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A SUMMARY OF STUDIES RELATED TO THE EFFECT OF QUESTION PLACEMENT ON READING COMPREHENSION

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Most reading specialists would agree that the sole justification for the various decoding instruction in reading is to prepare the student for extracting meaning from the written symbol (Tinker and McCullough, 1962). The pronunciation of words without understanding their meaning is of little use to anyone. Therefore, the development of the processes by which meanings become associated with symbols must be provided for in any reading program (Bond & Tinker, 1973). According to Strang (1969), the mature reader must not only understand the literal meaning of a passage, but also interpret the author's statements, make critical judgments, inferences and evaluations, form conclusions and make generalizations. The degree of accuracy of comprehension called for, motivation, and the purpose for reading determine what level of comprehension students read (Wall, 1971). Reading comprehension can best be inferred by observing the behavior of the reader when responding to comprehension questions—written or oral (Hoskisson, 1973). Harris (1970) emphasizes that questions are useful not only as an indicator of competency in reading comprehension, but as a basis of strategies for teaching comprehension. While it is generally agreed upon that question placement affects pupils' comprehension, it is not agreed upon as to where the placement of questions should be. A review of the research reveals that numerous studies have been conducted in this area. Their findings should be a primary consideration for any teacher interested in developing effective questioning strategies.

Research Showing the Advantages of Prequestioning

The first reported study which dealt with the effect of prequestioning techniques on reading comprehension was conducted in 1921 by Germane. He compared the comprehension levels of students who had been given a set of questions prior to their reading the selection as opposed to those who had been allotted the same amount of time to re-read the selection. Reported mean scores were 14.3 for the experimental group and 13.9 for the control group. This was a one month mean difference in favor of the group that had been exposed to the prequestioning treatment. Germane (1921) also conducted a replication of the above study using 88 college sophomores and obtained identical results. Based on

these findings, Germane concluded that it would be more advantageous to present questions to children before reading an article than to allocate the same amount of time having children read the selection.

The findings of Germane prompted similar experiments. In an effort to determine the reliability of the Germane study, Holmes (1931) conducted a study with the same stated purpose. In addition, Holmes was interested in the effect of prequestioning on delayed recall and the interaction of question placement and the nature of the material presented. Results showed that both experimental groups scored higher than did the two control groups. On the basis of these results, Holmes concluded that since reading guided by prequestions surpasses rereading without questions in both the immediate recall and delayed recall of answers to questions it is beneficial to provide students with questions for guidance in reading material.

Yoakam and Truby (1926) were concerned with the effect on comprehension of prequestions that were general in nature. Reported results indicated that the experimental group which had received the prequestions scored a grade equivalent of seven months higher than did the control group that received no stated purposes.

Distad (1927) conducted a unique study which sought to incorporate several facets of the previously mentioned experimental studies. More specifically, the four treatments were: 1) reading to find answers to eight specific prequestions presented by the experimenter, 2) reading to find answers to eight specific questions raised by the subjects themselves, 3) reading to find the answer to a general problem, and 4) reading with no direction. The following results were obtained. Group I scored 15.0, Group II—14.3, Group III—13.0, and Group IV—11.8. Basing conclusions on these results, Distad stated that directed reading aids in the development of reading habits which increase comprehension.

Washburne (1929) sought to determine the value of placing prequestions in various positions. A conclusion of the study was that question location is an important variable in the mastery of material and that the best placement is the grouping of all questions at the beginning of the story, while the worst placement is the grouping of all questions at the end of the story.

Shores (1960) was also interested in the recollection of information which was not specifically asked in prequestioning treatment. Group one was instructed to read the selection and was given no stated purpose. Group two was instructed to read the selection to restate the major events in their proper sequence. Group three was instructed to read the selection in order to find the main idea. Results indicated the group that had been instructed to read the material for the main idea achieved the highest raw score, while the group that had been given no direction achieved the lowest. Shores concluded that presenting one general question to students prior to their reading the material aided in the recall of factual information. Ballard (1965) sought to determine the effectiveness of different types of prequestions

on the comprehension of a story-type reading selection. Group A received prequestions that contained references to specific detail from the selection, Group B received prequestions that were concerned with the main idea, while Group C received no prequestions. Based on the results, Ballard concluded that guiding (Group A) questions resulted in the highest comprehension, while motivating questions (Group B) were more beneficial than no prequestions.

Grant and Hall (1967) were concerned with how prequestions affected the comprehension of subjects on various reading ability levels. Each ability level was divided into an experimental group receiving a broad prequestion and a control group which received no prequestions. For the above average and average readers, the experimental group resulted in higher scores, while the below average experimental group did not perform as well as the control group.

Henderson (1964) was interested in comparing the effect on comprehension of prequestions generated by the student himself as opposed to prequestions generated by the teacher. Group one was asked to provide for itself a collective purpose prior to reading the selection. Group two received a teacher generated purpose for reading the selection; Group three received no stated purpose. Results indicated that the most effective prequestions are those that are generated by the student himself. However, a teacher generated prequestion is more advantageous than the use of no prequestions.

In an effort to determine the relationship between asking questions to develop a purpose for reading and reading achievement, Fincke (1968) used two different forms of an informal reading inventory. Form A of the inventory included purpose setting questions, while form B included only postquestions. A comparison of the means of the two groups indicated that subjects scored significantly higher when purpose setting questions were included.

Research Showing the Negative Results of Prequestioning

Until the 1950's all the studies lent credence to the hypothesis that prequestioning had positive effects on comprehension in reading. The investigations presented in the following section failed to support this theory.

The earliest experiment which resulted in the high achievement being obtained by the group reading without a specific purpose was conducted by Christensen and Stordahl (1955). The purpose of the study was to measure the effect organizational aids and questions had on reading comprehension. Group A was given prequestions and advance organizers, Group B was not. Based on scores obtained by both groups after reading two selections, the conclusion was drawn that organizational aids and advance organizers do not improve reading comprehension. While the previous investigation was conducted using adults as subjects, Snavely (1962) obtained similar findings with fourth, sixth, and eighth grade students.

Bloomer and Heitzman (1965) also used grade school students

as subjects for their experiment. On the basis of results obtained from reading comprehension and I.Q. scores, 80 eighth graders were assigned to one of the following treatments: 1) prequestions were presented the subjects before reading the selection; 2) no prequestions were presented the subjects before reading the selection; 3) prequestions were presented the subjects before reading the selection in which the cloze procedure was used; 4) no prequestions were presented the subjects before reading the selection in which the cloze procedure was used. Mean scores were reported as follows: Group four achieved a raw score of 9.4, group two 9.0, group one 8.2, and group three 8.4. The investigators concluded that prequestions do not increase reading comprehension.

In an experiment with 159 university students, Rothkopf (1966) concluded that prequestions distract the student in that he becomes interested in finding the answer only to the specific question asked, whereas test-type questions presented after the reading increase comprehension in that they have both general and specific facilitative effects on performance.

Goudey (1968) was interested in the effect of directed reading on subjects of various reading achievement levels. He divided 300 fourth grade students into two treatment groups, subjects in each group were again divided into reading ability groups. In analyzing the data according to reading achievement level, Goudey reported that there was no significant difference between the experimental and control groups for the upper and lower reading achievement levels. Within the middle level, the group which had read under nondirected conditions achieved significantly higher than the group which read under directed conditions.

Frase (1968) proposed that characteristics of questions such as type, placement, and contiguity to related content influence learning. Using twelve treatment groups, he placed questions in various positions throughout the paragraphs. The conclusion drawn was that comprehension increased with the frequency of postquestions and decreased with the frequency of prequestions. Frase (1970) replicated his original study, substantiating his first findings.

Brady (1974) wanted to determine how stated purpose for reading affect reading comprehension of children at different ability levels. Subjects were stratified into low, middle, and high levels according to results obtained from non-verbal I.Q. scores. Based on the results, Brady concluded that comprehension was not increased by provided stated purposes for reading.

Mottley (1972) conducted a study using various types of comprehension questions in order to determine the effect of prequestioning on reading comprehension scores of children. It was concluded that prequestions do not increase reading comprehension for either low, middle, or high ability groups. In addition, the effectiveness of the prequestion is not determined by the question type.

Chadwick (1972) was interested in determining the effect

of written prequestions on reading comprehension. While the control group was administered the test in its original format, the experimental group was administered the test in an adapted form which included prequestions. Based on the results, Chadwick suggested that prequestions may lower motivation and hence serve as distractors, thus causing a lower level of comprehension.

Wiesendanger and Wollenberg (1978) studied the effects of inferential prequestions and factual prequestions on reading comprehension. Results of the study indicated that while the group that were given the inferential prequestions scored significantly higher than did the group receiving factual prequestions, the group that received no prequestions achieved the highest results.

In a Danish study (1979) involving 717 high school pupils, Dollerup's findings implied that the effects of questioning cause the students' response to be a distorted reflection of what students had actually experienced or the outcome of something different from the normal reading process.

CONCLUSION

Twenty-two studies have been reported which sought the effect of question placement on reading comprehension. Of these studies, ten favored while twelve opposed the use of prequestions. After reviewing the research in this area, one might conclude the issue of question placement to be more complex than previously theorized. For example, in some of the studies presented (Henderson 1964, and Beaucamp 1925) the prequestions had been generated by the subject; in others (Goudey 1968, and Brady 1974), the questions had been formulated by the researcher.

In addition, the type of prequestions also differed. For example, the prequestions used in the Yoakam and Truby (1926) and Shores (1960) were general in contrast to the specific prequestions used by Germane (1921). Distad (1927) sought to incorporate several facets of the previously mentioned experimental studies. Still other experiments included socio-economic status, sex and I.Q. (Brady 1974, Mottley 1972) as a variable. The effect of written prequestioning (Chadwick 1972) as opposed to oral prequestions (Wiesendanger and Wollenberg 1978) was another point of consideration. In some instances (Ballard 1965, Fincke 1968, Snively 1962) research was conducted using elementary school subjects, in others (Christensen and Stordahl 1955, Rothkopf 1966, Frase 1968) college subjects were used. In the Germane (1921) and Holmes (1931) experiments students in the experimental group were instructed to reread the material. In addition, Holmes considered the effect of prequestions on delayed as opposed to immediate recall.

In summary, one might suggest that the issue is not whether prequestions or postquestions produce greater gains in reading comprehension. Interaction of question placement and other variables such as sex, I.Q., socioeconomic background, must also be considered when determining the effect of question placement on reading comprehension.

It is logical that the objective of the lesson as well as other variables might determine whether or not the teacher should prequestion. For example, the objective might be for the student to skim in order to uncover the general gist of what the author is saying or scan to find out something particularly stated in the material. This would influence a teacher's questioning strategies.

It does seem important to remember that the ultimate goal should be for students to become proficient readers—independent of the teacher's aids. For this reason it seems apparent that we want students eventually to develop their own purposes for reading. Consequently, it would behoove teachers to encourage student development of questions, to learn to read the material in order to answer their questions, and to set new purposes for reading. Comprehension is an active process whereby the reader interacts with the material. After taking a number of variables into account, the teacher must use whatever questioning strategy necessary to help the student develop this interaction, so to achieve a degree of independence in reading.

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