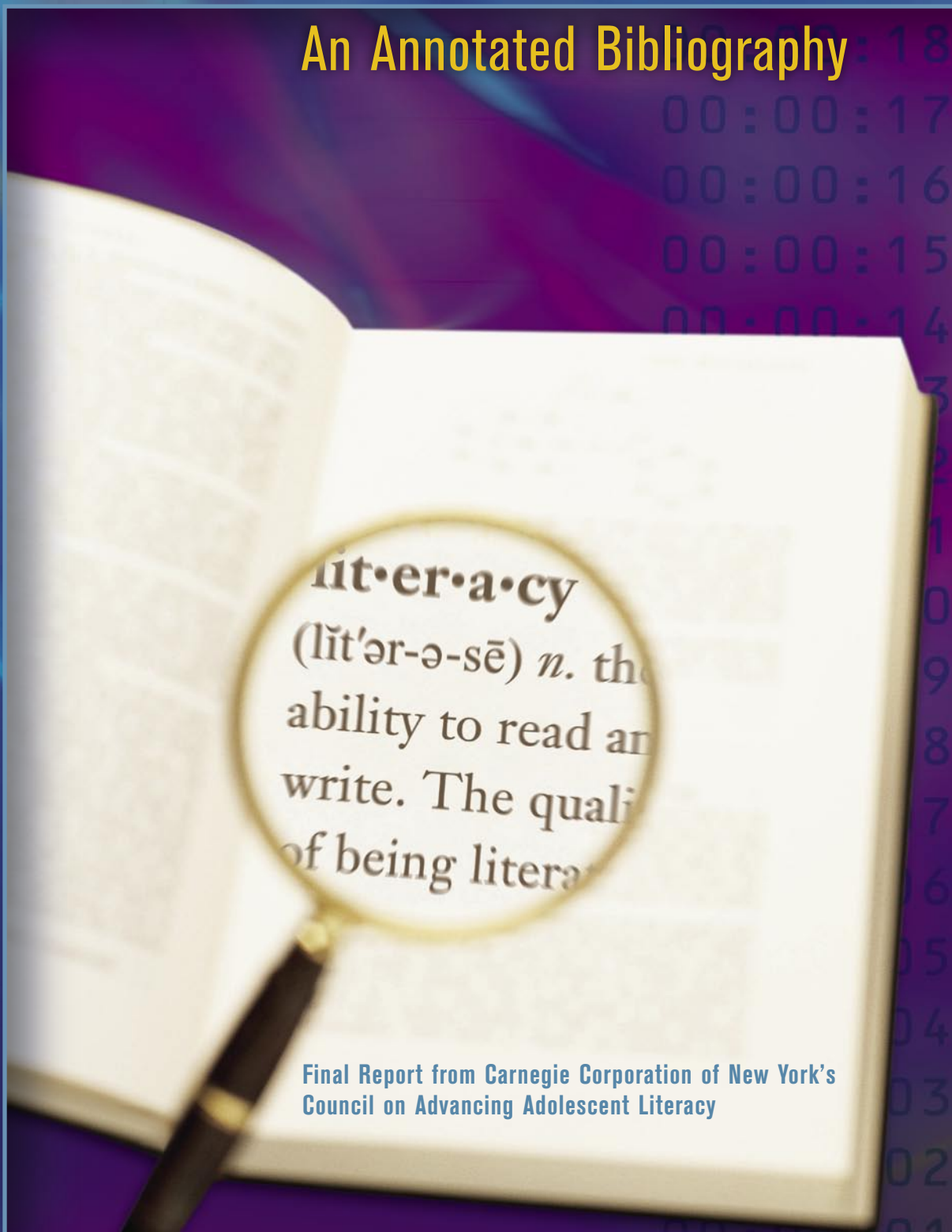
Adolescent Literacy and Textbooks

An Annotated Bibliography



Final Report from Carnegie Corporation of New York's Council on Advancing Adolescent Literacy

Michael Kamil
Stanford University

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Final Report from Carnegie Corporation of New York's
Council on Advancing Adolescent Literacy

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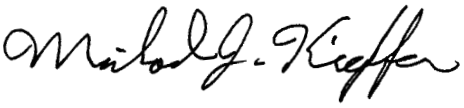

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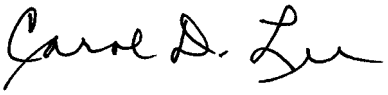

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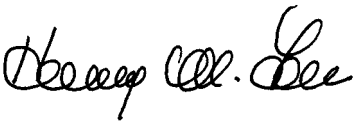

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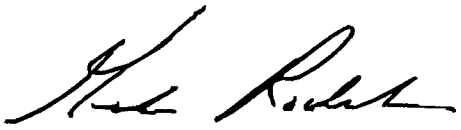

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Introduction

Textbooks are the primary mediator of learning in academic settings. As students progress from elementary school to middle and high school, the need to read textbooks becomes ever more critical. Reading instruction has not, until recently, even begun to take this reality into account (Kamil, Lane, & Nicolls, 2004). Rather, reading instruction has focused largely on literary texts, although this seems to be changing.

Publishers have also been slow to adopt research findings in the production of textbooks. Fifteen years ago, Cousin (1989) wrote "Research has indicated that current information about reading and the effective teaching of reading has not yet made much impact on textbooks." She went on to note that "As a result, there is much room for improvement in how textbooks are written (Armbruster and Gudbrandsen, 1986; Osborn, et al., 1985)." Much of the work at the time was focused on producing "considerate" texts (Anderson & Armbruster, 1984; Armbruster, 1984) and assessing them with checklists that accounted for the research findings of the time. Chall & Squire (1991) were among the few to treat publishing as a topic for a research review.

The situation today is little improved from what it was in 1989. Textbooks have undergone dramatic transformations since then. In particular, current texts incorporate far more multimedia elements, study guides, and exercises for extended student learning. Textbooks are also often linked to Internet web sites that provide additional resources for student learning. What is unclear is whether the body of additional research on textbooks has made an impact on texts available today.

Some of the efforts to apply research have come in the form of making text more readable through the use of readability formulae like the Lexile framework. Concerns about the use of the Lexile framework for this purpose have been summarized by White & Clement (2001).

Beyond that, there appears to be little communication between the various stakeholders in efforts surrounding research, production, and use of textbooks. For example, the Textbook Colloquium and its accompanying journal, *Paradigm*, covers many topics but neglects publishing as a focus.

A great deal of relevant research exists, but there is no infrastructure to deliver it. Much of this research is summarized in a series of documents from the past few years (Alexander & Jetton, 2000; RAND Reading Study Group, 2000; Biancarosa & Snow, 2004). Two recent book compilations of research on text are also available (LaSpina, 1998; Peacock & Cleghorn, 2004). This body of research takes two forms: reading and comprehending the texts and learning from texts. These two strands are rarely integrated by either researchers, publishers or practitioners. More typical is to focus on making students better readers without regard for the quality of the texts they have to read (see, for example, Schoenbach, et al, 1999).

Further, there is little communication between publishers and researchers except as individual researchers and practitioners, or teams, are involved in creating text materials for publishers. Because the academic success of students in grades 4 through 12 is so dependent on reading textbooks this problem needs to be addressed.

The need to attend to findings from research will be particularly important as the new NAEP reading frameworks will be in place for the 2009 administration. Since this framework (Salinger, Kamil, Kapinus, & Afflerbach, 2005) incorporates the latest research on text comprehension and learning, textbooks should be produced that conform to the implicit standards inherent in the framework.

While the American Association of Publishers convenes a meeting to discuss education-related issues, the audience is typically composed of persons in the publishing industry with invited presentations from some researchers, practitioners, and policy makers. A more interactive dialogue is needed, allowing researchers to present the latest in text research; publishers to explicate their needs for research to apply in producing textbooks, and practitioners to elaborate on the demands of teaching, learning and reading in the classroom. Policy makers should also be included with their concerns. To have teachers, policy makers, publishers and researchers engaged in a discussion of the issues facing adolescent readers would serve to begin a dialogue that could result in substantial benefits for everyone, particularly students.

Currently, researchers, publishers, and practitioners rarely have the opportunity to collaborate and share their insights on how to improve reading, comprehension, and learning from texts. Yet text quality is a compelling issue in adolescent literacy as the academic success of students in grades 4 through 12 is largely dependent on their ability to read and understand textbooks.

The purpose of this annotated bibliography is to provide a starting point for an ongoing and interactive dialogue about the quality of the texts students read and to extend communication between publishers and researchers on how to create enriching text materials that support teaching and learning. ■

Where the following annotations draw language from journal abstracts or articles, copyright information is provided after the note.

Annotated Bibliography

Research on Textbook Design and Reading Comprehension (Grades 4th-12th)

QUESTIONS IN TEXT:

Duchastel, P.C. (1983). Interpreting adjunct question research: Processes and ecological validity. *Human Learning: Journal of Practical Research & Applications, 2*, 1-5.

Considers the ecological validity of previous research on the effects of textual adjunct questions—questions inserted in instructional text—on learning and whether this research can realistically inform instructional practice and textbook design. The few studies emphasizing ecological validity of adjunct questions are partly at variance with other relevant research. It is asserted that the procedural constraints involved in the research of adjunct questions do not adequately mirror the constraints in real study settings. The fact that adjunct questions do enhance learning is generally recognized; however, how they do it and how these questions can be used most effectively and advantageously are not known. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Wood, K.D. (1986). The effect of interspersing questions in text: Evidence for "slicing the task." *Reading Research & Instruction, 25*, 295-307.

Investigated the effects of interspersed questions under conditions representative of a classroom environment. 103 7th graders, defined as either good or poor readers, read textbook passages in 4 experimental conditions. Significant effects were demonstrated for good readers using the treatment that involved both reviewing the text and writing a response. Findings suggest that "slicing the task," in which the amount of print a student must deal with at a given time is reduced by using interspersed questions, may be an effective instructional strategy. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Shepardson, D.P. & Pizzini, E.L. (1991). Questioning levels of junior high school science textbooks and their implications for learning textual information. *Science Education, 75*, 673-682.

Analyzed 8 junior high school science textbooks (TBs) to determine their cognitive level of questions. There was no difference in the proportion of input, processing, and output questions in the TBs analyzed; however, a significant difference was observed in the cognitive level of questions within TBs. There was a greater proportion of lower-level cognitive questions (input) within the analyzed TBs than higher-level cognitive questions (processing and output). There was no difference observed in the proportion of input, processing, and output questions by discipline and by chapter cluster. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

REWRITING TEXT:

Baumann, J.F. (1986). Effect of rewritten content textbook passages on middle grade students' comprehension of main ideas: Making the inconsiderate considerate. *Journal of Reading Behavior, 18*, 1-21.

Excerpts from 5th-grade science textbooks were read by 56 5th-graders in (a) an original (inconsiderate) version in which main ideas were implicit or not always prominent and there were few headings or typographical aids to cue main ideas and (b) a rewritten (considerate) version in which all main ideas

were explicit and appeared at the beginning of the text unit and headings cued main ideas. Recognition and recall results reveal that after reading the rewritten text versions, some Ss were able to compose significantly more passage main ideas, and all Ss were able to compose significantly more paragraph main ideas. Additional data support the finding that the rewritten versions improved text comprehension. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Beck, I.L., McKeown, M.G., Sinatra, G.M. & Loxterman, J.A. (1991). Revising social studies text from a text-processing perspective: Evidence of improved comprehensibility. *Reading Research Quarterly, 26*, 251-276.

Used a cognitive processing perspective to revise 5th-grade social studies texts, to describe the revisions, and to demonstrate their effects empirically. Four segments of text from a US textbook about the period leading to the American Revolution and their revised counterparts were presented to 85 4th- and 5th-grade students. Ss were asked to recall what they had read and to answer questions on the material. Ss who read the revised text recalled more material and answered more questions correctly than Ss who read the original text. Differences in understanding between the 2 groups were captured in qualitative analyses of recall protocols and question responses related to specific ideas in the text. Data demonstrate that a text-processing approach to creating comprehensive text is viable. The description of revision exposes the reasoning underlying the identification of problems and the changes made. (French, Spanish & German abstracts) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Sawyer, M.H. (1991). A review of research in revising instructional text. *Journal of Reading Behavior, 23*, 307-333.

Reviews research in revising instructional text by examining multidisciplinary research in readability, text structure, text interestingness, expert revisers' strategies, and readers' comprehension strategies. Much of this research is limited by a simplistic view of reading, the use of experimentally contrived texts and contexts, and a dependency on recall as a measure of comprehension. A promising line of recent research uses readers' verbal protocols to guide revision and develop revision principles. Further research needs to (1) develop other innovative ways of measuring comprehension, (2) focus on subject specific concerns, and (3) examine classroom contexts of textbook use. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Lloyd, C.V. (1990). The elaboration of concepts in three biology textbooks: Facilitating student learning. *Journal of Research in Science Teaching. Special Issue: Perspectives on concept mapping, 27*, 1019-1032.

Analyzed sections from 3 biology books to examine how content related to photosynthesis is presented through the construct of elaboration. The textbooks were selected for their differences in target audiences, as defined by student abilities. The text written specifically for the least-able reader was the text with the least amount of elaborations. Results are discussed in terms of quantity of elaboration, relevance of ideas used to elaborate major concepts, relationship of the nature of elaboration to intended readers, and the general relationship between how texts present information and student learning. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Vidal-Abarca, E., MartÌnez, G. & Gilabert, R. (2000). Two procedures to improve instructional text: Effects on memory and learning. *Journal of Educational Psychology, 92*, 107-116.

The goal of this study was to compare 2 approaches for improving instructional text. The first was based on the procedure created by B. K. Britton and S. G¸lgˆz (1991) as derived from W. Kintsch and T. A. van Dijk's theory (1978). It emphasized the reduction of the reader's inferential activity. We created a second method that was inspired by theories of narrative comprehension (P. van den Broek, 1990; A. C. Graesser, M. Singer, & T. Trabasso, 1994). We oriented it toward triggering causal inferences in the reader. Alternative versions of an original passage on history were elaborated for each of the 2 methods. Sixty-four 8th graders read either the original passage or one of the revised versions and were tested on memory (i.e., recall) and learning (i.e., inference questions). Only the 2nd procedure produced benefits on inferential learning, though both procedures had a limited effect on recall. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Beck, I.L., McKeown, M.G. & Worthy, J. (1995). Giving a text voice can improve students' understanding. *Reading Research Quarterly, 30*, 220-238.

Attempted to develop texts that would engage students and enhance their comprehension of central content. Features that can engage students were conceptualized as those that give a text voice. Four versions of a text passage were used: an original version from a textbook, a version revised for greater coherence, and versions of the textbook and coherent passages that exhibited voice. 164 4th graders were given 1 of the passages to read and then, immediately after reading, and again 1 wk later, asked to recall the passage and to answer open-ended questions. Immediately after reading, the voiced coherent passage held significant advantage over all other passages in both recall and questions, and the passage modified only for coherence held advantage only for recall over the original passage and the one modified only for voice. The same results were obtained for questions in the delay condition. (Spanish, German, Japanese & French abstracts) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Mikkil-Erdmann, M. (2001). Improving conceptual change concerning photosynthesis through text design. *Learning and Instruction, 11*, 241-257.

Investigated the effect of text design on students' comprehension of photosynthesis. 209 primary school pupils (aged 10-11 yrs) learned about photosynthesis using either traditional or conceptual change texts, with the latter

acknowledging common misconceptions about photosynthesis while attempting to foster metaconceptual awareness. Results show that Ss who studied the traditional text performed well on questions requiring fact-finding and text comprehension. However, in questions that presupposed understanding of the critical difference between a plant and an animal, or require the construction of an adequate mental model of photosynthesis, Ss using the conceptual change text scored significantly higher. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Maria, K. & Junge, K. (1994). A comparison of fifth graders' comprehension and retention of scientific information using a science textbook and an informational storybook. Kinzer, Charles K. (Ed); Leu, Donald J. (Ed); Peter, Jeanne A. (Ed); Ayre, Laurie M. (Ed); Frooman, Dorothy (Ed). Multidimensional aspects of literacy research, theory, and practice: Forty-third yearbook of The National Reading Conference. (pp. 146-152). Chicago, IL, US: National Reading Conference, Inc.

Present a study that poses several questions concerning 5th graders' comprehension and retention of scientific information using a 4th-grade science textbook and an informational story. (From the chapter) will 5th grade children who read this informational story recall more informational ideas than those who read a textbook containing many of the same ideas / [will] those who read the informational story … perform better than those who read the textbook on a short-answer delayed test / [will] recalls of informational stories [be] longer than those of the textbook / [will] informational stories [be] particularly helpful for poor readers, that is, [will] there be an interaction between type of text and type of reader Ss were 58 5th-grade students [31 males and 27 females] / Ss were categorized as good or poor readers on the basis of their total reading score on the Grade 4 Comprehensive Test of Basic Skills, Fourth Edition (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Beck, I.L., McKeown, M.G., Sinatra, G.M. & Loxterman, J.A. (1992). "Revising social studies text from a text-processing perspective: Evidence of improved comprehensibility": Reply. *Reading Research Quarterly, 27*, 108-109.

Replies to M. Pressley's (see record 1992-29186-001) comment on the results of a study by I. L. Beck et al (see record 1991-34586-001) about revising social studies texts to improve comprehensibility. The article's critical information comes from the analysis of why the text presented problems for Ss and how these problems might be solved. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Pressley, M. (1992). "Revising social studies text from a text-processing perspective: Evidence of improved comprehensibility": Comment. *Reading Research Quarterly, 27*, 108.

Comments on an article by I. L. Beck et al (see record 1991-34586-001) on the results of a study about revising social studies texts to improve comprehensibility. The results are not unambiguously interpretable because of a confounding between the experimental condition and providing Ss with an overview of text content. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Graves, M.F. & Slater, W.H. (1991). A response to "Instructional texts rewritten by five expert teams." *Journal of Educational Psychology, 83*, 147-148.

218 11th-grade students read 1 of 4 versions of a passage from a high school history text and completed an immediate recall, a delayed recall, a delayed-short-answer test, and an attitude survey. Contrary to the results of an earlier study (M. F. Graves et al, 1988) but consistent with results obtained by B. K. Britton et al (see record 1989-34626-001) and T. M. Duffy et al (1989) in attempts to replicate the original work--in the present study results of all 4 measures favored the version of the passage rewritten by composition instructors over versions rewritten by Time-Life writers and text linguists and over the original passage. Given the similar results of 3 of the 4 studies, it seems reasonable to question the results of the original study. The discrepant results and several points Britton et al made are briefly discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Duffy, T. M., Higgins, L., Mehlenbacher, B., Cochran, C., Wallas, D., Hill, C., Haugen, D., McCaffrey, M., Burnett, R., Sloane, S., & Smith, S. (1989). Models for the design of text. *Reading Research Quarterly, 24*, 434-457.

Extends and partially replicates a study comparing a segment from a high school history text with revised versions by linguists, composition teachers, and "Time-Life" writers. Finds that revisions by composition teachers were most effective. Suggests that textbook writers revise texts based on comments made by readers as they read.

Graves, M., Slater, W.H., Roen, D., Redd-Boyd, T., Furniss, D.W., & Hazeltine, P. (1988). Some characteristics of memorable expository writing: Effects of revisions by writers with different backgrounds. *Research in the Teaching of English, 22*, 242-265.

Reports two studies of comprehensible and memorable expository writing. Finds that Time-Life editors' revisions of a high school history text improved eleventh grade students' recall, while revisions made by text linguists and composition instructors did not. But given latitude to change content, all editors' revisions improved recall.

TEXT DIFFICULTY AND READABILITY:

Maddux, C.D. & Candler, A. (1987). Readability, interest, and coverage of 10 textbooks on educational assessment. *Psychological Reports, 60*, 631-636.

Analyzed 10 textbooks on educational assessment, using R. Flesch's (1949, 1951) formula for reading ease and interest. Reading levels were as follows: 1 book in the "standard, Grades 8-9" category; 5 in the "fairly difficult, Grades 10-22" category; and 4 in the "difficult, college level" category. Seven of the books were classified as "dull" and 3 as "mildly interesting." Textbook coverage on 33 topics was also analyzed

and charted. Good agreement was found for the topics treated by the various authors. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Hill, W.R. & Erwin, R.W. (1984). The readability of content textbooks used in middle and junior high schools. *Reading Psychology, 5*, 105-117.

Evaluated the multiformula readabilities of 111 content textbooks currently employed in Grades 6-9 in 30 middle and junior high schools. Two or more formulas placed 49% of these texts one or more grade levels above grade of use. Results are analyzed in light of current concerns about the accuracy and use of readability formulas, and implications for conceptual density and comprehension performance are noted. (42 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Ediger, M. (2002). Factors which make expository reading difficult. *Journal of Instructional Psychology, 29*, 312-316.

Suggests that expository reading materials, such as textbooks used in class, need careful reviewing by teachers. If, for example, there are too many new words on a page, these need to be clarified so meaningful reading occurs. Adequate time then needs to be given each new word so that pupils understand what is read. Merely being able to pronounce each new word correctly is not enough. A new word, in particular, needs to possess a contextual meaning so that pupils read meaningfully. Meaning theory is important to stress in all learning opportunities for children. Factors making reading material too complex to understand need analyzing and remedying so that each pupil achieves optimally. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

Noonan, J. (1990). Readability problems presented by mathematics text. *Early Child Development and Care, 54*, 57-81.

Although children may sometimes find it difficult to learn mathematics from the written word, they may be able to learn the specific skills of mathematical reading. Reading mathematics is a complex procedure involving not only reading words but also interpreting the various diagrams, symbols, and abbreviations integral to the text. Improvements in vocabulary, syntax, diagrams, symbols, rhetorical questions, and page layout may facilitate learning. Studies dealing with techniques for reading math texts, ways to match text to pupils, and skills in comprehension are reviewed. The validity of using readability tests on mathematics texts is also discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Spadorcia, S.A. (2005). Examining the Text Demands of High-Interest, Low-Level Books. *Reading & Writing Quarterly: Overcoming Learning Difficulties. Special Issue: Text Accessibility and the Struggling Reader, 21*, 33-59.

This study analyzed the word-, sentence-, and passage-level demands of high-interest, low-level books in a manner consistent with an interactive model of reading comprehension. Cases consisted of three randomly selected passages from sixty different books. Cases were analyzed across five variables: high-frequency words, decodable words, sentences, T-units, and coherence. A cluster analysis was performed on the 180 cases. Resulting clusters were compared to hypothetical cluster profiles that were created a priori. The principal finding was that these books vary in their profiles of characteristics across the five variables in relation to different reading instructional approaches. Two clusters were found to be written in accordance with readability formulas, and three other clusters were found to support differing models of reading instruction. Implications for book selection, materials development, and instruction are discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

Williams, R.L. & Yore, L.D. (1985). Content, format, gender and grade level differences in elementary students' ability to read science materials as measured by the cloze procedure. *Journal of Research in Science Teaching, 22*, 81-88.

An experiment with 137 4th graders, 108 5th graders, and 113 6th graders--including 189 males and 169 females--explored the relationships between page format, grade level, sex, content, and Ss' ability to read science material, using the cloze readability method. Three expository textbook passages, representing the content areas of biological, earth-space, and physical sciences, were selected and transformed into traditional cloze tests. Significant relationships were found between cloze scores and both grade level and content, and there was a significant interaction effect between grade and sex in favor of older males. No significant relationships could be attributed to page format and sex. In the area of science content, biological materials were most difficult in terms of readability, followed by earth-space and physical sciences. Grade-level data indicated that Grade 5 materials were more difficult for that level than either Grade 4 or Grade 6 materials. In 8 of 9 cases, text materials were classified at or near the frustration level of readability. Findings suggest that elementary science reading materials need to be produced with greater attention to readability and known design principles regarding visual supplements. (23 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

TEXTS FOR DIVERSE POPULATIONS:

Bergerud, D., Lovitt, T.C. & Horton, S. (1988). The effectiveness of textbook adaptations in life science for high school students with learning disabilities. *Journal of Learning Disabilities*, *21*, 70-76.

Compared 3 methods (graphics, study guides adaptation, and self-study) of studying science textbook passages. 49 learning disabled students, Grades 9-12, enrolled in a basic science or 1 of 3 study skills classes, were divided into 1 nontreatment and 3 treatment groups. For each of 3 1,000-word word passages chosen from the textbook, a 20-item multiple-choice test was constructed and administered to Ss. A 50-item MC vocabulary test was also administered to treatment Ss prior to the experiment; analysis of variance (ANOVA) revealed no significant difference in pretreatment scores of treatment Ss

based on prior knowledge of biology vocabulary. For most Ss, performance on a retention measure after instruction using graphic representation was superior to performance following the study guides or self-study methods. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Ciborowski, J. (1995). Using textbooks with students who cannot read them. *Remedial and Special Education, 16*, 90-101.

Too many students have difficulty comprehending information presented in the textbooks intended for their use. One reason for this is that textbooks are often organized so that the task of reading and thinking about them is made unduly difficult. Further, teacher editions offer little in the way of helping teachers improve the textbook's usability for students who struggle with reading. This article summarizes the existing literature on effective textbook instruction. The author then proposes how special educators and content instructors can combine their talents to compensate for poorly written books and maximize good books when teaching all their students, but particularly those students who do not learn in the expected ways. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Tyree, R.B., Fiore, T.A. & Cook, R.A. (1994). Instructional materials for diverse learners: Features and considerations for textbook design. *Remedial and Special Education, 15*, 363-377.

In diverse classrooms teachers need, and students deserve, educational tools that serve a wide range of learners. Fortunately, making instructional materials more accommodating does not have to mean sacrificing the needs of 1 group of students for those of another. Many features that are good for diverse learners are good for all learners. Text characteristics that have been shown to enhance learning are proposed to improve the audience appropriateness, text organization, and use of organizational aids in instructional materials. Reform of the design, selection, and use of materials will require a concerted effort by publishers, policy makers, and practitioners. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Shefelbine, J.L. (1990). Student factors related to variability in learning word meanings from context. *Journal of Reading Behavior, 22*, 71-97.

Examined how vocabulary knowledge (VK), the familarity of concepts, and analytic reasoning affected 32 6th-graders' ability to learn word meanings from the context of natural passages in a basal reading textbook. Ss with higher levels of general VK learned relatively more, even though they had less room for improvement. Low VK Ss were at a disadvantage not only because they initially knew fewer words, but also because they understood words less well. Also among low VK Ss, words representing familiar concepts were more likely to be learned than those representing unfamiliar concepts. General and passage specific VK seem to be important variables influencing learning from context. However, level of analytic reasoning did not significantly affect Ss' performance. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Jitendra, A. K., Nolet, V., Xin, Y. P., Gomez, O., Renouf, K., & Iskold, L. et al. (2001). An analysis of middle school geography textbooks: Implications for students with learning problems. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 17*, 151-173.

This study evaluated four middle school geography textbooks to examine readability levels, knowledge forms, intellectual operations, instructional objectives, and activities associated with before-, during-, and after phases of instruction. Results varied within and across textbooks; however, the texts were found to be generally inconsiderate of poor readers and to be dense with factual information. Implications of findings for practitioners meeting the diverse needs of students with learning problems are discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Rickford, A. (2001). The effect of cultural congruence and higher order questioning on the reading enjoyment and comprehension of ethnic minority students. *Journal of Education for Students Placed at Risk, 6*, 357-387.

The thesis of this article is that culturally relevant texts--both traditional ethnic folk tales and contemporary ethnic narratives--combined with higher order comprehension questions of interpretation and evaluation, rather than lower order questions of basic recall and recognition, provide excellent material for teaching reading to ethnically diverse students. Culturally relevant texts increase student enjoyment, interest and motivation, resulting in improved performance in reading comprehension. The data derives from a 2 yr research project conducted in a middle-school classroom in an urban enclave in northern California with low-income "at-risk" students, most of them African American, but also including Latinos and Pacific Islanders. The article demonstrates that despite conventional thinking, weak readers are not necessarily weak thinkers; to the contrary, when afforded the opportunity (through culturally congruent literature) and adequate scaffolding (through strategic questioning), they are quite capable of demonstrating critical and original thought. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Chambliss, M.J. (1994). Evaluating the quality of textbooks for diverse learners. *Remedial and Special Education, 15*, 348-362.

Current methods of textbook evaluation have not led to changes necessary for enhancing the comprehension of diverse learners. These methods have failed to highlight 3 important comprehensibility features of textbook writing: familiarity, interestingness, and structural coherence. An evaluation technique is presented that uses graphic organizers to represent textbook material so that it can be evaluated according to these 3 features. The author reviews relevant research, shows how to represent 2 6th-grade world history textbooks graphically, and discusses how publishers, state adopters, district selectors, and classroom teachers could use the technique to improve textbook materials for all students. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Jitendra, A.K., Nolet, V., Xin, Y.P., Gomez, O., Renouf, K., Iskold, L. & DaCosta, J. (2001). An analysis of middle school geography textbooks: Implications for students with learning problems. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 1*7, 151-173.

This study evaluated four middle school geography textbooks to examine readability levels, knowledge forms, intellectual operations, instructional objectives, and activities associated with before-, during-, and after phases of instruction. Results varied within and across textbooks; however, the texts were found to be generally inconsiderate of poor readers and to be dense with factual information. Implications of findings for practitioners meeting the diverse needs of students with learning problems are discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Fiore, T.A. & Cook, R.A. (1994). Adopting textbooks and other instructional materials: Policies and practices that address diverse learners. *Remedial and Special Education, 15*, 333-347.

For textbooks and other instructional materials to enhance learning by all students, adoption policies must promote thoughtful consideration of the learning characteristics of students with disabilities and other diverse learners. To determine opportunities to foster such consideration during the review and selection of materials, the authors studied previous research on instructional materials and diverse learners and, through document reviews and fieldwork, directly investigated state and local adoption processes across the nation. Guidelines for improving practice were developed from the reviews and fieldwork, including an organizational model based on best practices and an action plan to aid policy makers and practitioners. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Tyree, R.B., Fiore, T.A. & Cook, R.A. (1994). Instructional materials for diverse learners: Features and considerations for textbook design. *Remedial and Special Education, 15*, 363-377.

In diverse classrooms teachers need, and students deserve, educational tools that serve a wide range of learners. Fortunately, making instructional materials more accommodating does not have to mean sacrificing the needs of 1 group of students for those of another. Many features that are good for diverse learners are good for all learners. Text characteristics that have been shown to enhance learning are proposed to improve the audience appropriateness, text organization, and use of organizational aids in instructional materials. Reform of the design, selection, and use of materials will require a concerted effort by publishers, policy makers, and practitioners. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Lovitt, T. & Et, A. (1985). Two methods of adapting science materials for learning disabled and regular seventh graders. *Learning Disability Quarterly, 8*, 275-285.

Investigated 2 methods for adapting a 7th-grade physical science text for learning disabled (LD) students. In one approach, precision teaching (PT), specially designed see-to-say and see-to-write practice sheets were used featuring the important words and definitions of a chapter. For the other method, study guide (SG), sheets emphasizing the sequenced main ideas of a chapter were developed. Ss were 166 7th-grade LD students in high-, middle-, and low-achievement categories. Experimental, control, and contrast groups were formed in 7 science classrooms at 1 school to assess the effects of the adaptations. PT was scheduled in 4 sections, SG in 3. Gain scores on a multiple-choice test indicated that the 2 adaptations were equally effective. Ss who received either treatment did better than those who did not. Further, positive changes were noted for Ss at all achievement levels, including LD children. (3 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Lovitt, T. & Et, A. (1986). Adapting science materials for regular and learning disabled seventh graders. *RASE: Remedial & Special Education,* 7, 31-39.

126 nonhandicapped and 17 learning disabled (LD) 7th graders completed publisher-constructed tests before and after they worked on each of 6 chapters of a physical science text. Half of the chapters were adapted with vocabulary exercises and framed outlines. A comparison of the posttest scores on adapted and nonadapted chapters revealed that both nonhandicapped and LD Ss' scores were higher on the adapted chapters. (10 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Lovitt, T.C. & Horton, S.V. (1994). Strategies for adapting science textbooks for youth with learning disabilities. *RASE: Remedial & Special Education, 15*, 105-116.

Reviews research on 4 successful approaches (study guides, graphic organizers, vocabulary drills, and computer-assisted instruction) for adapting science textbook passages for low-achieving and remedial students with learning disabilities. Study guides help students learn content information during or after they have read a passage. Graphic organizers refer to verbal and visual representations of key vocabulary or content information. Vocabulary drills enhance development by encouraging students to find terms that match vocabulary words. Computer-assisted instruction uses programs based on study guides, graphic organizers, and vocabulary drills to teach information. All approaches consistently enhance learning among students with learning disabilities. Recommendations for modifying textbooks and for involving teachers in the adaptation process are discussed. Study strategies for students who do not have access to adapted texts are also provided. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

GENERAL TEXTBOOK DESIGN:

Britton, B.K. (Ed), Woodward, A. (Ed) & Binkley, M.R. (Ed) (1993). Learning from textbooks: Theory and practice. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

(From the introduction) In this volume we see how research on important issues on textbook design can advance our knowledge about what makes textbooks effective learning tools and thus inform policymakers, publishers, and those involved

in textbook selection. … [This book examines] the quality of writing, the role of questions, the role of pictures and illustrations, and the role of auxiliary materials in the design of effective textbooks. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Chambliss, M.J. & Calfee, R.C. (1989). Designing science textbooks to enhance student understanding. *Educational Psychologist, 24*, 307-322.

Presents an approach to textbook design based on concepts from cognitive psychology, comprehension research, and curriculum theory. At the practical level, the critical elements are coherence in the content and in the rhetorical patterns and devices for connecting these elements. Results from a cross-cultural study of 4th-grade textbooks from Japan, Singapore, and the US are presented. Although texts from all 3 countries have strengths and limitations, the Japanese and Singaporean books are closer to A. N. Whitehead's (1929) ideal, "teach a few things well." (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Calfee, R. & Chambliss, M. (1988). Beyond decoding: Pictures of expository prose. *Annals of Dyslexia. 38*, 243-257.

Considers the distinction between content structure and text structure and discusses the fundamental building blocks for construction of an expository passage. Basic principles of textbook design are discussed, including examples from science and social studies texts and from a comparison of US and Japanese texts. Suggestions are offered for overcoming the hurdles presented by existing texts and promoting comprehension of expository materials. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Armbruster, B.B. (1986). Schema theory and the design of content-area textbooks. *Educational Psychologist. Special Issue: Design of instructional text, 21*, 253-267.

Explores the implications of schema theory in the design of content-area textbooks. According to this theory, readers understand text by accessing or constructing appropriate content schemas (organized knowledge about the objects, events, and situations in the text) and textual schemas (organized knowledge about the conventions of discourse). Specific research-based recommendations for accomplishing these goals in content-area textbooks are presented. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Chambliss, M.J. (2002). The characteristics of well-designed science textbooks. Otero, Jose (Ed); Leun, Jose A. (Ed); Graesser, Arthur C. (Ed). The psychology of science text comprehension. (pp. 51-72). Mahwah, NJ, US: Lawrence Erlbaum Associates, Publishers.

(From the chapter) Presents a theoretical framework for well-designed textbooks that integrates curriculum, instruction, and comprehensibility. It is argued that by searching for these 3 textbook characteristics, it is possible to identify clearly distinguishable design features that one could expect to affect students' scientific understanding and learning. This chapter applies the framework to several examples of textbook materials and 1 trade book. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Stinner, A. (1995). Science textbooks: Their present role and future form. Glynn, Shawn M. (Ed); Duit, Reinders (Ed). Learning science in the schools: Research reforming practice. (pp. 275-296). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

(From the chapter) examines 2 parallel views, those of Thomas Kuhn and William Whewell, of the role of science textbooks / Kuhn's … comments about the role of the textbook in science education are compared with William Whewell's ideas about good pedagogy in physics education / both were deeply concerned about how students learn concepts in science education and both had a great deal to say about the relationship between what may be called the logical plane of activity and the evidential plane of activity of science / it is argued that good science teaching not only has to pay more attention to how these planes are related but also must recognize and respect the 3rd plane of activity, namely, the psychological plane of activity / [presents] a conceptual model (A. Stinner, 1992) that relates these 3 planes of activity / expand on the foregoing and conclude with some plausible recommendations for improving the future form of science textbooks (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Stern, L., & Roseman, J. E. (2004). Can middle-school science textbooks help students learn important ideas? findings from project 2061's curriculum evaluation study: Life science. *Journal of Research in Science Teaching, 41*, 538-568.

The transfer of matter and energy from one organism to another and between organisms and their physical setting is a fundamental concept in life science. Not surprisingly, this concept is common to the Benchmarks for Science Literacy (American Association for the Advancement of Science, 1993), the National Science Education Standards (National Research Council, 1996), and most state frameworks and likely to appear in any middle-school science curriculum material. Nonetheless, while topics such as photosynthesis and cellular respiration have been taught for many years, research on student learning indicates that students have difficulties learning these ideas. In this study, nine middle-school curriculum materials-both widely used and newly developed--were examined in detail for their support of student learning ideas concerning matter and energy transformations in ecosystems specified in the national standards documents. The analysis procedure used in this study was previously developed and field tested by Project 2061 of the AAAS on a variety of curriculum materials. According to our findings, currently available curriculum materials provide little support for the attainment of the key ideas chosen for this study. In general, these materials do not take into account students' prior knowledge, lack representations to clarify abstract ideas, and are deficient in phenomena that can be explained by the key ideas and hence can make them plausible. This article concludes with a discussion of the implications of this study to curriculum development, teaching, and science

education research based on shortcomings in today's curricula. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

Crawford, D.B. & Carnine, D. (2000). Comparing the effects of textbooks in eighth-grade U. S. history: Does conceptual organization help?. *Education& Treatment of Children, 23*, 387-422.

Compared the effects of the pilot version of a conceptually organized (C-0) history textbook, Understanding US History , (D. Carnine et al, 1994) and a widely used, traditional, topically organized (T-T) textbook, American History (J. A. Garraty, 1982). The pilot version of the C-0 textbook presented content more conceptually and also provided multiple means, such as graphic organizers and integrative review questions, to assist student's learning of history information. Ss were 81 8th-graders in 4 intact US history classes. Two teachers each taught 1 class using the pilot C-0 text and another using the T-T text, effectively preventing teaching methods from becoming a confound. Student learning was measured by both a choice and a performance (essay) measure. Students using the pilot C-0 textbook did significantly better on the choice measure than did the students who were using the T-T textbook even though the questions were drawn from the T-T text. Overall poor performance on the essay exam was hypothesized to be a result of an inadequate amount of content review and a lack of instruction in expository writing skills. Student interviews indicated generally favorable attitudes toward the pilot version of the C-0 text, centering on ease of comprehension. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Mikk, J. & Luik, P. (2003). Characteristics of multimedia textbooks that affect post-test scores. *Journal of Computer Assisted Learning, 19*, 528-537.

The evaluation of computer software relies on the relationship between the characteristics of the software and the efficiency of its use. To find out which characteristics of the software can influence the level of acquired knowledge, an experiment was carried out with tenth grade students in Estonian schools. Fifty-four students studied 35 units from different multimedia textbooks. Correlation coefficients between the posttest score of the students and different characteristics of the textbooks were calculated. The correlation coefficients revealed five factor groups for the post-test score: text, presentation of information on the computer screen, graphics, navigation, and students' self-control. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

VISUAL AIDS IN TEXT:

Levie, W. H., & Lentz, R. (1982). Effects of text illustrations: A review of research. *Educational Communication & Technology Journal, 30*, 195-232.

Reviews (1) the results of 55 studies that compared learning from illustrated text with learning from text alone and (2) research dealing with other types of imaginal aids in learning text (nonrepresentational pictures, learner-produced drawings, and mental imagery) and other kinds of prose-learning situations (learning from oral prose and learning how to read). The authors take a functional approach to the effects of text illustrations and present the following "guidelines" derived from the research: (1) In normal instructional situations, the addition of pictorial embellishments will not enhance the learning of information in the text. (2) When illustrations provide text-redundant information, the learning of information in the text will be facilitated. (3) The presence of text-redundant illustrations will neither help nor hinder the learning of information in the nonillustrated text. (4) Illustrations can help learners understand and remember what they read and can serve a variety of other instructional functions. (51/2 p ref) (PsycINFODatabase Record (c) 2005 APA, all rights reserved)

Constable, H., Campbell, B. & Brown, R. (1988). Sectional drawings from science textbooks: An experimental investigation into pupil's understanding. *British Journal of Educational Psychology, 58*, 89-102.

Investigated whether 144 1st-yr secondary school pupils could identify the cut surfaces of objects in 6 biological illustrations taken from commonly used textbooks. Results show that few Ss were able to perform the tasks correctly and that the illustrations were not equally difficult. Picture analysis indicated that not only the features of the object depicted but also the number and type of pictorial conventions employed posed significant difficulties. Implications for theories of perceptual development and for the role of illustrations in teaching are discussed. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Carney, R. N., & Levin, J. R. (2002). Pictorial illustrations still improve students' learning from text. *Educational Psychology Review, 14*, 5-26.

Research conducted primarily during the 1970s and 1980s supported the assertion that carefully constructed text illustrations generally enhance learners' performance on a variety of text-dependent cognitive outcomes. Research conducted throughout the 1990s still strongly supports that assertion. The more recent research has extended pictures-in-text conclusions to alternative media and technological formats and has begun to explore more systematically the "whys," "whens," and "for whoms" of picture facilitation, in addition to the "whethers" and "how muchs." Consideration is given here to both more and less conventional types of textbook illustration, with several "tenets for teachers" provided in relation to each type. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Schnotz, W. (2002). Commentary: Towards an integrated view of learning from text and visual displays. *Educational Psychology Review, 14*, 101-120.

Visuo-spatial text adjuncts such as static or animated pictures, geographic maps, thematic maps, graphs, and knowledge maps that have been analyzed in the articles contained in this special issue provide complex pictorial information that complements the verbal information of texts. These spatial

text adjuncts are considered as depictive representations that can support communication, thinking, and learning. An essential precondition of this supportive function is that the visuo-spatial displays interact appropriately with human visual perception and the individual's cognitive system, which is characterized by prior knowledge, cognitive abilities, and learning skills. Accordingly, effective learning with visuo-spatial text adjuncts can be fostered by instructional design and by adequate processing strategies, both dependent on sufficient understanding of how the human cognitive system interacts with these displays. Perspectives for further research in this area are provided. (PsycINFO Database Record (c) 2005 APA, all rights reserved

Pozzer, L. L., & Roth, W. (2003). Prevalence, function, and structure of photographs in high school biology textbooks. *Journal of Research in Science Teaching, 40*, 1089-1114.

Photographs are a major aspect of high school science textbooks, which dominate classroom approaches to teaching and learning. It is thus surprising that the function of photographs and their relation to captions and texts have not been the topic of analysis. The purpose of this study was to investigate the prevalence, function, and structure of photographs in high school science. Our motivating research question was, "What can students learn from textbooks when they study photographs?" To answer this and several subordinate questions, we selected and analyzed four Brazilian biology textbooks. We focus on the use of photographs and the relation among them, various types of texts, and the subject matter presented. Our analysis reveals that the structural elements of text, caption, and photographs and the relations among them differ across the textbooks and at times even within the same book. This, of course, will influence readers' interpretations of the photographs changing their role in the text. The results of our study have implications for textbook authors and textbook readers. We suggest that future studies may focus on students' and teachers' interpretation of photographs in real time. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Robinson, D.H. (1998). Graphic organizers as aids to text learning. *Reading Research & Instruction, 37*, 85-105.

In recent years, advances in computer software have made it possible for persons with little knowledge of text design to construct graphic organizers (GOs) with the intention of helping students learn more effectively from textbooks. Consequently, the use of GOs in textbooks has increased dramatically. Unfortunately, the guidelines used in constructing GOs have not been based on empirical evidence, but rather on the authors' intuition. This is probably due to the lack of consensus among educators regarding what makes a GO effective, because GO research has been nonsystematic. This paper provides a rationale for the use of GOs, traces their history and development, reviews sixteen studies that have used GOs as text adjuncts, and, unlike other recent reviews of GOs, discusses limitations that have made GO research nonsystematic and provides suggestions for how future research may answer the question, "How should GOs be constructed for use in classrooms?" (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

Hannus, M. (1998). Textbook illustrations--decoration or an aid to understanding/Oppikirjan kuvitus - koriste vai ymmärtämisen apu. *Psykologia, 33*, 98-101.

Studied how illustrations on a double textbook page affected the learning of 10-yr-old students. The effects of illustrations on learning was studied by performing a learning test at a certain grade level. Results show that illustrations improved the learning of a text, seen in retrieving small trivia from memory and performing illustrated exercises in a learning test. No general improvement in the understanding of text content was detected. The main result was that the students used 94% of the processing time on verbal content, and only 6% looking at the illustrations. The students did not utilize the illustrations while they were reading the text, since they were already using a text-oriented model to process the pages in the textbook. It is concluded these results warrant re-evaluation of both the text and illustrations in current textbooks. In particular, the results are seen as disproving many current ideas about the decisive functions of illustrations in learning from a textbook. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Werner, W. (2002). Reading visual texts. *Theory and Research in Social Education, 30*, 401-428.

Outlines instructional conditions for teaching students to read visual texts, based on the author's belief that visual images within social studies textbooks need to be actively "read" by students. Drawing on literature from cultural studies, the author suggests 3 instructional conditions that are also considered as constituent elements of agency: (1) reader vs text authority in text interpretation, (2) opportunity and capacity for multiple readings, and (3) a community of readers for engaging in the task of reading in multiple ways. Seven ways of reading images are outlined and illustrated with instructional questions: instrumental, narrative, iconic, editorial, indicative, oppositional, and reflexive. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Goldman, S.R. (2003). Learning in complex domains: When and why do multiple representations help?. *Learning and Instruction, 13*, 239-244.

Comments on the article by R. E. Mayer (see record 2003-02362-001) and R. Kozma (see record 2003-02362-006). For some time, work in cognitive science has been attempting to understand learning in complex domains that involve multiple variables and processes. All of the papers in this volume deal with learning in complex domains, e.g., chemical reactions, weather phenomena, functional relationships in economics, optics, and metabolism. Frequently, the variables and processes in these domains seem to operate in ways that appear random, with nondeterministic outcomes--unless of course you are an expert in the domain. A mark of that expertise is being able to see the patterns that are meaningful in the domain and that portend effects in relatively deterministic ways. How is it that

one comes to understand these complex domains? What sorts of representations do experts use to help them understand the patterns and relationships among variables? How do nonexperts in the domain gain access to these patterns and relationships? The papers in this special issue are united around the common theme of attempting to understand the impact of verbal and nonverbal representations in acquiring greater expertise in a variety of complex domains. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Armbruster, B.B., Anderson, T.H. & Meyer, J.L. (1991). Improving content-area reading using instructional graphics. *Reading Research Quarterly, 26*, 393-416.

Tested the effectiveness of a frame instructional graphic on 164 4th and 201 5th graders' ability to learn from reading their social studies textbooks. Six 4th- and 6 5th-grade teachers in the US taught social studies using either frames or the instruction suggested in the teacher's edition of the regular classroom social studies textbook. The treatment was repeated in 4 rounds (replications) during the school year. Each teacher and each student participated in both conditions in each round. The combined analysis of recall and recognition measures for all 4 rounds suggested that for 5th-grade, but not necessarily for 4th-grade students, framing was a more effective instructional technique than was the instruction suggested in the teacher's edition. (French, Spanish & German abstracts) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Peeck, J. & Goud, A. (1985). Perspective-inducing effects of text illustrations. *Human Learning: Journal of Practical Research & Applications, 4*, 243-249.

73 grammar school pupils (aged 15-16 yrs) read a 1,700-word text that dealt with a number of positive, neutral, and negative aspects of the Industrial Revolution. Text illustrations for some Ss depicted positive aspects, for other Ss negative ones. Testing after a week revealed systematic differences in Ss' memory for and evaluation of the text. The 2 groups responded differently (1) when asked to write down the 1st things they remembered from the text, (2) in their 10-line summaries of the text, (3) when asked to evaluate the treatment of a number of topics, and (4) when asked to rate the author's point of view. It is concluded that the presence of positive or negative pictures, respectively, induced Ss to take a somewhat more positive or negative perspective toward the text that manifested itself in the Ss' memories and evaluations of the text. (4 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Anglin, G. J., Vaez, H., & Cunningham, K. L. (2004). *Visual representations and learning: The role of static and animated graphics*. Lawrence Erlbaum Associates, Publishers, Mahwah, NJ: US.

(From the chapter) With the proliferation of illustrations in instructional materials, it becomes increasingly important to investigate their effects on student learning. The use of illustrations in instructional materials has been pervasive for a considerable amount of time. A substantial research literature has already accumulated concerning the role of illustrations in instructional materials. The purpose of this chapter is to introduce researchers in instructional technology and others to the primary theories of picture perception and to provide a survey and critique of the visual representation research that incorporates static animated illustrations. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

VOCABULARY IN TEXTBOOKS:

Konopak, B.C. (1988). Eighth graders' vocabulary learning from inconsiderate and considerate text. *Reading Research & Instruction, 27*, 1-14.

Partially replicated B. Konopak's (in press) investigation of the effects of inconsiderate vs considerate text on vocabulary learning, using 52 8th graders with average or high reading ability. Two versions of contextual information from 2 history text passages were used: (1) original, intact passages and (2) passages revised using the considerate definitional features of proximity, clarity of connection, explicitness, and completeness. Ss were given a pretest to measure prior vocabulary knowledge and a separate posttest for each passage. Results show that higher ability Ss outscored average ability Ss on all measures and that Ss scored better on posttest vs pretest tasks. Revised text passages elicited better responses from Ss on the definition measure but did not affect measures of word knowledge or subjective ratings of word importance. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Prescott, D.A. (1929). The vocabulary in reading textbooks/Le vocabulaire des manuels de lecture. *Archives de Psychologie, 21*, 262-274.

This study is a continuation of one made by the same author on the vocabulary of children. He examined 7 textbooks used in Geneva or in France by children from 7 to 13 years of age. As the main purpose of these books was to form good reading habits, the author investigated them in regard to their value in bringing about a rapid formation of the psychophysiological processes peculiar to reading, placing emphasis on silent reading. For this purpose, he made a statistical study of words taken from a fraction of each textbook. About 30,000 words were classified and then compared either with the list of words known by the children for whom the manual was intended or with a literary vocabulary for adults (Henmon's French Word Book). With the exception of one book, all the texts had too wide a vocabulary to give the children a correct and fluent reading ability. Too many new words were introduced into the texts, causing the children to hesitate in their reading. Furthermore, these words were not repeated frequently enough, a condition which impaired their easy acquisition. Only 10% of the new words were retained by the student after a reading of the text. 30% to 40% of the textbook words were foreign to the life of the child. 20% of them were found neither in the list of the children's vocabulary nor in Henmon's list; hence, these words were neither those used ordinarily by the children nor those usual in literature. Accordingly, the author proposes a revision of the reading textbooks in order to eliminate the 20% of words which are seldom used and to

bring about a greater repetition of new words. Silent reading will thus be greatly facilitated for the child. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Hiebert, E. H., & Fisher, C. W. (2005). A review of the national reading panel's studies on fluency: The role of text. *Elementary School Journal, 105*, 443-460.

In this review, texts used in the research on which the National Reading Panel based its conclusions in its 2000 report about the role of fluency in reading and its sensitivity to practice were grouped in 4 categories. Three of these text categories (pre-1990 basals, skill builders, and high-interest/low-vocabulary texts) used controlled vocabulary and accounted for approximately 75% of all texts used in the studies reviewed by the panel. When various features of these controlled vocabulary texts were compared with those in current, mainstream textbook programs, the primary difference was the treatment of rare words. Compared to controlled texts, current mainstream textbook programs have substantially more rare words, and approximately 70% of these words appear a single time. (PsycINFO Database Record (c) 2005

Baumann, J.F., Edwards, E.C., Boland, E.M., Olejnik, S. & Kame'enui, E.J. (2003). Vocabulary Tricks: Effects of Instruction in Morphology and Context on Fifth-Grade Students' Ability to Derive and Infer Word Meanings. *American Educational Research Journal, 40*, 447-494.

This quasi-experimental study compared the effects of morphemic and contextual analysis instruction (MC) with the effects of textbook vocabulary instruction (TV) that was integrated into social studies textbook lessons. The participants were 157 students in eight fifth-grade classrooms. The results indicated that (a) TV students were more successful at learning textbook vocabulary; (b) MC students were more successful at inferring the meanings of novel affixed words; (c) MC students were more successful at inferring the meanings of morphologically and contextually decipherable words on a delayed test but not on an immediate test; and (d) the groups did not differ on a comprehension measure or a social studies learning measure. The results were interpreted as support for teaching specific vocabulary and morphemic analysis, with some evidence for the efficacy of teaching contextual analysis. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

ANALOGIES IN TEXT:

Hayes, D.A. & Henk, W.A. (1986). Understanding and remembering complex prose augmented by analogic and pictorial illustration. *Journal of Reading Behavior, 18*, 63-78.

Compared use of analogic and pictorial illustrations for understanding and remembering complex instructional text. 102 high school students read procedural texts under 6 analogic and pictorial illustration conditions and attempted to apply the texts' content in an applied performance task (tying knots). Two weeks later, Ss were evaluated on their attempts to perform the same task from memory. Pictures proved helpful for both immediate and delayed performance. Analogy was helpful for delayed performance but only slightly more helpful on immediate performance. Results are discussed in terms of apparent functions of analogies and pictures. Instructions and picture sequences are appended. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Newton, L.D. (2003). The occurrence of analogies in elementary school science books. *Instructional Science, 31*, 353-375.

An analogy is a model drawn from one context and used to support understanding in another context. This study investigates the extent to which analogies in instructional science books are provided by authors. The books surveyed are available from commercial suppliers and intended for use in the elementary school classroom with 7 to 11 year old children. Eighty texts were analysed for the presence or absence of analogies. Forty-five of the books offered no analogies at all. In the remaining thirty-five books, 92 analogies were found. These were classified in line with earlier work on analogies for older students by Curtis and Reigeluth (1984) and the findings are discussed. The extent to which teachers can draw upon the analogies in such texts to support children's understanding is considered. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Iding, M.K. (1997). How analogies foster learning from science texts. *Instructional Science, 25*, 233-253.

Provides an introduction to extended text-based analogies used for instructional purposes in science textbooks. A theoretical framework for understanding learning via extended analogies is discussed, and examples of extended textual analogies are provided. Research which provides direction in how to optimally use analogies in science instruction is reviewed. Characteristics of good analogies, types of learners who might benefit from the use of analogies, and kinds of learning which might be facilitated are discussed. The issue of possible misconceptions generated via instructional analogies is addressed, in conjunction with suggestions for remediation. Recommendations for effective use of analogies in text are made, suggestions for instructional practices accompanying textual science analogies are provided, and directions for future research are suggested. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Thiele, R.B. & Treagust, D.F. (1994). The nature and extent of analogies in secondary chemistry textbooks. *Instructional Science, 22*, 61-74.

Describes an analogy classification framework used with high school chemistry textbooks. The framework takes into account aspects of past research into analogies in science education to allow for a systematic classification of textbook analogies based on 9 criteria including chemistry content area. Many of the 93 analogies classified described abstract chemistry concepts such as atomic structure and bonding; however, the frequent use of simple analogies, and the scarcity of stated limitations, are likely to create learning problems for students. In some

textbooks, authors made use of margin spaces to include more analogies, and these marginalized analogies often contained a pictorial component. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

TEXT INTEREST AND ENGAGEMENT:

Garner, R., Gillingham, M. G., & White, C. S. (1989). Effects of "seductive details" on macroprocessing and microprocessing in adults and children. *Cognition & Instruction, 6*, 41-57.

In Exp 1, 20 graduate students read a 3-paragraph expository text on differences among insects. Half of the Ss read the text with seductive details (propositions presenting interesting but unimportant information), half without. After reading, Ss recalled the important information (a macroprocessing task), rated the text for overall interest, and matched pictures of animals on the basis of differences mentioned in the text (a microprocessing task). Adults presented with seductive details were significantly less adept at including 3 main ideas in their recall protocols. In Exp 2, with 36 7th graders, macroprocessing performance in general was weak. Ss presented with seductive details were significantly less adept at macroprocessing than Ss given no irrelevant information and given redundant signaling of the main ideas. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Alexander, P.A. & Jetton, T.L. (1996). The role of importance and interest in the processing of text. *Educational Psychology Review, 8*, 89-121.

Reviews articles published from 1972 to 1995 on the constructs of importance and interest and their interaction in the process of learning from text. Importance and interest are unidimensionally considered to show that various forms of each can operate within any text-learning environment. The interplay between these 2 factors is explored in relation to the goal of learning from text. Implications for instructional practice are presented. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

VanSledright, B.A. & Kelly, C. (1998). Reading American history: The influence of multiple sources on six fifth graders. *Elementary School Journal, 98*, 239-265.

Traditional elementary history textbooks have been criticized severely. These criticisms, along with movement toward whole-language approaches in some schools and the availability of alternatives to textbooks, have resulted in increased use of biographies, historical fiction, and literature-based accounts of the past, providing students with multiple sources for learning history. This exploratory study examined the effects of the use of such sources on 6 5th graders' experiences learning about American history. Their teacher's views were assessed, as well as the learning opportunities he provided. Students from the class were questioned about their reading interests with respect to the various texts, how they distinguished among the texts as sources of historical subject matter, and how the different texts influenced the development of their historical thinking, critical reading, and historical understanding. Results suggest that the students enjoyed the alternative texts and preferred to use them to complete their research projects. The presence of an array of texts, coupled with the fact that students were sent to search for information and thereby had some control over their own learning while working in groups, likely increased their engagement in reading history. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Cunningham, L.J. & Gall, M.D. (1990). The effects of expository and narrative prose on student achievement and attitudes toward textbooks. *Journal of Experimental Education, 58*, 165-175.

Hypothesized that narrative text structure would be more interesting than expository text structure and would therefore motivate more learning. 158 9th-grade students in Guam read a history textbook chapter written in conventional expository style, and another 155 students read a narrative version in which the same subject matter was embedded in a story involving fictional characters. Contrary to prediction, the 2 groups did not differ significantly on the achievement posttest. Both groups also had similarly positive attitudes toward the text version they read, although in a face-to-face comparison the majority of Ss preferred the narrative version. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Potter, E.F. & Rosser, S.V. (1992). Factors in life science textbooks that may deter girls' interest in science. *Journal of Research in Science Teaching, 29*, 669-686.

To examine factors that may deter girls' interest in science, 5 7th-grade life science textbooks were analyzed for sexism in language, images, and curricular content and for features of activities that have been found to be useful for motivating girls' participation in science. Although overt sexism was not apparent, subtle forms of sexism in the selection of language, images, and curricular content were found. The analysis of textbook activities found that most activities included few skills and motivating elements that would encourage girls' interest in science. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

METACOGNITION AND TEXTS:

Abraham, M.R., Grzybowski, E.B., Renner, J.W. & Marek, E.A. (1992). Understandings and misunderstandings of eighth graders of five chemistry concepts found in textbooks. *Journal of Research in Science Teaching, 29*, 105-120.

Analyzed patterns of student understandings and misunderstandings of 5 chemistry concepts: chemical change, dissolution, conservation of atoms, periodicity, and phase change. Problems concerning the 5 concepts were given to 247 8th-grade students. Two pencil-and-paper Piaget-type tasks were used to assess intellectual level. A comparison of intellectual level and scores on the chemistry concepts showed moderate correlations. 86% of the responses to test items indicated that Ss had either no understanding or had developed specific misconceptions of the 5 concepts. Results

indicate a general failure of textbooks to teach a reasonable understanding of chemistry concepts. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Anderson, G. & Beal, C.R. (1995). Children's recognition of inconsistencies in science texts: Multiple measures of comprehension monitoring. *Applied Cognitive Psychology, 9*, 261-272.

Compared indices of problem detection in children's comprehension monitoring of science passages. Three experiments were conducted with a total of 38 3rd- and 44 5th-grade students who were asked to review descriptions of unusual plants, half of which contained deliberately implanted inconsistencies, and report difficulties in understanding the material. Ss were asked to report their comprehension problems (Exps 1-3) and to suggest additional information to include or remove to improve the comprehensibility of the paragraphs (Exps 1-2). Measures of reading behavior were also collected (Exp 3). Although there was some evidence that Ss discriminated between the clear and inconsistent paragraphs, in general, they significantly overestimated how well they understood the new information about the unusual plants. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Chan, C.K.K. & Sachs, J. (2001). Beliefs about learning in children's understanding of science texts. *Contemporary Educational Psychology, 26*, 192-210.

Examined elementary school children's beliefs about learning and assessed the influences of such beliefs on their understanding of science texts. 83 children, 46 from Grade 4 and 37 from Grade 6, were administered a questionnaire on children's implicit notions of learning. Children were also asked to read a science text and complete several tasks that assessed their understanding of text information. Results indicated that older children were more likely to hold constructivist views of learning, and they also performed better than younger children on the text-processing tasks. As well, children's views of learning were significantly related to depth of text understanding when age effects were controlled. This study extends research on epistemological beliefs of university and high school students. Implications of children's beliefs, about learning and their roles in knowledge construction are discussed. The Implicit Learning Questionnaire and text-processing tasks are appended. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Otero, J.C. & Campanario, J.M. (1990). Comprehension evaluation and regulation in learning from science texts. *Journal of Research in Science Teaching, 27*, 447-460.

Studied comprehension (CMP) monitoring abilities of secondary school science students, and strategies used to regulate CMP by students who detect inconsistencies in manipulated science texts. 128 16- and 18-yr-old students rated the comprehensibility of science texts that contained explicit contradictions, and underlined the conflicting sentence or sentences if they found any problems in understanding the text. Ss who rated the text as good in comprehensibility, and Ss who discovered but did not report the inconsistencies, were interviewed following the reading session. The difficulties that science students have in controlling their own comprehension can be as important as the difficulties in comprehension proper. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Dole, J.A. (2000). Readers, texts and conceptual change learning. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 16*, 99-118.

Examines reader and text variables related to conceptual change learning from science textbooks by reviewing a program of research the author conducted over the last decade. This research, along with related studies conducted by others, showed that it is difficult to change readers' prior knowledge from reading texts that are inconsistent with that knowledge. Students can be taught, however, to monitor changes in their thinking about scientific conceptions. Such a strategy appears to help students develop scientific conceptions. One particular kind of text variable also appears to be successful in changing students' prior knowledge. Refutation text, in which students' naive conceptions are directly stated and then refuted, was shown to impact students' prior knowledge when that knowledge contained naive scientific conceptions. The paper reports details of those studies and then discusses additional insights about the change process gleaned from the social psychological literature. Together, the cognitive and social psychology literature points to several useful educational implications for teachers who may need to teach for conceptual change. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Brincones, I. & Otero, J. (1994). Students' conceptions of the top-level structure of physics texts. *Science Education, 78*, 171-183.

Investigated the use by 51 high school students (approximately 18 yrs of age) of the top-level structure of physics text passages in an ordering task in which Ss had to arrange a fragmented passage. Ss produced a high number of texts with top-level structures that employed minimal organizational components and had recourse to local coherence criteria to organize the text. Ss also found difficulties in adequately describing the logical status of texts. Such terms as deduction, definition, or proof were used incorrectly. Another problem was the use of appropriate top-level structures whose slots were incorrectly filled in. It is hypothesized that the strategies used in this artificial task would also be employed when processing information from a physics text in a more realistic setting. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Best, R.M., Rowe, M., Ozuru, Y. & McNamara, D.S. (2005). Deep-Level Comprehension of Science Texts: The Role of the Reader and the Text. *Topics in Language Disorders, 25*, 65-83.

Many students from elementary school through college encounter difficulty understanding their science textbooks, regardless of whether they have language disorders. This article discusses some of the particular difficulties associated with science text comprehension and possible remedies for facilitating and enhancing comprehension of challenging

expository text materials. Specifically, we focus on the difficulties associated with generating inferences needed to comprehend science texts. The successful generation of inferences is affected by factors such as students' prior knowledge and reading strategies, and the manner in which science texts are written. Many students lack the necessary prior knowledge and reading strategies to generate inferences and thus comprehend science texts only poorly. Further, science texts are typically "low-cohesion" texts, which means that they require readers to generate many inferences and fill in conceptual gaps. Remedies for overcoming comprehension difficulties include matching texts to students' knowledge level and providing explicit instruction aimed at teaching students to use reading comprehension strategies for comprehension monitoring, paraphrasing, and elaborations. The computer-supported tool iSTART (Interactive Strategy Training for Active Reading and Thinking) is introduced as a technological support to assist students and teachers in the teaching/learning enterprise. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

GENDER AND ETHNIC REPRESENTATION IN TEXT:

Bazler, J.A. & Simonis, D.A. (1991). Are high school chemistry textbooks gender fair?. *Journal of Research in Science Teaching, 28*, 353-362.

Compared the analyses of gender fairness in illustrations and concrete analogies in 7 high school chemistry texts (1970/1973) and current editions (1978-1987) of the same texts. Overall, gender ratios improved from 5 male images to every female image in the earlier editions to 3 male images to every female image in current editions. Only 1 text decreased the disproportion of male-female images to become gender fair in its current edition. Gender ratio of illustrations of named and unnamed adults improved in 2 current editions. One current edition increased in representation of female youths. There was no significant change in relative frequencies of male and female verbal analogies in 2 current editions of texts compared to the earlier editions. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Powell, R.R. & Garcia, J. (1985). The portrayal of minorities and women in selected elementary science series. *Journal of Research in Science Teaching, 22*, 519-533.

Determined whether the quantitative and qualitative portrayal of females and minorities in the illustrations of 7 contemporary elementary science textbook series are reflective of society as it was, is, and should be. 5,965 human illustrations were evaluated on the basis of minority/nonminority and male/female representation. The activity and assumed role of the individuals were also tabulated. Results reveal that female children were represented with greater frequency than other child groups. Minority children were represented less often than nonminority children, and female and minority adults were depicted less often than nonminority male adults. The textbooks evaluated in this study displayed science positively for most societal groups; however, minorities were underrepresented and illustrated in a limited number of career roles. Suggestions for teachers, supervisors, and teacher educators are provided. (23 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

TEXTBOOK CONTENT ANALYSIS:

Beck, I.L., McKeown, M.G. & Gromoll, E.W. (1989). Learning from social studies texts. *Cognition and Instruction, 6*, 99-158.

Drawing from a description and analysis (I. L. Beck et al, 1987) of the content and presentation of 4 widely used elementary school social studies programs, an analysis is presented of a 4th-grade geography sequence and a 5th-grade history sequence. Instructional issues are discussed in order to develop hypotheses about social studies learning that could be tested in subsequent empirical work. Problems found in the topic sequences involve unclear content goals, assumed background knowledge, and inadequate explanations. For effective learning to occur, teachers should help students develop a model of the situation that is the target of instruction. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Cho, H. & Kahle, J.B. (1984). A study of the relationship between concept emphasis in high school biology textbooks and achievement levels. *Journal of Research in Science Teaching, 21*, 725-733.

Conducted a 2-part study investigating the relationship between student achievement and textbook content and the impact of a national project's recommendations on textbook content. Analyses of approximately 34,500 17-yr-old students' responses to biological items on the 1977 National Assessment of Educational Progress's survey of science showed a direct, linear relationship between achievement level and concept emphasis in biology textbooks. A comparison between biology textbooks, published a decade apart, indicated significant changes in the degree of emphasis placed on 10 commonly accepted conceptual areas. The greatest change in concept emphasis was in the area of growth and development. This increased emphasis is suggested to reflect either the recommendations of the Biology Focus Group to include biosocial and bioethical topics with human biology or biological advances in this area. However, in general, the recommendations of the biology project were not reflected in the newer textbooks. While traditional topics of system and systematics and ecology continued to dominate the curriculum, evolution decreased in emphasis between 1973 and 1983. (9 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Haas, M.E. (1991). An analysis of the social science and history concepts in elementary social studies textbooks grades 1-4. *Theory and Research in Social Education, 19*, 211-220.

Examined the 1st-4th grade books in 5 elementary social studies series to identify concepts according to discipline, presence, and sequencing across series. The study was based on 2 assumptions: (1) motivation to study a subject is related to understanding of what is presented and (2) the use of

curriculum and psychological theories contributes to better understanding. 998 concepts were identified. Geography concepts accounted for 49%, economics 22%, political science 15%, history 9%, and sociology 6% of the total. The majority of the concepts so identified were not fundamental to their discipline (i.e., providing the basis for true relationships with other concepts [R. M. Gagne, 1970]). There was a lack of reinforcement of learning between grades (a spiral curriculum). Few concepts were presented at multiple grade levels in any of the 5 series. Such disjointed presentation violates basic principles of information processing. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Wieseman, R.A. (1985). A model for selecting appropriate textbooks. *Journal of Instructional Psychology, 12*, 86-92.

Presents an approach for helping teachers select an appropriate curriculum series for use in their classrooms. The approach involves matching teaching styles with learning styles. Emphasis is placed on a thorough investigation of the learning theories in use in a curriculum series and the levels of cognition the series employs. (1 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Stanley, W.B. (1984). Approaches to teaching concepts and conceptualizing: An analysis of social studies methods textbooks. *Theory and Research in Social Education, 11*, 1-14.

Examination of 37 social studies methods textbooks showed that most texts failed to adequately define concepts, discuss research regarding concept instruction, relate concept definitions and research findings to the process of instruction, discuss the limitations of the instructional strategies they support, and offer specific guidelines for applying instructional strategies in the classroom. The 3 strategies for concept instruction advocated by most texts were inductive concept development, an inductive-discovery method, and a deductive-expository method. (81 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

TEXTBOOK READING STRATEGIES AND INSTRUCTION:

Cousin, P.T. (1989). Toward better use of improved textbooks. *Reading Research & Instruction, 29*, 61-64.

Reviews studies concerning teacher techniques for enhancing the use of textbooks, focusing on strategies for teaching textbook organization, ways of using graphics to organize the information covered in the text, and the use of an integrated approach to content area teaching. Related teaching emphases include getting students ready to read, engaging students in the learning activity, and having students demonstrate competence and expand their knowledge. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Wood, K.D. (1995). Guiding middle school students through expository text. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 11*, 137-147.

A literature review identified 5 aspects of middle school instruction as needing attention and improvement: mode of presentation, instructional format, use of textbook and materials, nature of classroom activities and questioning, and critical thinking and problem solving (K. D. Wood and K. D. Muth, 1991). This article focuses on 1 aspect of instruction: helping students read and comprehend their textbooks and textbook assignments. One means of doing so is the study guide. Guidelines to maximize the effective use of study guides include using creativity, allowing students to work in groups and pairs, skimming the guide in advance of the reading, and not assigning grades. Adjunct aids such as study guides have the potential to make the reading of expository text more comprehensible and more rewarding for the adolescent reader. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Tamir, P. (1995). Factors associated with ways high school students study from textbooks. *Research in Science & Technological Education, 13*, 13-24.

Explored strategies that 174 high school students in Grades 9-12 used in studying from textbooks and their relationships to selected environmental and personal variables. It was found that some Ss always use the same strategies whereas others study differently for different purposes. The most widely used organizational learning tool is an outline. For the majority of Ss their goal while reading a text is to extract the main ideas. Most Ss study longer and in more depth for tests. Only one-fifth of the Ss seriously respond to questions inserted in the text. Ss with high preferences for rote memorization tend to be satisfied with learning from prepared summaries, whereas Ss with preferences towards principles and critical questioning tend to study in depth and use a variety of organizational learning tools. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Tixier, Y.V.Y. & Dick, J. (1987). Attitudes toward and perceived use of textbook reading strategies among junior and senior high school social studies teachers. *Theory and Research in Social Education, 15*, 51-59.

Examined discrepancies between the endorsement of reading strategies and classroom use by surveying 67 social studies teachers (SSTs) and 170 teachers in other disciplines. Data suggest that the positive attitudes of SSTs toward reading strategies identified in the literature were higher than their perceived use of the strategies. Findings indicate that SSTs used reading strategies more often than did science and mathematics teachers. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Schumm, J.S., Vaughn, S. & Saumell, L. (1992). What teachers do when the textbook is tough: Students speak out. *Journal of Reading Behavior, 24*, 481-503.

Examined students' views of instructional practices teachers may use to facilitate reading of difficult textbooks. 776 middle school and 1,043 high school students completed the Student Textbook Adaptation Evaluation Instrument (STAEI). The STAEI consists of a list of 33 textbook adaptations for students to rate in terms of their preference and perceptions of teacher use of the adaptations. The study also compared 120 lower and 120 higher achieving students' responses on the STAEI. A subset of the initial cohort of students. Results indicate a difference between students' perceptions of the desirability

of textbook adaptations (high) and their perceptions of the frequency of use of these adaptations in the classroom (low) particularly among high school students and higher achieving students. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Schumm, J.S., Vaughn, S. & Saumell, L. (1994). Assisting students with difficult textbooks: Teacher perceptions and practices. *Reading Research & Instruction, 34*, 39-56.

Examined teachers' perceptions and practices pertaining to textbook adaptations and instructional strategies to facilitate understanding of textual material. Ss were 20 elementary, 20 middle, and 20 high school teachers. Each S completed the Textbook Adaptation Evaluation Instrument (TAEI), a Likert-type scale consisting of 31 textbook adaptations. Ss rated each adaptation with regard to desirability, feasibility, and use. Analyses provided a comparison of Ss' overall rankings of desirability, feasibility, and use for each of the 3 grade groups (elementary, middle, and high). Findings are discussed with regard to types of adaptations preferred and grade grouping differences. The TAEI appears to be a reliable measure for structuring discussions about textbook adaptations. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Muth, K.D. (1987). Structure strategies for comprehending expository text. *Reading Research & Instruction, 27*, 66-72.

Examines 3 strategies designed to help middle school students use text structures to comprehend expository text. The types of expository texts found in content area textbooks and the difference between rote and meaningful learning are discussed. The comparative advantages of hierarchical summary, conceptual mapping, and thematic organizers are outlined, and research on each strategy is summarized. The advantage of hierarchical summary over conceptual mapping is that summaries can be generated by students, leading to independence in reading. The advantage of the thematic organizer over the other strategies is that it is more likely to lead to meaningful learning. However, the organizer must be teacher-generated, which involves more time and develops less student independence than the other strategies. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Klauer, K.J. (1984). Intentional and incidental learning with instructional texts: A meta-analysis for 1970-1980. *American Educational Research Journal, 21*, 323-339.

Selected 23 research reports based on 5 predetermined criteria. This led to 52 comparisons in which an experimental group was compared with its corresponding control group. Effect size estimators and their confidence intervals were calculated using methods developed by G. V. Glass (1977), L. V. Hedges and I. Olkin (1980), and Hedges (1981). The main findings of the meta-analysis are the following: Giving behavioral objectives, learning directions, or questions before an instructional text is read led to some improvement in the learning of goal relevant material; however, these preinstructional acts impeded the learning of goal irrelevant material. It is concluded that overall learning is slightly improved by these acts. Some variables seem to have a modifying influence on the learning of goal relevant material and of goal irrelevant material (e.g., variables such as text length, objective type, and test difficulty). To a certain extent, results support the information processing theory of intentional and incidental learning. A list of the 23 studies is included. (18 ref) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Czerniawska, E. (1992). Learning strategies for textbook material/Strategie uczenia sie tekstÛw podrecznikowych. *Psychologia Wychowawcza, 35*, 337-346.

Studied strategic activity in learning material from textbooks on biology, geography, and history. Ss were 368 5th-8th graders. A questionnaire with open-ended questions and close-ended questions was administered. Responses were analyzed quantitatively and qualitatively. (English & Russian abstracts) (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Schellings, G.L.M., Van, H.B.H.A.M. & Vermunt, J.D. (1996). Individual differences in adapting to three different tasks of selecting information from texts. *Contemporary Educational Psychology, 21*, 423-446.

This study examined individual differences in selecting main points according to three types of tasks. In all, 133 students (10th-graders) participated. Each student studied three instructional texts, and each text was preceded by one instruction. In the linguistic task, the students had to underline the author's main points. In the educational task, students had to underline text elements considered to be important by a portrayed teacher. And in the interest task, interesting text fragments had to be underlined. The students were divided into five groups identified by a typical selection pattern. Only 24 students adjusted their selection of main points to each of the tasks (the adaptive group). This group differed in some study strategies and learning conceptions from the nonadaptive groups. In all, this study begins to give more insight into individual differences in selecting main points. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

TEXTBOOK AND CONTENT AREA LEARNING:

Driscoll, M.P., Moallem, M., Dick, W. & Kirby, E. (1994). How does the textbook contribute to learning in a middle school science class?. *Contemporary Educational Psychology, 19*, 79-100.

Examined how a science teacher and 18 8th-grade students used the textbook during instruction and with what effect, based on observations during a 3-wk unit of instruction. Data on textbook use were also collected through a student questionnaire, student and teacher interviews, and "text checks" to see whether students were using their books at home as claimed. Results indicate that the textbook was used predominantly as a dictionary, probably because vocabulary learning was emphasized in instruction and assessed on the unit test. In addition, the textbook employed virtually no instructional strategies to support higher level objectives stated

in the chapter, but the teacher did provide learning guidance (without, however, using the textbook) for tacit objectives that she held related to problem solving. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Stern, L. & Roseman, J.E. (2004). Can Middle-School Science Textbooks Help Students Learn Important Ideas? Findings from Project 2061's Curriculum Evaluation Study: Life Science. *Journal of Research in Science Teaching, 41*, 538-568.

The transfer of matter and energy from one organism to another and between organisms and their physical setting is a fundamental concept in life science. Not surprisingly, this concept is common to the Benchmarks for Science Literacy (American Association for the Advancement of Science, 1993), the National Science Education Standards (National Research Council, 1996), and most state frameworks and likely to appear in any middle-school science curriculum material. Nonetheless, while topics such as photosynthesis and cellular respiration have been taught for many years, research on student learning indicates that students have difficulties learning these ideas. In this study, nine middle-school curriculum materials--both widely used and newly developed--were examined in detail for their support of student learning ideas concerning matter and energy transformations in ecosystems specified in the national standards documents. The analysis procedure used in this study was previously developed and field tested by Project 2061 of the AAAS on a variety of curriculum materials. According to our findings, currently available curriculum materials provide little support for the attainment of the key ideas chosen for this study. In general, these materials do not take into account students' prior knowledge, lack representations to clarify abstract ideas, and are deficient in phenomena that can be explained by the key ideas and hence can make them plausible. This article concludes with a discussion of the implications of this study to curriculum development, teaching, and science education research based on shortcomings in today's curricula. (PsycINFO Database Record (c) 2005 APA, all rights reserved) (journal abstract)

Van, B.C., Van, D.L.J. & Kanselaar, G. (2000). The use of textbooks as a tool during collaborative physics learning. *Journal of Experimental Education, 69*, 57-76.

The study examined how features of student interaction, and the way an individual student contributes to that interaction (his or her participation), relates to the improvement of conceptual understanding within the domain of physics. The study also investigated how textbooks are used during collaborative work and how that use affects the quality of student interaction and outcomes. The participants were 56 students aged 15 or 16. The students worked in dyads on a concept-mapping task that functioned as an introduction for a new course about electricity. A condition in which the students were provided with 2 textbooks was compared with a condition without the availability of textbooks. The use of textbooks had a negative influence on the amount of elaboration and coconstruction in the student interaction. Individual learning outcomes were positively related to the amount of collaborative elaboration in the student interaction. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Jones, H.J., Coombs, W.T. & McKinney, C.W. (1994). A themed literature unit versus a textbook: A comparison of the effects on content acquisition and attitudes in elementary social studies. *Reading Research & Instruction, 34*, 85-96.

Determined whether the use of children's books can provide more effective content acquisition in social studies than does utilization of the social studies textbook. 45 students in 2 6th-grade classes were taught a unit on Mexico for slightly over 2 wks. One class received instruction with the school-adopted textbook and the other class was taught using children's books which addressed the topic by means of a themed literature unit. Pre- and posttests measured achievement and included a brief attitudinal survey. Results showed that the group taught with the children's books showed a significant gain in achievement as compared to the group taught with the textbook, and they indicated a very positive attitude toward the experience. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

Moje, E.B., Dillion, D.R. & O'Brien, D. (2000). Reexamining roles of learner, text, and context in secondary literacy. *Journal of Educational Research. 93*, 165-180.

Presents and discusses the complexities of secondary school literacy learners, texts, and contexts and draws implications for classroom practice in the new millennium. The authors drew from a series of studies of secondary and adolescent learners' literacies in school and out of school, and in a variety of content areas. The studies the authors drew upon vary in research questions and theoretical lenses, but all employ qualitative or interpretative methods to explore the complexities of secondary literacy teaching and learning. (PsycINFO Database Record (c) 2005 APA, all rights reserved)

ADDITIONAL TEXTBOOK REFERENCES (BOOKS AND BOOK CHAPTERS)

Alexander, P. A., & Jetton, T. L. (2000). Learning from text: A multidimensional and developmental perspective. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of reading research*, vol. III. (pp. 285-310). Lawrence Erlbaum Associates, Publishers, Mahwah, NJ: US.

Alexander, P. A., & Jetton, T. L. (2003). *Learning from traditional and alternative texts: New conceptualizations for the information age*. Lawrence Erlbaum Associates, Publishers, Mahwah, NJ: US.

Anderson, T.H., & Armbruster, B.B. (1984). Content area textbooks. In R.C. Anderson, J. Osborn, & R.J. Tierney (Eds.), *Learning to read in American schools* (pp. 193-224). Hillsdale, NJ: Erlbaum.

Anderson, T.H. & Armbruster, B.B. (1985). Studying strategies and their implications for textbook design. In T.M. Duffy & R. Waller (eds.) Designing usable texts. (165-173). Orlando: Academic Press

Armbruster, B.B. (1984). The problem of "inconsiderate texts." In G.G. Duffy, L.R. Roehler, & J. Mason (Eds.), *Theoretical issues in reading comprehension* (pp. 202-217). White Plains, NY: Longman.

Biancarosa, G., and Snow, C. E. (2004.) *Reading Next—A Vision for Action and Research in Middle and High School Literacy: A Report to Carnegie Corporation of New York.* Washington, DC: Alliance for Excellent Education.

Britton, B. K., Woodward, A., & Binkley, M. R. (1993). *Learning from textbooks: Theory and practice.* Lawrence Erlbaum Associates, Inc, Hillsdale, NJ: England.

Chall, J. S., & Squire, J. R. (1991). The publishing industry and textbooks. In R. Barr, M. Karnil, P. Mosenthal and P. D. Pearson (Eds.), *Handbook of reading research* (vol. 1). New York: Longman, Inc.

Chambliss, M. J. (2002). The characteristics of well-designed science textbooks. In J. Otero, J. A. León & A. C. Graesser (Eds.), *The psychology of science text comprehension.* (pp. 51-72). Lawrence Erlbaum Associates, Publishers, Mahwah, NJ: US.

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