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Content Area Textbooks: Friends or Foes? ERIC Digest.

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Walk into any upper elementary, junior high, or secondary classroom and ask the teacher to tell you about one of the main areas of difficulty that students with learning problems are having as they learn social studies or science. You will hear the same

reply echoed from classroom to classroom, "reading the textbook." There are many reasons for this--some having to do with the text itself, such as its organization and format; some having to do with the students, and their reading competencies, background experiences, or interests; and, finally, some centering on the teacher, such as his or her competence in organizing and presenting the material.

Many of the attempts to address this problem have been to suggest that texts need to be adapted for students with learning difficulties or that there are special strategies and techniques that need to be used with these students which enhance their understanding of text material. One newer conclusion in this area is that features of a text that support the reading of students with learning difficulties also support those who are not having difficulties. Likewise, teaching strategies that support students having difficulty are also considered useful for all students (Larrivee, 1986; Wang, Reynolds, and Walberg, 1988). This is an important point since, as demographic projections indicate, we are now working with and will continue to work with more students at high risk for having learning difficulties in the future (U.S. Bureau of Census, 1983; 1985). We will need to consider effective ways to meet their needs within regular class settings (Wang, Reynolds, and Walberg, 1988).

ARE FINDINGS APPLIED?

Research has indicated that current information about reading and the effective teaching of reading has not yet made much impact on textbooks. As a result, there is much room for improvement in how textbooks are written (Armbruster and Gudbrandsen, 1986; Osborn, et al., 1985). Several checklists, based on the application of this research, have been developed to assess textbooks (Armbruster and Anderson, 1981; Armbruster and Anderson, 1985; Singer, 1985). These checklists attempt to highlight features of texts that tend to make them more readable or, as Singer (1985) called them, "friendly" texts.

It stands to follow then that one focus of the research in this area has been to consider how to revise textbooks to make them more understandable. Studies considering the effect of revisions on improving comprehensibility have been inconclusive, with a few exceptions (see the review in Graves, et al., 1988). This finding is attributed to the many factors which influence understandability. Those studies that have shown significant results are those which have manipulated many factors in the text and, thus, were not able to delineate any one critical factor.

SOME APPROACHES: READABILITY, CLARIFICATIONS, GRAPHICS

One recent study in this area involved the revision of an expository text by text linguists, composition instructors, and former magazine editors. The most readable revisions were those done by the magazine editors. The study suggested that the most

comprehensible texts were those in which attention was given to the structure, content, and style of the text (Graves et al., 1988).

Another way of modifying the text has been to use abridgement and rewriting. Abridgement refers to eliminating subplots and details, while rewriting focuses on replacing words and syntactic structures with supposedly simpler versions. The problem has been that simplification may in some cases make a text more difficult to read because character contrasts are reduced and beliefs about the lexical difficulty of specific words often differ. Words that one individual judges as difficult are judged as easy by another (Campbell, 1987).

Another area of concern has been that texts tend not to address misconceptions that students commonly have about content area subjects. Two studies (Eaton, et al., 1983; Smith, 1983), have examined students' misconceptions about scientific concepts and how texts often do not consider these areas. The latter study identified four broad categories of misconceptions and suggested that these areas be addressed in the student text and teacher manual.

Studies of effective textbook adaptations have included recommendations to include more graphics (Burnette, 1982). Herum (1982) found that revising texts to include more graphics and to make the text more explicit supported college students with learning difficulties. Bergerud, et al. (1988) compared the effectiveness of two types of textbook adaptations--graphics and study guides--for the purpose of self-study, with students identified as either low achievers or learning disabled. The use of graphics, consisting of diagrams with parts of pictures or labels missing, was found to be superior to the other approaches as measured by a retention test.

FINDINGS OF SPECIAL PROJECTS

A project funded by the ERIC Clearinghouse on Handicapped and Gifted Children (Burnette, 1982) focused on the adaptation of several textbook-based curricula for the purpose of making them more appropriate for main-streamed students. The adaptations included revising texts to include text aids such as, structured overviews, organizers, chapter summaries; the use of audiotapes; inclusion of manipulatives and games in the curriculum; and development of computer software. These adaptations were found to be appropriate within a regular classroom setting and improved the learning outcomes of all the students, not just those identified as special needs learners.

The Office of Special Education Programs (OSEP), of the U.S. Dept. of Education, funded a project which supported the collaboration of educators, researchers, and publishers for the purpose of improving the usability of textbooks, particularly for use with diverse groups of learners (Educational Development Center and RMC Research Corporation, 1988). The project involved conducting a review of the literature on learners and effective instruction, developing an instrument to analyze textbooks, evaluating textbooks using this instrument, developing a set of recommendations, and holding a conference involving the three groups to discuss the findings.

The instructional design of 12 elementary and secondary social studies and science textbook programs, with their ancillary materials, was reviewed. The questionnaire used to evaluate the texts was based on current information regarding the nature of learning and the characteristics of learners. The evaluation of the texts and recommendations for change were organized into three major areas including: 1) getting students ready to learn, 2) engaging students in the learning process, and 3) having students demonstrate competence and expand knowledge.

All of the programs reviewed were rated as visually appealing with good designs and graphics. However, it was reported that many of the ancillary materials were not well coordinated with the content of the lesson.

We already have a great deal of information about what makes a text more understandable and supportive to the student in learning concepts. Yet research in the area of text adaptation indicates that the process of revision is complex and cannot be addressed with simple solutions. However, research has also indicated that publishers do need to consider particularly the need for the inclusion of additional graphics and attention not only to the content, but also to the organization and style of the text.

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