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# When the Book Is Better Than the Movie:

## How Contrasting Video Cases Influence Text Learning

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# Contrasting Cases Methods

- Schwartz & Bransford (1998)
    1. Examine similarities and differences among a set of (text) cases
    2. Read a related text or hear a lecture
- “differentiated knowledge” prepares students for future learning

(“Cases-text” sequence)



# Our Instructional Context

- Readable text
- Realistic video cases
- Video cases compatible with text
- Instructional goals
  - memory for text (including terms)
  - transfer of text ideas to instructional design and analysis



# Contrasting Video Cases

Theory when goal = text memory & comprehension?

- Narrative-elaboration hypothesis
  - Bransford, Anderson→ Text-Cases
- Reconstructive hypothesis
  - Bartlett, diSibio, Loftus, Spiro→ Cases-Text
- Indexical hypothesis
  - Glenberg & Robertson, 1999→ Cases-Text
- Differentiation hypothesis
  - Schwartz & Bransford



# Experimental Design

<b>Cases-Text</b>	<b>Text-Cases</b>	<b>Text-Notes</b>
<ol style="list-style-type: none"><li>1. Contrast cases</li><li>2. Read text</li></ol>	<ol style="list-style-type: none"><li>1. Read text</li><li>2. Contrast cases</li></ol>	<ol style="list-style-type: none"><li>1. Read text</li><li>2. Take notes on same text</li></ol>

*Within each condition, the sequence was repeated with a second set of materials.*



# Materials

Two sets of text and cases were used:

- *Understanding*

- Text described six “facets” of understanding (Wiggins & McTighe, 1998)
- 12 video cases drawn from various sources

- *Assessment*

- Text described various assessment concepts (formative, summative, performance, etc.)
- 12 video cases drawn from various sources



# Participants

- Students in introductory educational psychology course at UW-Madison
- Participated for course credit
- $N = 153$ 
  - 21 males
  - 132 females



# Protocol

## Session One

1. Set 1 cases/text/notes
2. Demographic questionnaire
3. Set 2 cases/text/notes

## Session Two (2-3 days later)

1. Set 1 dependent measures
  - recall, application, recognition
2. Set 2 dependent measures
  - recall, application, recognition
3. Feedback questionnaire



## Case Comparisons



### Please read the following instructions carefully:

In this part of the experiment, you will study several video clips, called "minicases," as you complete an activity in which you will compare and contrast the minicases to see the different kinds of understanding they illustrate. This kind of exercise will help expand your ability to see many different and creative ways to think about and use the ideas that are represented in the minicases. Please [click this link now](#) to open a new window for viewing the minicases in the monitor on your right. To view a minicase, click on its title. As you complete this activity, you are encouraged to watch the minicases in any order and as many times as you like. If you wish to take notes as you view the minicases, you may use any available space in the "My Notebook" tool below. It is a good idea to click on the "Save" button to save your work occasionally (a confirmation box will pop up to notify you that your work has been saved). The "My Notebook" tool below (**scroll this page down to see the "My Notebook" tool**) will guide your work. Please follow these instructions:

1. To help you see different kinds of understanding in the minicases, compose six groups of minicases containing two or three minicases each. The minicases in a group should all seem alike to you in terms of the understanding they represent, and each group should represent a different kind of understanding. You may put some of the minicases in more than one group.
2. Label each group with a term that you think best describes the kind of understanding that group represents.
3. For each group, explain how the minicases fit the label you specified.



My Notebook

Save

Case Comparisons

### GROUP 1 (*worked as an example*)

2-3 MINICASES IN GROUP (LIST MINICASE NUMBERS):

3, 8, 10



# Measures and Reliabilities

	<i>Understanding</i>	<i>Assessment</i>
Term Recall	.98	.98
Gist Recall	.96	.89
Transfer (design task)	.91	.86
Scenario Recognition	.90	.87
<i>Importations (Recall task)</i>	<i>.59</i>	<i>.35</i>

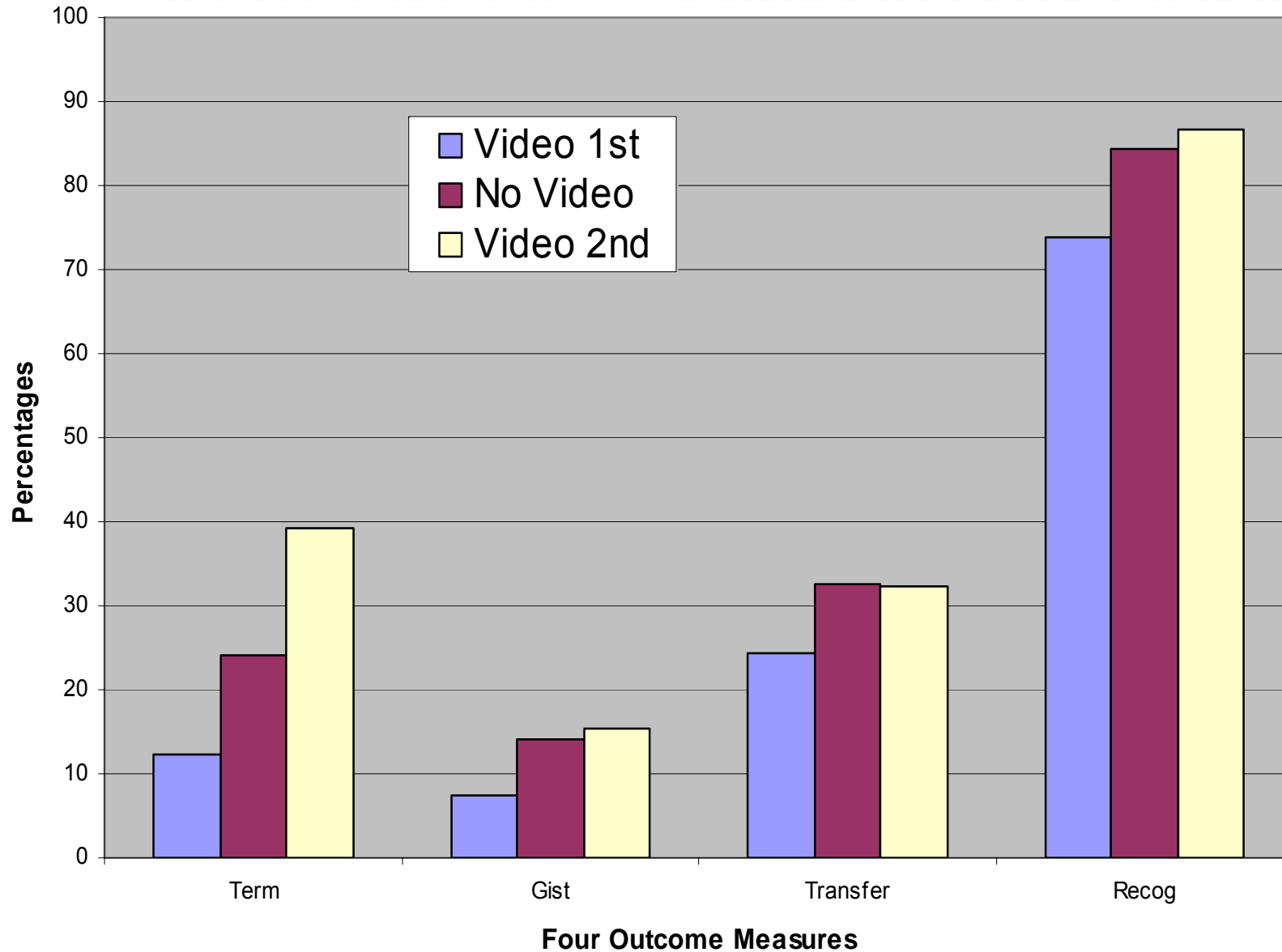


## Results: Adjusted Group Means

<b>Task</b>	<b>Cases-Text<sup>a</sup></b>	<b>Text-Cases<sup>b</sup></b>	<b>Text-Notes<sup>c</sup></b>
<b>Term Recall</b>	2.71 (0.42)	7.53 (0.42)	5.35 (0.44)
<b>Gist Recall</b>	2.17 (0.31)	4.28 (0.31)	4.45 (0.33)
<b>Transfer</b>	2.60 (0.16)	3.37 (0.16)	3.30 (0.17)
<b>Recognition</b>	8.87 (0.50)	10.39 (0.50)	10.12 (0.53)
$^a n = 52$ $^b n = 51$ $^c n = 50$			



# Activity Designs Are Not Equal





# Hypothesis Testing Logic

(Example for Reconstructive Theory)

- Conventional
  - $H_0$ : cases-text recall  $\leq$  text-cases recall
  - $H_1$ : cases-text recall  $>$  text-cases recall  
(evidence for)
- Philosophy of Science Logic (Peirce, Popper)
  - $H_0$ : text-cases recall  $\leq$  cases-text recall
  - $H_1$ : text-cases recall  $>$  cases-text recall  
(evidence against)



# Key to Hypothesis Summary



Remains standing after statistical test.



Statistical test provides evidence against.



Alternative trend detected with negative test.



# Hypothesis Summary

## Term Recall

	CT vs TC	CT vs TN	TC vs TN
<i>Effect size</i>	1.66	0.73	0.94
Narrative-elaboration	✓	✓	✓
Reconstructive	✗	NA	✗
Indexical	✗	✗	NA



# Hypothesis Summary

## Gist Recall

	CT vs TC	CT vs TN	TC vs TN
<i>Effect size</i>	0.96	0.79	--
Narrative-elaboration	✓	✓	--
Reconstructive N/A	✗	NA	!
Indexical	✗	✗	NA



# Hypothesis Summary

## Transfer

	CT vs TC	CT vs TN	TC vs TN
<i>Effect size</i>	--	0.45	--
Narrative-elaboration	!	✓	!
Reconstructive	NA	NA	!
Indexical	--	✗	--



# Hypothesis Summary

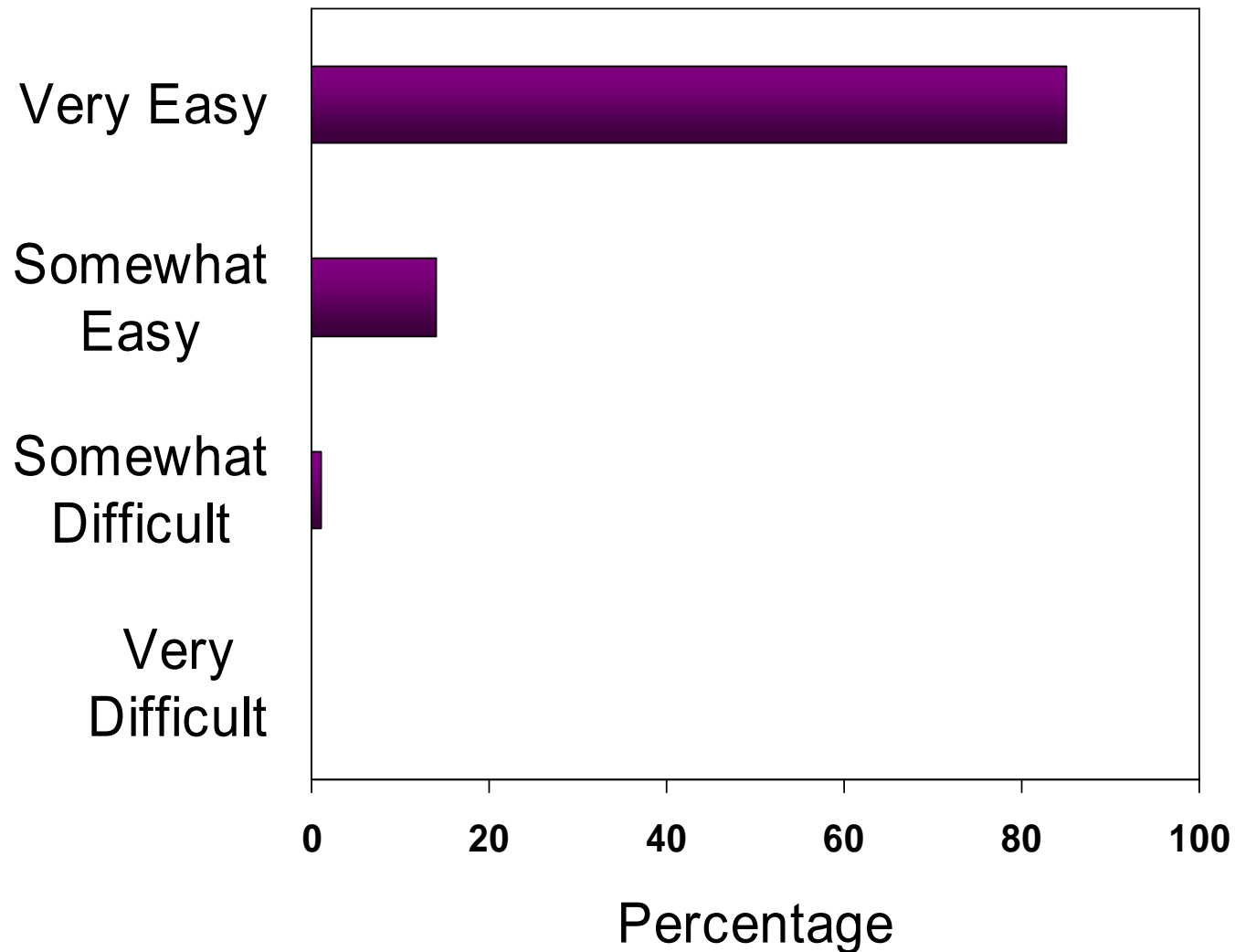
## Importations

	<i>Understanding</i> TC vs CT	<i>Assessment</i> TC vs CT
<i>Effect size</i>	0.96	--
Reconstructive	<b>X</b>	<b>!</b>



# Feedback

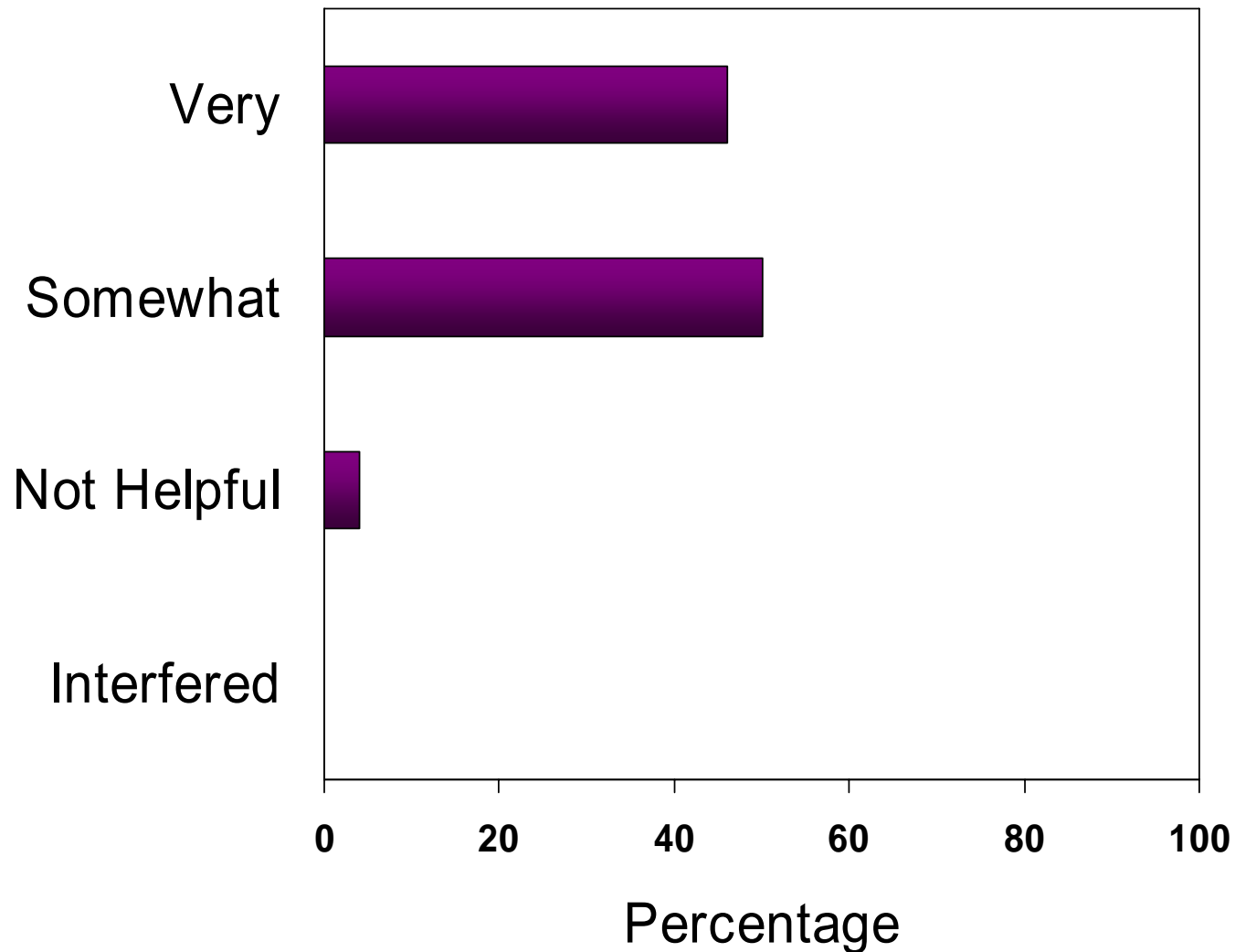
How easy (or difficult) was it to use this Web site?





# Feedback

Was the video minicase comparison activity helpful?





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**Do the results seem obvious?**

**A word on the effects of  
hindsight.**



## Some questions remaining

- Might the indexical hypothesis hold but inhibit text processing in CT conditions?
- Might transfer improve with more intensive “criss-crossed” comparisons a la CFT? (Spiro)
- Might the reconstructive hypothesis hold if the video and text represented controversy and contradictory viewpoints?