narratives: 5min
- Standard Instructions
- Final Test – What Did You Originally See

Forced Recall

Free Recall

- How to monitor source
- Final Test – What Did You Originally See
Encouraging Accuracy with Additional Support

Bulevich & Thomas (2012) JML
How The Witness Feels Matters
Research suggests that older adults perform more poorly on these kinds of memory tests.

Thomas, Smith, & Mazerolle (under review) JoG: Series B
Anxiety over Reporting

Video Recall Accuracy on Final Test

Young Adults

- High Threat: Neutral 0.53, Misleading 0.75
- Low Threat: Neutral 0.39, Misleading 0.79

Older Adults

- High Threat: Neutral 0.47, Misleading 0.57
- Low Threat: Neutral 0.44, Misleading 0.58

Thomas, Smith, & Mazerolle (JoG0
Misinformation and Anxiety About Memory

Encode Event → Post-event narrative → Memory test Video or Narrative is Correct

Psychosocial Stress

Smith, Dijkstra, Gordon, Romero & Thomas (in prep)
The bar chart illustrates the average proportion of omission errors in a control and stress condition for neutral and misleading items. The y-axis represents the average proportion of omission errors, ranging from 0.0 to 0.4. The x-axis indicates the condition (Control, Stress). The error bars indicate the variability in the data. In the control condition, neutral items have a lower average proportion of omission errors compared to misleading items. However, in the stress condition, both neutral and misleading items show a higher average proportion of omission errors, with misleading items having a notably higher value.

Smith, Dijkstra, Gordon, Romero & Thomas (in prep)
Who the witness is and how the witness feels matters

Older adults – biased responding hard to override

Anxiety about memory or performance may result in a change in control processes – resulting in more losses of correct information

Learning information under stress also results in a change in control processes
Memory is reconstructive and prone to error, but witnesses can exercise control.

Metacognition in this context is extremely important.
Acknowledgements