Effects of Story Impressions as a Prereading/Writing Activity on Story Comprehension

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ABSTRACT   In this investigation we examined the usefulness of story impressions as a new prereading/writing activity for improving story comprehension. Story impressions are story fragments that enable students to compose an anticipatory model of a yet-to-be-read passage, by giving them clues concerning how characters and events interact within the story. After reading the set of clues, we asked Grade 2 students to compose a story of their own (called a story guess) before reading the author's actual tale. The results indicated that students in the story impressions group, whether above- or below-average readers, answered more of the postreading test questions correctly than did students who read only the story. In addition, the story impressions preview had an equal effect on both impressions-related and impressions-unrelated test items. The beneficial effects of the story impressions, therefore, were not limited to increased recall of clue-related information. Examination of the "match" (several measures) between the readers' story guesses and the author's actual text further demonstrated that the enhanced comprehension scores of the students in the story impressions group were not contingent upon the students' ability to closely approximate the author's story in their own story guesses.

The purpose of this investigation was to evaluate the usefulness of an instructional technique, called "story impressions," for improving readers' processing of unfamiliar narratives. The technique is wholly consistent with contemporary theoretical developments in the understanding of basic comprehension processes (Anderson & Pearson, 1984; Johnson-Laird, 1983; Rumelhart, 1980, 1984).

The most persistent and inescapable lesson from reading research over the last decade may be that researchers understand new information in terms of what we already know (Anderson & Pearson, 1984). An emphasis on the role of prior knowledge in comprehension has renewed interest on the part of reading professionals in finding ways to help readers activate relevant knowledge schemes before and during the reading process (Moore, Readence, & Rickelman, 1982). One approach has been to devise ways to preview a passage before it is read. The object of a preview is to increase what Pehrsson and Robinson (1985) have termed the "proximity" between the reader and the author of the text by helping the reader to retrieve relevant knowledge or by supplying the reader with advance information about the content of the material itself.

Thematic previews have been investigated as one means of increasing the proximity of reader and text. Dooling and Lachman (1971) gave subjects a thematic title or prepassage before reading vague metaphorical passages. On both a free recall and a paced binary recognition task, subjects receiving the title performed better than those not receiving the title. Dooling and Lachman concluded that the thematic title provides a scheme or surrogate structure to help in understanding such vague passages. Gardner and Schumacher (1977) investigated the effect of three types of prereading organizers (thematic prepassage, topic sentence, and no information) on recall of difficult subordinate and coordinate texts. Gardner and Schumacher found that providing subjects with the thematic prepassage organizer facilitated recall to a greater degree than did either topic sentences or no information. In like manner, Bransford and Johnson (1973) found that subjects who were supplied with information in the form of a thematically relevant picture, prior to reading a passage, demonstrated increased comprehension and recall scores.

A more elaborate previewing method for reducing the distance between reader and text is to provide readers with an overview of the content of the material to be read. In several studies (Graves, Cooke, & Laberge, 1983; Graves & Palmer, 1981; Slater, Graves, & Piche, 1985), subjects were supplied with prior information about the specific content of a story in the form of a written preview. The previews ranged from 400 to 600 words

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and provided students with a foundation for understanding the story by describing key elements about the plot, characters, point of view, tone, and setting, as well as the theme. In other instances, definitions of difficult words and explanations of complex concepts were added to the existing list. These studies found that providing junior high students with detailed previews of difficult short stories increased recall as assessed by a variety of comprehension measures. Graves and Cooke (1980) obtained similar results when they provided 11th-grade students with oral previews prior to their reading short stories.

As an alternative approach to previewing, McGinley and Denner (1987) suggested facilitating the construction of an anticipatory model of the story on the part of the reader, instead of providing them with thematic or specific content knowledge. This suggestion could be achieved by giving readers a minimal amount of specific information from a passage in the form of story impressions and asking them to engage in the formulation of their own hypotheses regarding the to-be-read story. Story impressions are story fragments in the form of clue words that enable readers to form impressions about how characters and events interact within the story. After reviewing the clues that are linked in the same order in which they occurred in the story, readers express their hypotheses about the forthcoming story in the form of a written story guess. As a written preview, the story guess represents the readers' anticipation of the structure and content of the yet-to-be-read tale.

To illustrate, Figure 1 presents a set of story impressions for "The Tell-Tale Heart" by Edgar Allen Poe (McGinley & Denner, 1987, p. 250). If the reader has never read the specific story from which the impressions were selected, current schema theory (Rumelhart, 1984) would suggest that the reader will begin searching for promising schemata to account for the particular array of clues. In the case of "The Tell-Tale Heart," the clues most likely suggest some sort of murder schema that may ultimately conclude with a confession. As a further illustration, Figure 1 also presents a story guess written by an 8th-grade student (remedial reader) that used the story impressions extracted from "The Tell-Tale Heart." Note that the central events of the hypothesized story depict a murder scene and confession, complete with incidents similar to those of the original Poe tale. The role of the story impressions was to provide an overall impression of the structure of the story sufficient to stimulate the reader to begin constructing an adequate and comprehensible account for the configuration of clues.

How could students arrive at an interpretation for a series of impressions when given such minimal amounts of information? The research of Ross and Bower (1981) offers a possible explanation. Ross and Bower used groups of words in a fashion similar to story impressions. When viewed together, the words activated a general, overall

Story impressions given to a class	A remedial 8th-grader's story guess written from the story impressions
House ↓ Old man ↓ Young man ↓ Hatred ↓ Ugly eye ↓ Death ↓ Tub, blood, knife ↓ Buried ↓ Floor ↓ Police ↓ Heartbeat ↓ Guilt ↓ Crazy ↓ Confession	There was a young man and his father, an old man. They lived in a house on a hill out in the bouniey's. The old man hated his son because he had an ugly eye. The young man was asleep in his bedroom when he was awakened by screaming. He went to the bedroom and saw his father laying in the tub. There was blood everywhere and a knife through him. The young man found a tape recorder hidden behind the door on the floor. He turned it on; there was screaming on the tape. The young man started to call the police, but then he stopped and remembered what his mother had told him. She had told him that he had a split personality. So he called the police and confessed to being crazy and killing his father. His heartbeat was heavy as he called.

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Figure 1. Story Impressions (Prereading) Activity Based on Poe's "The Tell-Tale Heart"

schema for nearly all subjects. For example, the set princess, mouth, hold, and dial would tend to activate a *telephone* schema (p. 6). Story impressions might function in the same manner by suggesting plausible event schemas in which they could be embedded. With story impressions, one also would expect the sequence of the clues to supply further constraints on schema selections.

An investigation by Rumelhart (1984) offers additional support for this interpretation of the way in which story impressions might be expected to function. In an attempt to track the hypothesis testing process of individuals during reading, Rumelhart presented stories to subjects, one line at a time. Subjects were asked to give their ongoing interpretation of the story after reading each line. Rumelhart discovered that readers developed strong impressions about certain aspects of the story. Particular "words and phrases appeared to suggest from the bottom-up certain frameworks of interpretation," and in many cases, a single word in the line of a story was enough to suggest a totally new interpretation for the story (p. 17). The act of constructing a story guess (framework of interpretation) based on a set of story impressions presumably operates in much the same way, by

employing the same methods of interpretation that readers use as they compose a referential model while reading any story, except for the use of many fewer clues.

Once a story guess is devised, therefore, it can serve as a source for predictions about the events of the upcoming story. These predictions can then be confirmed, modified, or disconfirmed as the reader encounters the details of the actual story in a manner identical to that described by Rumelhart (1984) for the general process of understanding a story. In this way, story impressions ought to enable readers to formulate their own anticipatory previews and thus have a subsequent beneficial effect on story comprehension and retention. The purpose of this study was to investigate this possibility. We predicted that students who developed a written story guess based on story impressions would demonstrate enhanced story comprehension and recall.

We also included reading ability as a factor in this study because of its potential to moderate the effects of any preview technique. Below-average readers might be expected to benefit most from the story impressions preview activity. For above-average readers, however, the activity may have less or no effect, because proficient readers tend to make predictions (be interactive readers) when reading (Rumelhart, 1984). An alternative possibility was that the story impressions technique would be more effective for the better readers because their written story guesses might be expected to match more closely the author's tale (Pehrsson & Denner, 1985). In addition to reading ability, this study also examined the degree to which students' written story guesses must resemble the author's actual story so that the previewing method is effective.

Methods

Subjects

Sixty Grade 2 students attending elementary school in southeastern Idaho participated in this study. Based on a median split of their Science Research Associates (SRA) (1979) achievement series reading composite scores (Md = 76, Q = 15.78), the students were classified as above-average or below-average readers. The students then were randomly assigned to either the story impressions preview (n = 30) or to the no-preview (n = 30) treatment condition.

Materials

The passage used in this investigation was a short story by Sterns (1946), titled "Chuckle Makes A Friend." The readability of the 841-word passage, as computed by the Fry (1977) and Dale and Chall (1954) formulas, fell at the late second- to early third-grade reading level. For each sentence of the story, normative ratings of the "struc-

tural importance" (SI) were computed according to procedures outlined by Johnson (1970). These normative ratings provided a basis for selection of the story impression, as well as a basis for later comparison of the author's actual text with the readers' written story guesses.

We obtained the normative ratings by asking 30 college students to rate each text sentence (divided into pausal units) by its importance to the overall meaning of the passage. The college students were assigned to one of three subgroups having the task of eliminating one fourth, one half, or three fourths of the sentence subunits that were least important to the overall semantic content of the story. A count of the number of times that a sentence subunit was judged essential (retained rather than eliminated) provided the measure of its structural importance. Based on these ratings, the 108 pausal units of the story were classified according to six levels of structural importance (Johnson, 1970).

We developed story impressions from the set of story units rated at the two highest levels (levels 1 and 2) of structural importance. We arranged the 34 subunits according to the order in which they occurred in the story. Then we selected 14 units that provided significant clue information about the setting, characters, and major elements of the plot and we chose 14 additional units. The initial percentage of correspondence between the independently selected sets of story units was 79%, indicating sufficient interrater agreement for the purposes of this investigation. We then agreed on a final set of 14 units from which the story impressions for this investigation were derived. Next, the selected story units were reduced to a single word or telegraphic phrase. A maximum of three words was used per impression. The 14 clues were arranged vertically and marked with arrows to indicate clue order. Figure 2 presents the set of story impressions developed for this investigation.

The posttest consisted of 21 questions that targeted specific information about characters and events contained in the story passage. For example, one sentence read "He was a fat, furry young ground hog who loved to lie in the sun," and the related posttest question asked, "What kind of an animal was Chuckle?" To be considered correct, the students had to respond with the specific information contained in the passage. For the question above, the only acceptable answer was "ground hog." In some instances, variations in phrasing and synonyms also were considered correct when they did not alter the meaning of a given passage sentence. Of the 21 comprehension questions, 9 of the items were related to the clues supplied by the story impressions, whereas 12 of the items assessed recall of information unrelated to the clue words contained in the story impressions. An independent rater "blindly" rescored all (taped) recall performances to evaluate the accuracy of the scoring procedure. The cor-

relation between the two independent assessments was $r = .97, p < .001 (N = 60)$.

Procedures

For the story impressions group ($n = 30$), we presented an example set of clues unrelated to the to-be-read selection. Next, we introduced the process of composing a story guess, using the sample clues. During this process, the subjects in the story impressions group contributed suggestions on how the sample clues might be connected. We next read (orally) the composed story with the students, then distributed the set of story impressions for "Chuckle Makes A Friend." The students linked the clues in the same manner demonstrated and generated a story guess of their own. The entire process took approximately 60 min. During the hypothesis generation and story-writing phase for the story impressions group, the read-only control group ($n = 30$) completed, in another classroom, prearranged activities, unrelated to the experimental passage, that were supplied by the cooperating teachers.

After writing their stories, the students in the story impressions group read their stories individually. Each student was then given a copy of "Chuckle Makes A Friend" to read for the first time. When the students finished reading the assigned story, they were asked (orally) the posttest questions. The students' oral responses to these questions were tape recorded. At the same time, the students in the control group met individually with one of us to read the story and answer orally the same set of com-
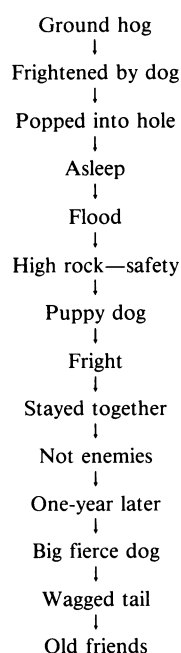
Ground hog
|
Frightened by dog
|
Popped into hole
|
Asleep
|
Flood
|
High rock—safety
|
Puppy dog
|
Fright
|
Stayed together
|
Not enemies
|
One-year later
|
Big fierce dog
|
Wagged tail
|
Old friends

Figure 2. Story Impressions for "Chuckle Makes A Friend," by David Stearns.

prehension questions. The order in which the students from both experimental conditions met with and were assigned to the two researchers was determined on a random basis.

Story Analysis

In order to examine whether closeness of match affected subsequent story comprehension, we measured the proximity of the student-author stories, using a modification of a scoring technique developed by Pehrsson (1982). We evaluated the students' stories by assigning a proximity rating to each pausal unit of their story. Johnson's (1970) procedure was used to break the students' stories into pausal units. A pausal unit represents a break between segments of a story where the reader *pauses* to take a breath and encode a chunk of the narrative text. Individual story units received a rating of 3 (high match) when the student's unit was the same or similar to the specifics of a unit of the author's story and consistent with the author's overall story organization. A rating of 2 (moderate match) was given to a student's story unit that was similar to a story unit of the author's story, yet contributed more to the student's own story development than to a story similar to the author's. A rating of 1 (low match) was assigned when a student's story unit referenced the same concept as a unit of the author's story but developed it differently from the author's narrative. Finally, 0 points were awarded (no match) when the student's story unit was unrelated to any of the author's story units.

These ratings then were tallied to obtain a reader-author global proximity score. We also tallied the total number of matching units (units with a score of 1 or higher), and the average degree of match was computed by dividing each student's global proximity score by the number of story-unit matches. We assessed the objectivity of the scoring procedure for evaluating reader-author story proximity by having a rater, "blind" to the hypotheses of the experiment, rescore all the students' stories. The obtained Pearson product-moment correlations for the ratings were $r = .95, p < .001 (n = 30)$ for the global proximity measure and $r = .89, p < .001 (n = 30)$ for the number of matching story units, revealing adequate interrater reliability for the purposes of this study.

Results

Total Cued Recall

We assessed the effect of using story impressions as a previewing activity on immediate cued recall for above- and below-average second-grade readers using a 2 × 2 ANOVA. The dependent measure was the total number of correct answers on the 21-item posttest. Table 1 presents the means and standard deviations of the posttest comprehension scores for the two treatment conditions by reading ability level. The results revealed a significant

Table 1.—Mean Posttest Scores by Preview Conditions and Reading Ability Levels

Groups	Total			Impressions— related		Impressions— unrelated	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*
No preview control	30	14.5	3.7	7.5	1.8	7.0	2.4
Low readers	14	13.1	4.3	7.1	2.3	6.0	2.3
High readers	16	15.8	2.7	7.9	1.1	7.9	2.2
Story impressions	30	16.5	2.7	8.3	1.0	8.2	2.0
Low readers	15	15.3	2.8	8.0	1.2	7.3	2.0
High readers	15	17.7	2.0	8.7	.5	9.0	1.8

main effect for treatment condition, $F(1, 56) = 7.51$, $MSe = 9.2$, $p < .01$. The students who engaged in the preview activity ($M = 16.5$) correctly answered significantly more of the comprehension questions than students ($M = 14.5$) who read only the story. In addition, the above-average readers ($M = 16.7$) recalled significantly more story information, $F(1, 56) = 9.69$, $p < .01$, than below-average readers ($M = 14.3$). But reading ability was not found to interact, $F(1, 56) = .85$, $p = .82$, with the preview treatments. These results suggest that the use of story impressions as a previewing strategy facilitates comprehension of the story when it is subsequently read for the first time, and the beneficial effects of the story impressions preview extend to both above- and below-average readers.

Impression-Related/Unrelated Recall

We assessed the impact of story impressions on both impression-related and unrelated posttest items, using 2 × 2 ANOVAs with preview treatment (story impressions vs reading-only) and reading proficiency (above- vs below-median readers) serving as the between-subjects factors. The results revealed that above-average readers scored significantly better than below-average readers for both impressions-related, $F(1, 56) = 4.04$, $p < .05$, and impressions-unrelated test questions, $F(1, 56) = 10.81$, $p < .01$, and differences in reading proficiency did not interact with preview condition for either impressions-related, $F(1, 56) = .04$, $p = .85$, or impressions-unrelated test questions, $F(1, 56) = .04$, $p = .85$. Students in the story impressions group ($M = 8.3$) exceeded the reading-only control group ($M = 7.5$) in recall of impressions-related items, $F(2, 55) = 5.21$, $MSe = 2.0$, $p < .05$, and the story impressions group ($M = 8.2$) also exceeded the control group ($M = 7.0$) in recall of items unrelated to the story impressions, $F(2, 55) = 4.70$, $MSe = 4.34$, $p < .05$. These results imply that the beneficial effects of the story impressions preview were not limited to increased recall of clue-related information.

Reader/Author Proximity

For students in the story impressions group, we evaluated the relations among the student-author proximity ratings and posttest comprehension scores, using Pearson product-moment correlations. Table 2 presents the means and standard deviations for the student-author proximity scores. The intercorrelations among the posttest scores and student-author proximity scores are presented in Table 3.

The results revealed that the amount of global proximity between the students' stories and the author's tale was not significantly related to total comprehension scores, $r = -.03$ ($p = .45$), impressions-related recall, $r = -.11$ ($p = .28$), or impressions-unrelated recall, $r = .01$ ($p = .47$). In addition, the number of matching story units was not significantly related to total recall, $r = -.06$ ($p = .37$), impressions-related recall, $r = -.14$ ($p = .23$), or impressions-unrelated recall, $r = -.02$ ($p = .46$). The average degree of match between a student's story and the author's story also was not significantly related to total recall, $r = -.01$ ($p = .48$); impressions-related recall, $r = -.04$ ($p = .42$); or impressions-unrelated recall, $r = .00$ ($p = .50$). These results suggest that the students' ability to approximate the author's story in their own written story guesses was not related to their subsequent enhanced recall performance, and therefore was not the major factor explaining the beneficial impact of the story impressions preview.

Relations of Proximity Measures to Ability

In order to examine whether higher ability students were better able to write story guesses that matched the author's actual tale, we evaluated the relations among the ability measures and the proximity measures, using Pearson product-moment correlation. Only the global proximity measure was significantly related to reading ability

Table 2.—Mean Student/Author Proximity Scores

	Story impressions preview		
	n	*M*	*SD*
Global proximity	30	33.3	11.7
Number of matches	30	15.7	5.1
Average degree of match	30	1.9	.3

Table 3.—Intercorrelations Among Posttest Scores and Student/Author Proximity Scores

Factors	1	2	3	A	B	C
1—Total score	—	.74*	.96*	− .03	− .06	− .01
2—Impressions—related items		—	.54*	− .11	− .14	− .04
3—Impressions—unrelated items			—	.01	− .02	.00
A—Global proximity				—	.98*	.86*
B—Total matches					—	.78*
C—Average degree of match						—

*$p < .05$.

(composite SRA scores), $r = .30$, $p = .05$. The correlations for number of matches, $r = .28$ ($p = .06$), as well as for average degree of match, $r = .23$ ($p = .11$), were not significantly related to the reading ability measure. A limitation of these findings concerns the small number of subjects who participated in this study. With a larger number of subjects, each of these small correlations may have proved statistically significant. Because of the relatively small sample, we interpreted these results to mean that there was a tendency for above-average readers to develop stories that had greater correspondence to the author's story than those story guesses developed by below-average readers. Overall, we did not find reader/author story proximity to be significantly related to the enhanced posttest scores of students in the story impressions group.

Discussion

As expected, 2nd-grade students who engaged in the story impressions preview activity correctly answered more of the posttest comprehension questions than did students who read only the story. Additionally, unlike other successful previews (Graves & Cooke, 1980; Graves & Palmer, 1980; Graves, Cooke, & Laberge, 1983), the story impressions preview did not give away large amounts of story content in order to improve comprehension. When creating stories from story impressions, the readers formulated their own preview content. Story impressions, therefore, have been shown to be an effective prereading technique for narrative passages. The story impressions preview also proved to be effective for both above- and below-average readers.

Why did writing a story guess based on story impressions improve comprehension of the actual story when it was subsequently read for the first time? One possibility was that the readers would be able to accurately guess many aspects of the specific content of the story and that this would facilitate their comprehension as the story was read. The results of the present experiment did not confirm this possibility. We found that the students' ability to approximate the author's story in their own story guesses was not related significantly to their subsequent enhanced posttest scores. Other factors related to the quality of the students' written story guesses not

measured in this study may have had an impact, however. Nevertheless, based on the measures employed in this investigation, the amount of content accurately guessed did not have an effect on posttest scores.

A second possibility was that students paid more or closer attention to the clue words contained in the story impressions when they read the actual story, and this enhanced their recall. Our results indicated that the story impressions preview enhanced recall of impressions-related test items, but the technique also enhanced the recall of test items that were unrelated to the clue words contained in the story impressions to the same degree. We find unlikely the prospect that the observed improvement in total recall was due to increased attention to the clue words alone. If attention were the significant factor, then one would have expected to find a correlation between the number of matches (same story units) between the student/author stories and subsequent posttest scores. This correlation was not the case. Future research on the use of story impressions might include a preview group that reviews the story clues without composing a story guess. This condition was included in a pilot study conducted by Denner and McGinley (1986) with eighth-grade students that failed to show a facilitative effect.

How then did the act of writing a story guess, based on story impressions, enhance comprehension? An alternative explanation is that the process of developing the hypothesis story itself, whether correct or incorrect, and then actively testing it, was the major factor in facilitating comprehension. Based on his experiments with one-line-at-a-time reading, Rumelhart (1984) concluded that understanding a story is an interactive process, one that involves using story information as clues for the formation of hypotheses (creation of an anticipatory model), followed by a series of dynamic revisions based on subsequent confirmation or disconfirmation of the hypothesized interpretation. In this respect, evaluation of the goodness-of-fit of a story guess, based on story impressions, should resemble markedly the thought processes that Rumelhart suggested are involved in the actual understanding of stories. In this way, the reader's written attempt to account for the configuration of the clues presented in the story impressions preview in this study appears to have functioned more as a warming up to an in-

teractive reading process than as a preview to the story's actual content.

In support of this interpretation, we informally observed that composing a story as part of a prereading activity prompts readers to spontaneously realign the perspective from which they read the story. Interestingly, students begin to direct many of their comments during class discussions (postreading) to issues related to the author's craft. Apparently, because of the students' involvement in writing their own versions of the story based on the clues, they also begin to view themselves as authors. Thus, story impressions as a previewing technique may be an effective means for improving comprehension because it disposes students to approach reading from the perspective of a writer. In other words, the students begin to realize that reading, much like their own writing, is a composing process that requires their active participation in the progressive refinement and revision of initial predictions and expectations (Tierney & Pearson, 1983).

Further research is needed to establish whether attention to impression-related information, evaluation and revision of predictions, the composition process itself, or some combination of these factors is most responsible for subsequent increases in story comprehension following the story impressions preview activity. Currently, the findings support teachers' use of story impressions as a prereading/writing activity to improve students' story comprehension.

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