



# Segmented Text Study

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## Background of Study

- From “chunking” to “segmented text”
  - Chunking in past literature deals with working memory capacity, with the hypothesis that reading material chunked into meaningful units facilitates reading comprehension and efficiency.
  - However, chunking in the literature refers to chunking sentences.
  - We use “segmented text” to refer to how passage segments are grouped with their corresponding items on the test page.



## Segmented Text

- Segmented text also serves as “built-in” test breaks, possibly reducing the need for accommodation



## Participants

- 738 Grade 8 students from ten public schools in California
- 620 non-SD, 117 SD
- Of the 117 SD:
  - 107 specific learning disabilities
  - 2 deaf/hard of hearing
  - 3 autistic
  - 2 speech/language impairment
  - 4 other health impairments



## Reading Test

- Three reading comprehension passages were obtained from publicly-released tests from two states outside of California.
- Two versions of the test were created: Original (version A) and Segmented (version B)
- Test designed to be completed in one classroom period (approx. 50 min.)



## Passages

- All passages were informational (i.e., not fiction or literature).
- First passage was 700 words, other two passages were about 550 words each.
- Each passage had 8 multiple-choice items with 4 possible answer choices (24 total test items).



## Process of Segmenting

- Segments were grouped with corresponding test items
- Each passage was broken down into 3 to 4 segments; each segment contained 1-3 questions
- Inferential questions appeared at the end
- Test items appeared in the same order in both versions



## Other Instruments

- Teacher Ratings
- Emotion/Mood Inventory
- Motivation Scale



## Teacher Ratings

Asked teachers to rate each of their students.  
Corresponds with Calif. (CST) proficiency levels.

*In your opinion, how would you rate this student's reading comprehension ability?*

- Advanced
- Proficient
- Basic
- Below basic
- Far below basic



# Emotion/Mood Inventory

Asked students after each passage:

How does taking the test make you feel? Please circle all the words that describe how you feel. There is no right or wrong answer.

If none of these words describe how you feel, please circle NONE.

good

tired

energetic

upset

bored

confident

frustrated

okay

happy

stressed

blanked out

interested

relaxed

bad

NONE



## Motivation Scale

- Post-test (printed at the end of the test booklets)
- 10-item, 4-point Likert-type, combining “importance” and “effort” questions



# Research Questions

- Accessibility
  - Segmented Text and Reliability
  - Segmented Text and Performance
  - Segmented Text and the correlation between teacher ratings, English language arts (ELA) achievement test level and reading performance
- Affective Factors
  - Segmented Text and Motivation
  - Segmented Text and Emotion/Mood Inventory



## Segmented Text and Reliability Findings

- The original version of the assessment was significantly more reliable for non-SDs than for SDs.
- This reliability gap decreased on the segmented version (no longer significant).
- This suggests the segmented version may be more accessible for SD students
- **Reliability limits validity, because  $r_{xy} < \sqrt{r_{xx}}$**   
(Allen & Yen, p. 113)

Groups	Reliability	Validity
SD/Original (n=53)	0.516	.718
SD/Segment (n=62)	0.689	.830
Non-SD/Original (n=312)	0.783	.884
Non-SD/Segment (n=305)	0.788	.888



## Segmented Text and Performance

- No significant differences in reading performance of either group due to segmenting

Groups	Mean	<i>SD</i>	n
SD/Original	9.94	3.32	52
SD/ Segment	9.32	4.05	57
Non-SD/ Original	13.89	4.58	301
Non-SD/ Segment	13.88	4.67	292



# Motivation Results

Summary of descriptive analyses for the motivation section

No significant differences

Group	Mean	<i>SD</i>	n
Students with disabilities, original	22.21	3.65	53
Students with disabilities, seg.	22.83	3.44	60
Students with disabilities, total	22.54	3.54	113
Non-disabled, original	21.36	5.07	313
Non-disabled, seg	22.16	4.23	296
Non-disabled, total	21.75	4.69	609
Original version, total	21.48	4.89	366
Segmented version, total	22.27	4.12	356
Total	21.87	4.54	722



## Conclusions

- Results suggest segmented text may be more accessible to students with disabilities
- Segmented text did not affect students' performance for either group



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