

Identifying Words to Explain to a Reader: A Preliminary Study

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Explain words to help kids learn vocabulary: Elicit, capture, and utilize expert explanations

The core idea of this paper is familiar to teachers: While a child is reading, explain unfamiliar words. Project LISTEN's Reading Tutor (<http://www.cs.cmu.edu/~listen>) listens to children read aloud and helps them learn to read. We want the Reading Tutor to explain unfamiliar words.

To *elicit* explanations from an expert, the computer should suggest -- or let the expert select -- words to annotate.

To *capture* explanations, the expert will type in and then narrate an explanation. Text and narration will be saved for later use (Mostow & Aist 1999).

To *utilize* explanations during assisted reading, we will display the explanations as extra sentences to be read aloud with the computer's help. Explanations will be provided on student request or computer tutor initiative.

We focus here on how to select words for annotation. How? Annotating all words may be too expensive in preparation time or storage space. Kids may not know which words they need help on. Grade-level wordlists may not include all the hard words in a story. Perhaps adult readers can identify words to explain.

Preliminary experiment: *Paul Revere's Ride*

Three people (male, native speakers of North American English, (at least) college graduates) annotated the 989-word poem *Paul Revere's Ride* (Henry Wadsworth Longfellow, 19th century American). The instructions were to insert one explanation for each word or phrase that the rater thinks should be explained to the reader. With annotations in bold:

Listen, my children, and you shall hear
Of the midnight ride of Paul Revere, ...
He said to his friend, "If the British march

British → **from England**

By land or sea from the town to-night,
Hang a lantern aloft in the belfry arch

aloft → **up**

belfry → **church bell tower**

arch → **[picture of arch]**

Of the North Church tower as a signal light,--

North Church → **an old church in Boston**

signal → **like a sign**

One, if by land, and two, if by sea; ...

For analysis, each word token was coded **1** if contained in an annotation and **0** otherwise. We summarize below:

Rater	Words coded 1 out of all words	Words coded 1 out of words w/out <i>the, a</i>
J	16% (160/989)	19% (159/840)
A	3% (26/989)	3% (26/840)
G	6% (59/989)	7% (59/840)
At least one rater	18% (175/989)	21% (174/840)

Pairwise interrater reliabilities using kappa (Carletta 1996):

	J	A	G
J	-	0.178 all words 0.172 w/out <i>the, a</i>	0.405 all words 0.397 w/out <i>the, a</i>
A	-	-	0.426 all words 0.422 w/out <i>the, a</i>
G	-	-	-

All values of kappa were significantly greater than zero. Kappa of zero is chance, less than 0.40 shows poor agreement, between 0.40 and 0.75 shows fair agreement, and above 0.75 shows excellent agreement (SPSS 1999).

Why did J-G and A-G agree well, but not J and A? J explained more words than A. A remarked that the instructions did not say who was the intended reader of the story. Finally, none of the raters were reading experts.

Nonetheless, even annotating all the words that any rater annotated (174/840) would require less effort than annotating all the non-article words. Also, more specific instructions and better-trained raters may improve results.

References

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