

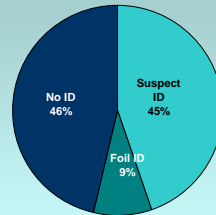
## Memory characteristics of eyewitness identification

Tim Valentine



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## Archival data from police identity parades: 1973

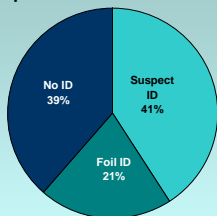


Outcomes of 2,116 police live lineups held in England and Wales 1973

Devlin (1976)

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## Archival data from police identity parades: 2000



Outcomes of Metropolitan Police lineups when suspect is not known to the witness (584 witnesses)

Valentine, Darling & Pickering (2003)

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## Archival data from police identity parades

- Much eyewitness research aims to minimise the rate of foil identifications.
- Rate of foil identifications has increased since 1973 (9% vs. 21%).
- Is the increase a problem?
  - Foil identification does not lead to wrongful conviction but does show witness is not reliable
  - Is it a result of fairer lineups? (i.e. more foils resemble the appearance of the suspect).
- Wrongful conviction result from identification of the police suspect in a culprit absent lineup.
  - We don't know which lineups are culprit absent!

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## Mistaken identifications as a false memory

- Don't worry about foil identifications – they are an indication that the lineups are working.
- How can we distinguish an accurate identification of the perpetrator from a mistaken identification of an innocent suspect?
- Cf. How can we distinguish a true from a false memory?

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## Source Monitoring Framework

- Memories from different sources (e.g. inferred vs. perceived) differ in average qualitative characteristics.
- Differences are used to judge source of memory.
- Characteristics for judging source include cognitive operations at encoding:
  - Perceptual
  - Contextual
  - Affective

(Marcia Johnson and colleagues)

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## Deese, Roediger & McDermott paradigm

- P hears words associated with a lure:
  - thread, pin, eye, sewing, haystack etc.
  - Lure word; needle
- P likely to recall (or recognise) the lure, often at same rate as presented words.

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## Memory characteristics of false memory

- Stimulus words read with a male or female voice using the Deese, Roediger & McDermott paradigm.
- Test task to categorise a word as presented in the male voice, the female voice or a new item.
- Participants make R/K judgement or rate memory characteristics.

Mather, Heinkel & Johnson (1997)

## Memory characteristics of false memory

- Ratings collected:
  - Confidence
  - Auditory details
  - Speaker's or own feelings
  - Number of associations
  - Trying to remember

Mather, Heinkel & Johnson (1997)

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## Memory characteristics of false memory

- Significant predictors in multiple regression of probability of correct recall:
  - Confidence
  - Auditory details
  - Speaker's or own feelings
  - Number of associations
  - Trying to remember
- $R^2 = .27, p < .01$  (including all 4 memory characteristics)

Mather, Heinkel & Johnson (1997)

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## Memory characteristics of false memory

- Significant predictors in multiple regression of probability of mistaken recall:
  - Confidence
  - Auditory details
  - Speaker's or own feelings
  - Number of associations
  - Trying to remember
- $R^2 = .18, p = .08$  (of all 4 memory characteristics)

Mather, Heinkel & Johnson (1997)

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### Memory characteristics of true and false memory

- Memory characteristics of the study episode (auditory detail, feelings, encoding effort) were associated with true but not with false recognition.
- Research question: Can memory characteristics provide a useful means of distinguishing accurate from mistaken eyewitness identification?

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### Procedure

- View video of customers withdrawing cash from a bank using a debit card.
- Unrelated filler task (15 minutes).
- Told that the second customer used a stolen card, viewed a simultaneous lineup. (Face had been visible on screen for one minute.)
- Completed questionnaire.
- TP: nine person police lineup.
- TA: eight person police lineup (culprit removed)

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### Test procedure

- Identification decision
- If identification is made, remember/know/guess
- Confidence (0 – 100%)
- Memory characteristics questionnaire (1 – 7 Likert scale)
- Confidence (0 – 100%)
- Compared data from participants who made correct ID from TP with data from incorrect ID in TA.
- N = 147; correct ID = 27; mistaken ID from TA = 34

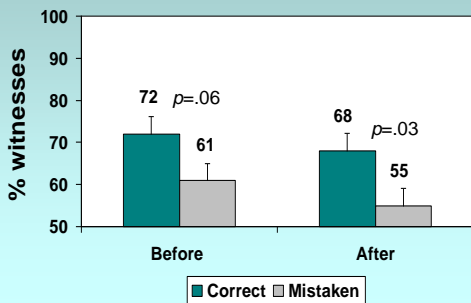
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### Memory Characteristics Questionnaire

- Sharp?
- Colour?
- Visual detail?
- Voice?
- Said?
- Vividness?
- General detail?
- Doubt of memory?
- Thought?
- Attention?
- Good basis for decision?
- Speed of decision?
- Facial features?

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### Confidence



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### Remember - know

	Remember	Know	Guess
Correct	16	9	2
Mistaken	19	10	5

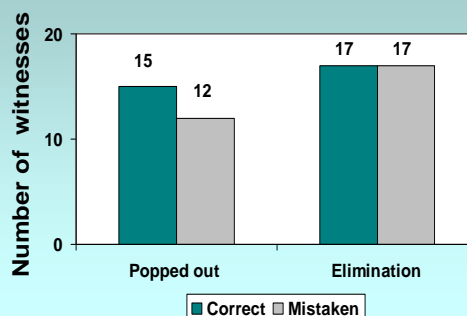
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### Remember - know

	Remember	Know	Guess
Correct	16 (71%)	9 (62%)	2 (70%)
Mistaken	19 (65%)	10 (47%)	5 (30%)

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### Method of selection



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### Memory Characteristics Questionnaire

Questions that yield a significant difference between correct and mistaken Ids:

- Sharp? (.27)
- Colour? (.32)
- Visual detail? (.29)
- Voice?
- Said?
- Vividness? (.27)
- General detail? (.27)
- Doubt of memory?
- Thought?
- Attention?
- Good basis for decision? (.32)
- Speed of decision? (.26)
- Facial features?

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### Memory characteristics as predictors of identification accuracy

- Logistic regression with three predictors
- Predictor ratings (all sig  $p < .05$ ):
  - Colour
  - Thoughts
  - Good basis
- (Nagelkerke)  $R^2 = .30$

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### Memory characteristics as predictors of identification accuracy

	Predicted		
	Correct identification	Mistaken identification	% correct
Correct identification	16	11	59.3
Mistaken identification	8	26	76.5
Overall percentage			68.9

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### Summary

- Averaged across participants, memory characteristics do show systematic differences between accurate and mistaken identification.
- At individual level memory characteristics do not unambiguously differentiate accurate and mistaken identifications.
- Results are broadly similar to the false memory literature.
- Remember /Know distinction was not a useful predictor.
- Selection method (elimination vs. pop out) was not a useful predictor
- Problems:
  - Multicollinearity between memory characteristics in regression
- Prospects
  - Memory characteristics provide better predictors than confidence
  - Reflection on memory characteristics improves confidence accuracy relationship
- Needs further work with more forensically relevant task demands

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