

The background is a light blue gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered in the middle of the frame.

# REPEATED READINGS

WHAT CAN WE LEARN FROM EYE MOVEMENTS?

The background is a light blue gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered in the middle of the image.

# DR. KATHLEEN J. BROWN

UNIVERSITY OF UTAH READING CLINIC

[WWW.UURC.ORG](http://WWW.UURC.ORG)

# REPEATED READINGS: BASICS

- Multiple readings of same text, either to a criterion or 4x
- Goal = to improve fluency, with end goal of improving comprehension
- Grounded in decades of theoretical & empirical research: Huey, 1908; LaBerge & Samuels, 1974; NRP, 2000; Zawoyski, Ardoin, & Binder (2015), *Reading Research Quarterly*, 50. 171-184.

# REPEATED READINGS: RESEARCH

- Multiple readings of same text benefit:
  - Skilled readers (children & adults)
  - Readers with learning disabilities
  - All students through G4 ( $d = .83$  for fluency;  $d = .67$  for comprehension)
- **Gap = Does RR have differential effects for different ability groups?**

## METHODS - PARTICIPANTS

- Started with 99 students in G2; ended up with 44.
- Dropped 55 students who skipped parts of the text.
- Non-Title I, suburban public school; middle of year (ORF benchmark = 72 wcpm)
- 22 Lower-Performing median ORF = 74 (SD = 13)
- 22 Higher-Performing median ORF = 144 (SD = 22)
- Significant differences between LP and HP ( $p < .001$ ) on W-J3 Reading

## METHODS - PARTICIPANTS

- If *ORF MOY benchmark = 72 wcpm*, the term “lower-performing” is misleading. Therefore:
- ~~Lower~~ → Average-Performing median ORF = 74 (SD = 13); WJSS = 106
- Higher-Performing median ORF = 144 (SD = 22); WJSS = 117



## METHODS – EYE MOVEMENTS

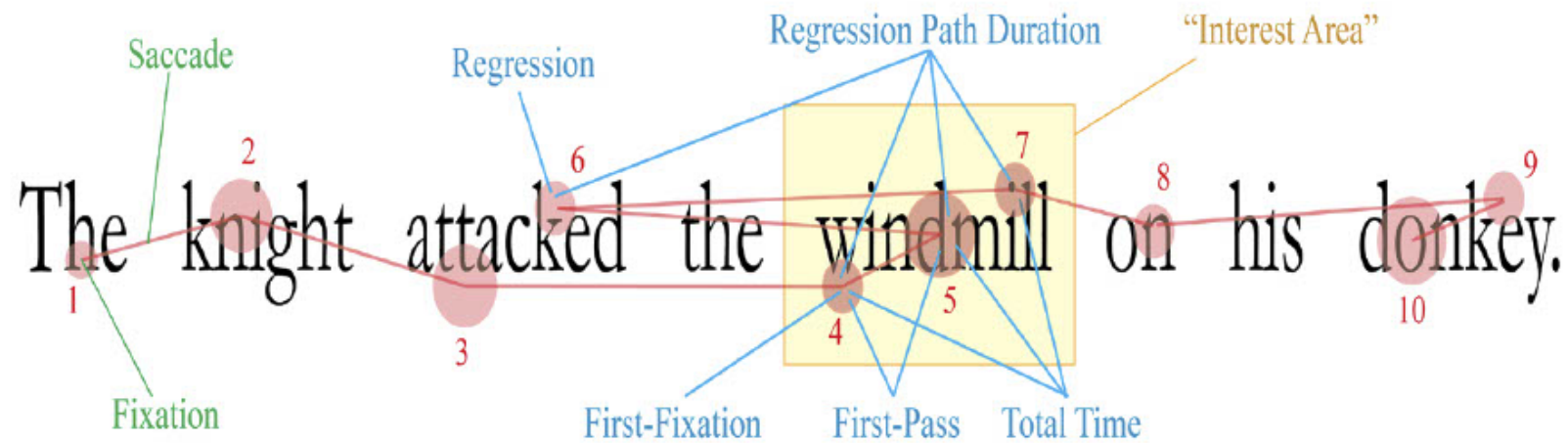
- Eyes make quick, jumping movements across text.
- Jump = Saccade; Pause = Fixation
- Backward Jump = Regression
- Regressions can be intraword or interword.



## METHODS – EYE TRACKER

- Students placed chin on chin rest; read from computer screen
- High resolution camera on desktop, in front of screen
- Students pushed a key to show they had finished reading & to answer a comprehension question.







## METHODS – MEASURES

- First fixation duration time
- Gaze duration time
- Number of intraword regressions
- Total fixation time
- Number of interword regressions
- Average fixation count per word

**HYPOTHESIS:** all measures should **decrease** across re-readings.

# METHODS - MATERIALS

Emma is the most colorful dragon you will ever see. She has yellow flecks on her pink body. Her *head* is deep purple but her *tail* is green. Her *wings* are fire red with *ocean* blue spots.

Emma's best buddy is Queen Kathy. They met a long time ago when Queen Kathy helped Emma.

It began, years ago, when Emma flew to Dee's Dee's is the only supermarket that sells cartons of Emma's favorite food, Dragon Pops. Dee's new owner did not like dragons. He would not order Dragon Pops for her. This made her feel sad. She went to the woods for refuge and cried.

When Queen Kathy saw Emma crying, she asked what incident happened, and Emma told her. Queen Kathy told Emma that because she is Queen, she is the boss of all the stores. She told the new owner to order Dragon Pops and he did. Ever since then, Queen Kathy and Emma have been best buddies.

16 sentences; 162 words

5 low-frequency target words; 5 high-frequency target words with locations randomly selected

# METHODS - PROCEDURES

- Each student read same passage 4x in 1 session.
- Answered comprehension question (encourage attention to meaning)
- Received feedback about reading time (encourage motivation)
- No time limit (breaks allowed for fatigue)

# METHODS – EFFECTS CRITERIA

- Cohen's  $d$  indicates the standardized effect size between two means—in this study between pairs of readings
  - small = .2
  - medium = .5
  - large = .8

# RESULTS - GLOBAL

- HP readers consistently outperformed AP readers.
- RR benefited HP ( $d = 1.58$ ) and AP readers ( $d = 1.08$ ) from R#1 → R#4.
- R#2 benefited HP readers ( $d = 1.05$ ) more than AP readers ( $d = .60$ ).
- R#3 benefited AP readers ( $d = .83$ ) more than HP readers ( $d = .46$ ).
- R#4 was not significant on any measure for either group.

## RESULTS – GLOBAL

- RR positively impacted *early processing* (word id) and *late processing* (comprehension) of text for both HP and AP readers.
- HP and AP readers improved on *early* and *late* processing from R#1 → R#2.
- Both groups continued to improve on *late processing* from R#2 → R#3.

## RESULTS – TARGET WORDS

- RR helped both HP and AP readers reduce time spent on *low-frequency* words.
- RR also helped AP readers reduce time spent on *high-frequency* words.
- Floor effect for HP readers on *high-frequency* words from R#1 → R#4.



# IMPLICATIONS FOR PRACTICE

- Repeated Readings benefit both Higher-Performing and Average-Performing Readers.
- Reading a text 3x may be enough for these students **during 1 session.**
- It took 3x for AP readers to match HP readers' 1<sup>st</sup> trial. (Need for scaffolding, such as listening?)

# LIMITATIONS

- This study's "lower-performing" readers are really "close-to-benchmark" readers. *Need to conduct study in Title I schools!*
- Passage was at lowest kids' instructional level. *Need to vary text difficulty levels!*
- RR only occurred during 1 session. *Need to vary number of sessions!*