EasyChair Preprint

№ 3823

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July 12, 2020

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The authors declare that there are no conflicts of interest with respect to this preprint.

This work is funded in part by a grant from APA Div 15.

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Abstract

Students often struggle to make sense of literary works. We used a think-aloud design to examine the effect of four reading instructions (Rules of Notice, Rules of Signification, combined, control) on students' processing of a literary short story. Protocols were assessed for evidence of expert-like reading behaviors such as attending to literary features and generating interpretive inferences. We also examine how differences in reading behaviors related to students' appreciation and enjoyment of the work.

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Literary texts afford both a literal representation of the text as well as a nonliteral meaning (Schraw, 1998). Expert literary readers readily produce these *interpretive inferences* because they have literary-specific knowledge including what to look for and how to use that information to generate common themes (Graves & Frederiksen, 1991; McCarthy, 2015; Peskin, 1998). Rabinowitz (1987) refers to this knowledge as *Rules of Notice* (stylistic variations in language like juxtapositions and unexpected word choices that direct the reader's attention to potential interpretive meaning) and *Rules of Signification* (common literary themes that might be appropriate for the text). The current study examines how providing novice readers information about these rules affects the way they process a literary work.

Background

McCarthy and Goldman (2019) used expert think-aloud data to identify relevant Rules of Notice and Rules of Signification in a short story, *The Elephant*. They then provided college students with varying amounts of these rules (Rules of Notice, Rules of Signification, or combined). After reading, students composed an essay about the work's meaning. Essay analysis revealed that providing Rules of Notice and Signification increased the participants' attention to specific language in the text which, in turn, increased the amount of interpretive inferences in the essay. This suggests that domain-specific knowledge supports literary-appropriate processing and comprehension. One limitation is that this study relies on essay data written after reading, rather than measuring comprehension processes *during* reading.

The Current Study

The current study replicated McCarthy and Goldman (2019) using a concurrent think-aloud rather than a post-reading essay. We explored how four different pre-reading instructions (no information control, Rules of Notice, Rules of Signification, or Combined Rules) affected how novices processed a literary short story. More specifically, we were interested if information about the Rules would increase the generation of interpretive inferences or increase students' attention to language and meaning. We also asked students to rate their appreciation and enjoyment of the text (Dixon et al., 1993) to examine how the manipulation might affect readers' perceptions of the work.

The previous essay-based study found more interpretive behaviors in the Combined condition compared to the Rules of Notice condition, but it was unclear if these more subtle differences would appear in think-alouds. These differences may emerge only after reading when students have time to process, reflect, and integrate textual information with the pre-reading instruction.

Given previous work (e.g., Graves & Frederiksen, 1991), we anticipated think-aloud protocols dominated by paraphrases. However, we predicted the three rules conditions would yield more interpretation and attention to language as compared to the control condition. We predicted these instructions would also increase students' appreciation of the story.

Method

Participants & Design

The full sample included 31 undergraduates. One participant's data was omitted from analysis for having participated in a related study. The remaining 30 participants (Female = 21,

M_{age} = 23.93, *SD* = 4.22) were either native English speakers (n = 26) or had spoken English for at least 10 years.

Materials & Procedure

Participants completed the study in a one-hour session. They thought-aloud about an English translation of the short story *The Elephant* by Slowomir Mrozek. The text is 1180 words and has a 7.7 Flesh-Kincaid grade level. Before reading, participants were randomly assigned to one of four pre-reading instruction conditions. We adapted these instructions from McCarthy and Goldman (2019), adding a control group. In the *Rules of Notice* condition, readers were told about specific language in the story that experts pay attention to when they read. In the *Rules of Signification* condition, readers were given information about the satiric nature of the story. In the *Combined* condition, participants received information for both rules. Those in the control condition were given no additional information.

Participants' think-alouds were audio-recorded. After reading, participants answered three questions about their enjoyment and appreciation adapted from Dixon et al. (1993). Finally, students provided demographic information (e.g., age, gender, ethnicity, native language) and completed two individual difference measures: the Author Recognition Test (ART; Acheson, Welles, & MacDonald, 2008) and the Reader Belief Inventory (RBI; Schraw, 2000). The ART requires participants to select names of real authors from a list including foils as a proxy measure for literary familiarity. In the RBI, participants answer 16 questions about their reading beliefs yielding two subscores. Transmission score reflects readers belief there is a single meaning in stories and that it is the reader's job to find the correct meaning. Transaction score reflects reader belief that meaning is flexible and co-constructed by reader and author.

Think-Aloud Scoring

Think-alouds were coded using two coding rubrics from McCarthy and Goldman (2019). Initial review of the think-alouds revealed many other statements (e.g., monitoring statements, personal associations, participatory responses) not evident in the McCarthy and Goldman essays, but were consistent with processes found in other studies of online narrative comprehension (McMaster et al., 2012; Trabasso & Magliano, 1996). We added these to the coding rubric (Table 1). The first author and a research assistant coded 20% of the think-alouds together, achieving good interrater reliability (weighted kappa = .75). The first author then coded the remaining think-alouds.

Table 1

Types of Statements During a Think-Aloud

	Code	Description	Example
Codes from McCarthy & Goldman (2019)	Verbatim/Paraphrase	A statement that is repeated directly from the text or very similar to the information explicit in the text.	*So it looks the elephant is moving.*
	Text-based Inferences	An inference that stays in the story world (e.g., causal inferences, emotional states)	*The elephant is fake that's why it's not moving.*
	Interpretive Inferences	An inference that goes beyond the story world to either speak to the world at large or interprets a symbol or other nonliteral meanings.	*And this goes into one of my common beliefs having grown up watching basic sitcoms for kids; if you lie […] that lie would be exposed and probably at the most inopportune moment.*
Added Codes	Questions for the Experimenter	The participant asks the researcher a clarifying question about procedure.	*Can I reread?*
	Vocabulary	A question about the meaning of a word or a statement about not knowing a specific word.	*How do you say that word?* *I don't know what that word is.*
	Monitoring	Statement indicating the student is attending to their own understanding, often expressing confusion or certainty.	*I guess I'm confused on the word of "gas" a little bit.*
	Personal Association	Statement that is semantically related to the story, but not related to the story itself.	*I used to go to the zoo when I was like a kid.*
	Conditional	Statement in which the student imagines themself as a character.	*I would want to go home too after blowing up a whole fake elephant.*
	Evaluation	Statement expressing an opinion (often liking or disliking) about the text or an event in the text.	*I don't like the word that they are using to describe elephant at all.*

To examine whether the pre-reading instructions increased students' attention to the Rules, think-alouds were scored holistically for the presence or absence of mentioning the six

Rules of Notice and Signification provided in the reading instructions (Table 2). The participants did not need to identify the rules by name, but rather demonstrate an attention to those aspects of language and meaning. A *Rules Score* was then calculated to identify how many of the six rules each student mentioned in their think-aloud.

Table 2

Coding Rubric Identifying Rules of Notice or Signification

	Code	Description
Rules of Notice	Deviation from the Norm	Recognizes that a behavior or event is different from the real world or general expectation (e.g., bizarre, absurd)
	Disruption	Recognizes unusual word choice
	Juxtaposition	Recognizes a contradiction
Rules of Signification	Satire	Identifies the text as satiric or mocking or "making fun of"
	Target Group	Identifies a target group as the object of criticism or ridicule
	Use of Language as Evidence of Meaning	Identifies specific language to support a particular meaning

Results

Given the sample size of the study, we refrain from providing statistical tests in the following analyses. Means and standard deviations across conditions are shown as a base for descriptive analysis.

Individual Differences

As shown in Table 3, ART scores revealed that participants had little familiarity with literary works, averaging a score of 9 out of a possible 60. ART as well as the RBI subscores demonstrated little variability across the four conditions.

Table 3

Mean and SD for Reading Experience and Belief Measures as a Function of Pre-reading Condition

	Control	Notice	Signification	Combined
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
ART Score	9.00 (8.12)	11.00 (11.88)	8.25 (6.30)	6.57 (2.64)
RBI: Transaction Score	3.83 (.72)	3.56 (.76)	4.19 (.46)	3.89 (.48)
RBI: Transmission Score	3.08 (.73)	2.90 (.52)	3.25 (.74)	3.31 (.56)

Appreciation Ratings

We first examined the effect of pre-reading instruction on participants' appreciation for the story (Table 4). Participant ratings suggest generally positive opinions of the story. Trends in the data suggest those in the Rules conditions appear to be giving higher ratings to the story.

Table 4

Mean and SD for Post-Reading Ratings as a Function of Pre-Reading Condition

	Control	Notice	Signification	Combined
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
"This story is an example of good literature."	4.75 (1.04)	4.57 (1.90)	5.50 (1.31)	5.71 (.95)
"I enjoyed reading this story."	4.75 (1.75)	5.14 (2.12)	6.25 (1.16)	6.14 (1.07)
"I would recommend this story to someone else."	4.00 (1.85)	4.57 (2.23)	5.38 (1.77)	5.43 (1.62)

Think-Aloud Analysis

We first examined overall length of the think-aloud protocols. On average, students' think-alouds contained 758 words (*SD* = 287.41). This did appear to vary as function of pre-

reading condition. However, to account for length differences, we examined the think-alouds proportionally.

Table 5 shows the proportion of each type of statement as a function of pre-reading condition. This analysis shows little evidence of interpretive inferencing in any condition. Instead, participants' think-alouds were dominated by paraphrasing and text-based inferences. Of note is that those in the control condition had a higher proportion of paraphrase statements as compared to the other three conditions. Participants also generated a high proportion of monitoring and evaluation statements, suggesting participants focused on developing a basic situation model by engaging in reflective and participatory responses.

Table 5

Mean and SD for Proportion of Idea Units as a Function of Processing Type and Pre-Reading Condition

	Paraphrase	Text-based Inference	Interpretive Inference	Questions to Experimenter	Vocabulary	Monitoring	Personal Association	Conditional	Evaluation
	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**	***M* (*SD*)**
Control	.48 (.24)	.22 (.12)	.00 (.00)	.00 (.00)	.03 (.03)	.15 (.09)	.00 (.01)	.01 (.02)	.09 (.09)
Notice	.29 (.19)	.40 (.16)	.01 (.01)	.01 (.01)	.04 (.03)	.13 (.07)	.01 (.02)	.00 (.01)	.15 (.14)
Signification	.30 (.17)	.33 (.13)	.00 (.00)	.00 (.01)	.02 (.03)	.17 (.10)	.03 (.06)	.01 (.03)	.14 (.13)
Combined	.36 (.24)	.30 (.07)	.02 (.02)	.01 (.02)	.02 (.02)	.14 (.13)	.00 (.00)	.01 (.01)	.14 (.07)

As shown in Table 6, participants mentioned 1-2 of the Rules of Notice or Rules of Signification in their think-alouds. Frequency distributions (Table 6) indicate that almost all participants noticed deviations from the norm. This is not surprising as the story is absurdist in genre. These low *Rules* scores, even in conditions in which they were given explicit information

about relevant rules, suggest that participants struggled to apply the pre-reading instructions to their processing of the story.

Table 6

Average Rules Score and Frequencies of Mention of Each Rule

Pre-reading Condition	Rules Score	Deviation from the Norm	Disruption	Juxtaposition	Satire	Target Group	Use of Language as Evidence of Meaning
	***M* (*SD*)**			**Frequency**			
Control (n = 8)	1.50 (0.76)	7	3	1	0	0	1
Notice (n = 7)	1.14 (1.21)	3	3	0	0	1	1
Signification (n = 8)	1.62 (0.74)	7	3	1	1	0	1
Combined (n = 7)	1.29 (0.95)	6	0	1	1	1	0

Discussion

Our results revealed that little evidence of literary processing during reading, even when readers are provided with literary-specific information prior to reading. However, there are some differences in the amount of paraphrase and in the participants' ratings of participation that suggest that the Rules conditions may have had some subtle influence on reader's processing.

One explanation for why there is limited evidence of interpretive thinking is that these readers are not able to attend to higher-order interpretive meanings until they have established a coherent situation model of the literal events. In future work, we intend to leverage a re-reading paradigm (e.g., Millis et al., 1998; Rawson et al., 2000) to explore how allowing readers an opportunity to first build a literal situation model might increase students' ability to leverage domain-specific knowledge to engage with a text in a literary way on a second pass.

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