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**Creators:** Fritz, C. O., Morris, P. E., Crowther, V.-L. and Benn, N.

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# The Influence of Early Questions on Learning from Text

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Catherine O. Fritz (University of Northampton) Catherine.Fritz@northampton.ac.uk  
 Peter E. Morris (Lancaster University & University of Northampton)  
 Vikki-Leigh Crowther, and Nichola Benn (Lancaster University)



## Seeing questions before and during reading: Direct benefit plus transfer to related material

### Purpose of the research:

Examine the delayed benefits (both direct and indirect) of questions examined prior to and while reading:  
 » Chapter-length text (3395 words)  
 » Reasonable delay (1-week)

**Situation similar to assigned reading with questions in preparation for a seminar**

### Rationale for a benefit:

Pre-study questions  
 » Encourage reader to generate comparative and/or advance organizer (Ausubel & Fitzgerald, 1961, 1962)  
 » Stimulate interest (James, 1890; Jersild, 1929)

### Method:

30 student participants; 15 randomly assigned to each group  
 Chapter, unfamiliar topic, w/2 sets (21 pairs) of related questions  
*Animation and Computer-Generated Imagery*  
 Describe stop-motion animation  
 Describe cel animation  
 Why was the use of colour animation inhibited in Britain?  
 In what decade was Britain able to use colour animation?  
 The two sets were counterbalanced across groups.



### Conclusions:

- Short answer adjunct questions, examined in advance and available while reading, can improve learning of questioned information and related information when reading a chapter addressing an unfamiliar topic.
- The benefit is strongest for the tested material, but extends to related material as well.

### Selected Background:

#### Benefits of pre-study questions

- Jersild, 1929: short answer & multiple choice (not T/F), benefits on 4-week test compared to matched pre-information
- Richland, Kornell, Kao, 2009: benefits even when compelled to give (incorrect) answers, short texts with immediate tests
- Vaughn & Rawson, 2012: benefits only when study is immediately after pre-questions.

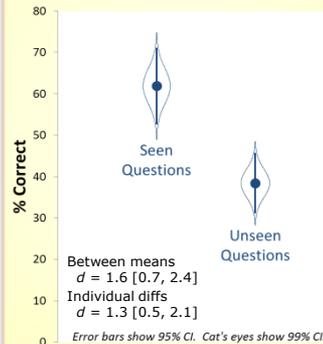
#### Benefits of adjunct questions

- Germane, 1920: immediate test, seen Qs only
- Holmes, 1931: 'major' questions, immediate & delayed test; seen & unseen; instructions to read to answer questions
  - Benefit for seen Qs immediate & delay
  - Cost for unseen Qs immediate, but not at delay
- Agarwal et al., 2008: (simultaneous answering condition) repeated measures, shorter texts, seen Qs only

### Results:

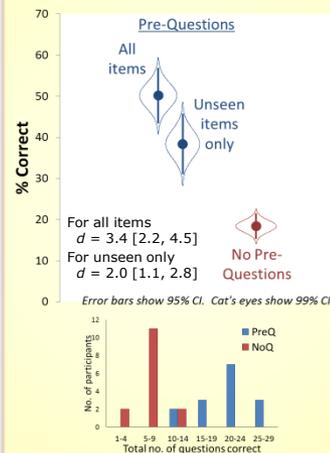
✓ Seen better than unseen

#### Seen vs. Unseen Questions for Pre-Questions Group



### ✓ Benefits transfer to unseen

#### Total correct on 1-week test



## Seeing open or closed-book questions after reading: Greater benefit from closed-book but no transfer

### Purpose of the research:

Examine the delayed benefits (both direct and indirect) of open- and closed-book tests following reading:  
 » Chapter-length text (3395 words)  
 » Reasonable delay (1-week)

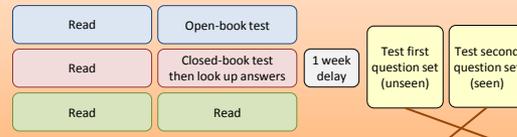
**Situation similar to a class quiz on assigned material that had been read just before class**

### Rationale for benefits:

- Testing effects, generation effects
- Benefits from correcting one's own errors
- Focus attention; reduce mind-wandering

### Method:

45 student participants; 16/16/14 randomly assigned to experimental and control groups respectively; self-paced  
 Chapter, unfamiliar topic, w/2 sets (28 pairs) of related questions  
*Animation and Computer-Generated Imagery*  
 The two sets were counterbalanced across groups.



### Results & Conclusions:

- ✓ Initial test: Open-book best
- ✓ Previously seen items:
  - Open-book: large losses
  - Closed-book: moderate gains
  - Closed-book best
- 45% vs. 35%, diff = 10% [0.2, 19.4]
- ✓ No transfer: No benefit for related, unseen items
- ✓ Correlations differ for closed-book

Initial Seen	Open		Closed		Study twice Unseen
	Seen	Unseen	Seen	Unseen	
	-.07	-.001	.48	.42	
		.86		.48	.80

