

Factors Affecting Reading Recall (Part 1)

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ABSTRACT

Previous research has investigated whether many variables affect a reader's ability to understand and recall a text written in a first or second language. The present study reviewed some of the literature related to factors that affect reading recall: background knowledge, the syntactic complexity of the text, the language of recall, the importance of the structure of a passage, story schema, and sex differences and reading ability. Thus the factors considered in this paper should be taken into account when we research reading recall.

KEY WORDS

recall protocols EFL/ESL reading
variables

1. Introduction

It has been reported that comprehension measured by recall is affected by various factors. Recall protocols reveal something about the readers' retrieval strategies and reflect how readers reconstruct and encode information in a text (Bernhardt 1983: 31). Previous research has investigated whether many variables affect a reader's ability to understand and recall a text written in a first or second language: background knowledge (e.g., Carrell, 1983), rhetorical organization (e.g., Carrell, 1984b), story schema (i.e., the order of text presentation) (e.g., Carrell, 1984a; Mandler 1978, the level of language proficiency (e.g., Hirano, 2000a, 2000b; Lee and Ballman, 1987; Takahashi, 1994), language experience (Hirano 2002), sex differences and reading ability (Brantmeier, 2003; Hirano 2003; Young & Oxford, 1997), the importance of the structure of a passage (e.g., Brown and Smiley, 1977; Johnson, 1970), the syntactic complexity of the text (e.g., Barry and Lazarte, 1995), the language of recall (native versus target) (e.g., Lee, 1986), pre-reading instructions given (e.g., Lee, 1986), and the recall criteria (e.g., Hirano, 1998; Hirano, 2000a). The present paper focuses on the following factors: background knowledge, rhetorical organization, awareness of text structure, story schema, the level of language proficiency, language experience, and sex differences and reading ability.

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2. Factors Affecting Reading Recall

2.1 Background knowledge

Carrell (1983) studied the effect of three types of background knowledge on comprehension as measured by a recall task. All subjects were told that after reading a narrative passage, they would be asked to write down their recalls in English (their second language). Her findings indicate improved recall when advanced ESL subjects were familiar with the content area of the text.

2.2 Rhetorical organization

Carrell (1984b) and Lee and Riley (1990) found that the quantity of L2 readers' recall was affected by text structure. Carrell examined the effects of rhetorical organization on the reading comprehension (i.e., recall) of ESL students of different native language backgrounds. Prior to reading, the students were not told that they would be asked to recall the expository text in English. The results revealed that recall was influenced by rhetorical organization and the subjects' native languages as well as the recall condition (immediate written recall versus delayed written recall). Comparison, causation and problem/solution enhanced the recall of specific ideas from a text more than the collection of descriptions did.

Using a recall task, Lee and Riley also demonstrated that L2 reading could be improved through the presentation, before reading, of a framework indicating the rhetorical organization. They explored the effect of providing inexperienced foreign language readers with information about the rhetorical structure as a text adjunct on comprehension as measured by the recall of idea units of an expository text. Two passages (a collection of descriptions and a problem/solution) were tested under each of three conditions: no framework, minimal framework, and expanded framework. Data analysis indicates that providing an expanded rhetorical framework before reading is an effective text adjunct for the recall of expository prose for inexperienced readers in a foreign language. Interestingly, the degree of effect depended on the type of discourse structure, that is, how tightly organized the passage was. For the problem-solution passage, providing readers with a rhetorical framework as a text adjunct had no significant effect on overall recall; for the collection of descriptions, however, those readers provided with an expanded rhetorical framework recalled significantly more than those under the other two conditions. It was suggested that the more loosely organized the passage, the more pre-reading adjuncts would facilitate comprehension. On the other hand, the recall of top-level idea units of the problem-solution passage was affected by the presence of a rhetorically-oriented framework, while that of the collection of descriptions passage was not.

2.3 Awareness of text structure

Awareness of text structure may also facilitate reading comprehension as measured by recall. In ESL/EFL reading research, Carrell (1992) found that students who were aware of text structure to the point that they used it to recall information from texts comprehended better, regardless of differences in text structure. She investigated the relationships between

awareness and recall of different types of expository text structures. In her study, Carrell asked specific questions: Are there differences between L2 students' use and recognition for different types of text structure? Are there differences between the two types of text structure in the quantity and the quality of information recalled by high-intermediate ESL readers? What is the relation between quantity and quality of recall of information and structure awareness?

In this study, 45 high-intermediate proficiency ESL students produced written recalls of both comparison/contrast and collection of description texts. Two measures of awareness of text structure were used: (1) use of organization in written recall, and (2) recognition of organization in response to an open-ended question asking what plan the writer used to organize the passage they had just read.

Results of the study revealed that there were differences between the two types of awareness measurements used to examine ESL readers' awareness of text structure. Use in written recalls was more frequent than was recognition in response to a probe question. Further, there were no differences in subjects' use or recognition between the two types of text structure. Subjects were not more aware of comparison/contrast than of collection of descriptions type of texts on either measure of awareness. Somewhat surprisingly, results of the study also indicated that there were no differences between the two different text structures in the quantity of information recalled by high-intermediate ESL readers, though Carrell (1984b) found superior recall for comparison/contrast with ESL/EFL readers. However, there were differences in the quality of information recalled due to differences in text structure. The two text structures differed only in terms of the top-level ideas recalled. More of the main ideas were recalled from the comparison/contrast passage than from the collection of descriptions passage. More important, results of the study showed that in terms of relationships between awareness and recall, the awareness (i.e., use) of structure that students have relates to how well they can read and recall. Subjects who used the structure of the passages to organize their written recalls recalled significantly more ideas in total number of ideas and also recalled more of the main ideas (i.e., top-level ideas) and major topics of the text (i.e., high-level ideas) than did those who did not use the structure. However, those subjects who recognized the structure did not recall more than did those who did not. As Carrell (1985) demonstrated the benefits of instruction in text structure in a training experiment, this study also suggests that explicit, overt teaching about text structure may facilitate L2 students' reading comprehension.

2.4 Story schema

Mandler (1978) studied the narrative recall of second-, fourth-, sixth-grade, and adult subjects, using two criteria of recall of prepositions in order to investigate how the activation of a story schema affected recall and whether developmental differences were found in the use of a story schema as a retrieval strategy. The subjects listened to simple two-episode stories and recalled them. The quantity, quality, and temporal sequencing of recall for the standard and interleaved versions whose surface structure deliberately violated the posited underlying structure were examined. In the strict criterion, the second-graders remembered the least and

the adults the most. Both second-graders and adults showed no significant difference between standard order stories and interleaved order stories. The fourth- and sixth-graders, however, recalled more of the standard than the interleaved order stories and had more difficulty retrieving the interleaved stories. On the other hand, using the loose criterion of recall, the age trend remained, but there was no longer significant difference between standard stories and interleaved stories. The greatest story effects of an ideal story schema were found in the sequencing of recall, in those analyses where the loose criterion for recall was used. Subjects in the interleaved story condition showed a strong tendency to recall stories in the canonical form rather than in the input order, and this was more pronounced for children than for adults. Mandler concluded that the native-speaking children were more dependent on the story schema as a retrieval strategy to organize their comprehension and recall than were the adults.

Studies of native language (L1) reading (e.g., Mandler 1978; Mandler and Goodman 1982) have confirmed Mandler and Johnson's (1977) predictions that a story matching a canonical sequence would be better recalled than one that violated various aspects of a story grammar. Studies of reading English as a second or foreign language also examined the effects of story schema and found that the order of text presentation affected comprehension as measured by recall. Carrell (1984a), using students of English as a second language, found significantly higher recall of the standard condition than the interleaved condition. Her results were supported by those of Walters and Wolf's (1986) study. They investigated the effects of order of text presentation, text content, and language proficiency on narrative recall in order to examine claims of the robustness of the story grammar model as well as the nature of the three variables. Intermediate and advanced readers of English as a foreign language (the EFL group and the FLUENT group) were asked to recall three narratives in English as well as a set of unrelated sentences. The three narratives were presented either in a standard, partially-mixed or fully-mixed order. Each of the three narratives consisted of six principal story grammar categories: setting, initiating event, internal response/goal, attempt, consequence, and ending. Results indicate that the overall amount of recall was higher for standard and partially-mixed orders of presentation than for the fully-mixed presentation order or for the set of unrelated sentences. Language proficiency also had a significant effect on narrative recall. Overall recall increased with language proficiency. The most consistent evidence for the story grammar predictions (higher recall of settings, initiating events and consequences; lower recall of internal responses, attempts, and endings) was found in the FLUENT group's recall of standard and partially-mixed orders of one specific text content. Walters and Wolf concluded that language proficiency, text content, and order of presentation may mitigate the robustness of findings typical of story grammar research (i.e., better recall of settings, initiating events and consequences).

2.5 Story schema and level of language study

Further support for the effect of the order of text presentation and level of language study is found in Riley (1993). The findings of Riley's study suggest that both story structure and the

amount of L2 language experience influence the performance of L2 learners of French on recall protocols. Riley found significantly higher recall of the original story structure than the story grammar violation condition. Beginning L2 learners recalled the least, and the more advanced learners recalled the most. Text structure made the biggest difference for Level Two subjects (second-year learners), while for Level One subjects (first-year learners) as well as for Level Three subjects (the more advanced learners), the variation in text structure seemed to have less impact on their overall comprehension.

2.6 Language proficiency

Lee and Ballman (1987) showed that the semester level of FL learners of Spanish proved to be a significant factor affecting the total recall of passages, though it is not clear in their research whether the semester level represented different levels of language proficiency.

Takahashi (1994) investigated the relationship between English proficiency and Japanese undergraduate EFL students' comprehension and recall of key points (his term for main ideas) and details of expository text. His results indicated that comprehension and recall seemed to improve with the increase of language proficiency. It was found that the key points were better recalled than details. In addition, the high-proficiency group (i.e., skilled readers) recalled the important points of a passage better than the low-proficiency group (i.e., less skilled readers). However, there was not a significant difference in the recall of three out of four details between the two groups.

Hirano (2000a) revealed that language proficiency played an important role in students' recall of the total ideas, the total main ideas, and the ideas for each paragraph of a passage. Irrespective of scoring criteria, the high-proficiency students recalled significantly more idea units of the total text than the low-proficiency students. The ability to comprehend and recall main ideas in prose was also related to global language proficiency. The high-proficiency students recalled significantly more of the main ideas than the low-proficiency students.

Analyses of the interaction of proficiency level and paragraph revealed that students' levels of language proficiency affected their recall of idea units of paragraphs. The high proficiency group recalled more idea units in three of the four paragraphs (not in the first paragraph) than the low-proficiency group. The difference in the pattern of recall of the paragraph was also a function of language proficiency.

2.7 Language experience

Hirano (2002) reported that Japanese students' English language experience had a significant effect on their reading comprehension as measured by a recall task. Target language experience had a significant effect on students' recall of the total ideas, the total main ideas, and the ideas for each paragraph of a passage. That is, there were significant developmental differences in total recall, the total main ideas recalled, and the recall of the ideas for each paragraph among high school students, undergraduates, and postgraduate students, suggesting that as students' grade level increased and their reading ability improved, their recall increased.

Hirano investigated the effects of target language experience and two different scoring criteria (strict versus loose) on the written recalls of 154 Japanese EFL high school students (sophomores), 117 undergraduates (freshmen), and 40 postgraduate students. Results showed that differences in the total quantity of the text recalled and in the recall of main ideas among the high school students, undergraduates and postgraduates were affected by different scoring criteria. For either strict or loose scoring criteria, the postgraduates recalled not only more idea units of the text but also more of the main ideas than the undergraduates, followed by high school students. As years of study increased, the students' ability to comprehend and recall paragraph main ideas as well as idea units of the text improved with target language experience.

Moreover, the findings of Hirano suggest that the effects of grade level and the order of paragraphs should be taken into account when a comparison of the quantity recalled among paragraphs is made. Analyses of the interaction of grade level and paragraph reveal that the difference in students' grade level affected the difference in the recall of idea units of each paragraph.

2.8 Sex differences and reading ability

Few studies have explored gender differences in reading comprehension (Brantmeier 2003). Young and Oxford (1997) found no significant gender differences for comprehension as well as for frequency of use of specific strategies or for strategy type. Forty-nine native English-speaking men and women (26 females, 23 males) processed two Spanish texts and one English text using local and global strategies, respectively, and males and females used similar strategies. With respect to recall scores, there were no significant differences by gender for all three texts.

Brantmeier (2003) examined the effects of certain individual differences, such as topic familiarity, enjoyment and interest on the reading comprehension of male and female learners. Results of this study showed that passage content and readers' gender significantly affected their performance on the recall comprehension task at the intermediate level. Males scored higher on the recall task for the passage about boxing, and females scored higher on the recall task for the passage about a housewife. The findings suggested that in addition to linguistic factors, other variables such as gender, passage content, and topic familiarity may increase the L2 reading burden. Enjoyment and interest mattered little. Low levels of enjoyment and interest factors did not hinder performance on written recalls.

One of the most important issues in L2 reading comprehension assessment is the validity of a recall test used in measuring reading comprehension. Hirano (2003) examined the concurrent validity of a recall test as a measure of reading comprehension and the effects of the level of reading ability and sex difference on the written recalls of 70 Japanese EFL university students. The reading abilities of male and female students were controlled so that they would be equivalent. Her findings showed that moderate significant correlations were found between a recall test and a standardized reading test (i.e., the Cambridge First Certificate in English): for all the students, $r = .64$, $p < .01$; for males, $r = .61$, $p < .01$; for females, $r = .67$, $p < .01$. It was

suggested that a recall test was moderately valid as a measure of reading comprehension. While sex difference did not affect the concurrent validity of a recall test and recall test scores, reading ability proved to have significant effects on total recall, main ideas recalled, the recall of paragraphs, and paragraph main ideas recalled. That is, regardless of sex difference, the students with high reading ability recalled the overall text, all main idea units, paragraphs and paragraph main ideas better than those with low reading ability. It should be noted that there was no significant difference between male and female students in the recall of total idea units, total main ideas, and the recall of paragraphs and of paragraph main ideas.

Further results showed that the interaction between reading ability and sex difference was not significant in terms of 1) total recall, 2) the recall of main ideas, 3) paragraph recall and 4) the recall of paragraph main ideas, suggesting that sex difference did not affect the differences between the students with high and low reading ability in these four kinds of recall: 1) total recall, 2) the recall of main ideas, 3) paragraph recall and 4) the recall of paragraph main ideas.

Brantmeier (2003) contended that "the few studies that have examined the role of gender in L2 reading are diverse in terms of participants, comprehension measurement tasks, and other research methods, and consequently generalizations across studies cannot be made" (p.34). Further research in ESL/EFL is needed to investigate whether sex differences are a key variable affecting L2 reading comprehension scores.

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