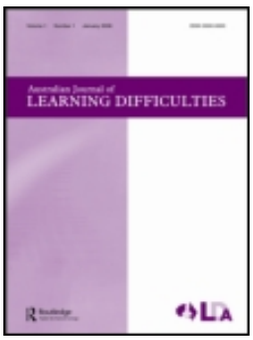

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Reading comprehension difficulties experienced by students with learning disabilities

Lorraine Graham[a] and Anne Bellert[b],
[a]*University of New England;* [b]*Lismore Diocese and University of New England*

Abstract
Students with learning disabilities often experience poor comprehension due to their failure to read strategically and to spontaneously monitor their understanding while reading. This paper discusses in relation to current literature, the various problems with reading comprehension commonly experienced by students with learning disabilities. Specifically, these students may encounter problems in: (A) using background knowledge appropriately; (B) decoding and word recognition; (C) vocabulary knowledge; (D) fluency; (E) strategy use and metacognitive skills; and (F) differentiating between common text structures.

In this paper we discuss the difficulties in reading comprehension commonly experienced by students with learning disabilities. This area is important to address because the percentage of students identified with learning disabilities (LD) continues to increase. Currently, in Australia and New Zealand where the definition of LD includes students with various learning difficulties, at least 20% of school students are considered to have problems in academic areas. Of these students 5% are considered to have specific learning disabilities in academic areas, most commonly reading (Westwood & Graham, 2000). Further, the vast majority of students with learning disabilities experience problems in reading, not only in terms of decoding deficiencies but also in terms of their abilities to comprehend by constructing understandings and drawing inferences (Carlisle, 1999; Tractenberg, 2002).

Reading comprehension is a vital life skill. It is the complex outcome of the process of constructing meaning from print. Successful comprehension requires students to coordinate many complex skills and to actively participate in their own learning. Students' success in comprehension is influenced by how interesting and relevant they find the text they are reading, their competencies in recognizing, decoding and pronouncing words fluently and accurately, their awareness of the different purposes associated with reading, and their facility with comprehension monitoring strategies (Gersten, Fuchs, Williams, & Baker, 2001; Swanson, 1999). The effective comprehension of printed material is also related to text-based factors such as the structure and quality of texts, the familiarity or complexity of the concepts presented, and the vocabulary used (Rabren, Darch, & Eaves, 1999).

Students' difficulties in reading comprehension

In general, students with learning disabilities experience poor comprehension due to their failure to read strategically and to spontaneously monitor their understanding while reading. Current literature concerned with reading comprehension suggests that students with learning disabilities can experience comprehension problems because of difficulties in (A) using their background knowledge appropriately; (B) decoding and word recognition; (C) vocabulary knowledge; (D) fluency; (E) strategy use and metacognitive skills; and (F) differentiating between common text structures.

A. Appropriate Use of Background Knowledge

The appropriate use of background knowledge is a crucial element in making meaning of text. Current research indicates that students benefit most from activities that assess, activate and develop students' background knowledge before reading (e.g., Brownell & Walther-Thomas, 1999; Jitendra, Hoppes, & Xin, 2000; Raben, Darch, & Eaves, 1999). Structured pre-reading activities serve to make the text accessible to students and enable them to remember what they have learned. Indeed, the activation of background knowledge can mean the difference between being able

Correspondence: Lorraine Graham, National Centre for Science, Information and Communication Technology, and Mathematics Education for Rural and Regional Australia, University of New England, Armidale NSW 2351.
Email: lgraham@metz.une.edu.au

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Discussion

[illegible] and apply new concepts and confusion and lack of comprehension.

[illegible]

[illegible] intervention with a strong effect (d = 1.01) [illegible]

[illegible] students' understanding. [illegible]

demonstrated meaningful gains following the Cellfield [illegible] IQ controlled for (d = .62). These two results correspond to normative data [illegible]

[illegible] difficulties [illegible]

[illegible] this integrated approach (or [illegible]

[illegible] based on their first letter(s) or their similarity to familiar [illegible]

[illegible] off centre at the pre-test were found to have a corrected foveal position at [illegible] results, averaged across left and right eye recordings, showed that participants were 12 [illegible]

[illegible] result demonstrated [illegible] word meanings enables the [illegible]

text and make sense of what is read. When words are not known, readers' initial representations of text can be incomplete and the further integration of ideas becomes problematic. Just as a lack of vocabulary knowledge can hamper comprehension, so can a lack of knowledge of syntax and sentence structure related to the sequence of words in phrases and sentences. As a consequence most students with learning disabilities benefit from explicit instruction regarding, for example, how various connecting and signal words, such as prepositions, can change the meaning of text and how pronouns relate to their referents.

D. Fluency Related to Reading Comprehension

Fluency related to reading is most often conceptualized in terms of speed and accuracy (Chard, Vaughn, & Tyler, 2002). There seems to be an optimum rate of fluency that allows the smooth processing of information by the reader. Automaticity in reading through smooth effortless decoding and word identification frees cognitive capacity so that the reader's attention can be focused on meaning (Perfetti, 1977, 1985). Slow reading makes it difficult to retain information in working memory long enough for meaning to be constructed and restricts students to low levels of processing by focusing on letters and words rather than on concepts and how they link together. In contrast, reading that is too fast may result in the neglect of important details in text.

Students with learning difficulties often struggle to read fluently (Meyer & Felton, 1999). Common problems are related to reading sight words, decoding words, reading phases and sentences automatically and with meaning. Slow reading is debilitating because it prevents students thinking about the text while reading. Both rapid reading of high frequency words and the speedy application of decoding skills appear critical for optimal reading development (Chard, Vaughn, & Tyler, 2002). As students become fast and accurate readers they often take more delight in reading and may even begin to reverse the consequences of lack of reading practice which Stanovich (1986) has coined the Matthew Effect.

E. Strategy Use and Metacognition

An area of focus in comprehension research is strategy instruction, including metacognition, which is concerned with students' awareness of their own thinking and their ability to regulate strategy use while working to comprehend printed material. It is important for students to monitor their own comprehension and to take steps to regain clarity of understanding when meaning breaks down or becomes confused. Comprehension strategies can explicitly teach students how to draw inferences from text, summarize information, predict what will happen next in a narrative, formulate and answer questions about text, and visualize what they read in order to improve comprehension (see Table 1).

In the light of findings from research investigating students' metacognition and strategy use, conceptions of the nature of learning disabilities have changed. Although the notion of an underlying processing difficulty still stands, in terms of strategy use the present view is that inefficiencies rather than deficiencies characterize the difficulties experienced by students with LD (Gersten et al., 2001). These students can possess the strategies necessary to approach the comprehension of text in a planned and strategic way but may fail to use them at the appropriate time or may apply these strategies in an inefficient or incomplete manner.

The primary function of reading is extracting meaning from text. If students do not notice that comprehension has broken down they will fail to take steps to fix whatever the problem is. Students need to monitor the success and failure of their attempts to construct meaning from text in order to be strategic and successful readers. Comprehension monitoring is key in the development of this kind of independent and self-regulated reading for meaning. While some reading tasks, like following directions, are more likely to elicit comprehension monitoring than other reading situations, comprehension monitoring is important in processing all types of text. In fact, recent comprehensive syntheses of the literature indicate that instruction focused on comprehension monitoring and strategy training is one of the most effective instructional techniques for students who experience difficulty with comprehending (Forness, 1997; Gersten et al., 2000; Swanson, 1999).

Given the complexity of effective strategy use and the necessity to develop a repertoire of strategies appropriate for different purposes, it is essential that instruction is specific, long-term and directly addresses issues of transfer and generalization of strategies to other reading tasks. Instruction in reading comprehension strategies appears to be most effective when it aims to increase metacognitive skills (Chan & Cole, 1986; Graves, 1986; Malone & Mastropieri, 1992), includes ample opportunities for practice (Pressley, Goodchild, et al., 1989), and attributes success to effort and strategy use (Borkowski, Weyhing, & Carr, 1988; Schunk & Rice, 1992). An important

Table 1: Metacognitive Strategies for Making Meaning During Reading

INFERRING	QUESTIONING	CLARIFYING	PREDICTING	VISUALISING
"But the answer is not there!" How to find an unstated answer in a text: • Join information together (synthesise) • Try to make a reasonable guess (draw a conclusion) based on the information at hand • Make connections, generalise from specific text to real life experiences • Read 'between the lines' to detect an underlying message • Relate cause and effect; apply reason when facts are not specifically stated • Recognise and explore supporting details • Make comparisons • Sense motives • Make judgements about characters, relationships, validity of the text • Infer information from visual cues including layout • Monitor text structure, detect the main idea in each section Infer - to conclude by reasoning from evidence; to deduce, to imply.	**Readers generate questions and respond through self-talk or 'think alouds'** • Who is _____? • What is/does _____? • When is _____? • Where is _____? • Why is _____ important? • Why does _____ happen? • What are the parts of __? • How is _____ an example of _____? • How do _____ and _____ compare? • How are _____ and _____different? • How does _____ happen? • What is most important _____ or _____? • What is my opinion of _? • How many subheadings are there? • Does this section finish soon? • What will the next section be about? Peer modelling of self questioning during reading is a powerful means of demonstrating this strategy to students with LD	**Clarify when an unknown word is encountered:** • Sound the word out. Is it at all familiar? • Use context clues to help work out the meaning • Look for a definition elsewhere in the text • Look for word roots or other word parts that may be familiar • Consider the need to use a dictionary or glossary – now or later? • Ask someone **Clarify when meaning is unclear:** • Read ahead to see if the text makes sense anyway • Re-read the section that is confusing • Change pace of reading, slow down to get more clues, speed up to get 'the big picture' • Reconsider original predictions • Evaluate material being read – is it accurate, is it biased? • Ask someone Students with LD may need cues and prompts to ask for clarification e.g. "What I don't understand is..." or "This is the part that's confusing me. . . "	**Make a prediction when:** • Headings are provided • The author asks a question in the text • The text suggests what will be discussed next • A previous prediction is confirmed or confounded • A nuance or implication is detected **Predict outcomes and themes:** • Adjust and change predictions, anticipate endings • Where does the narrative seem to be heading? • Is the factual text true to topic or form? Is there an underlying message? • What is the purpose of this part of the text? • How does this relate to the main idea of the text? Predicting content and outcomes is an important pre-reading activity but successful comprehension requires readers to continue to make and adjust predictions during reading as well.	**Encourage students to create a picture in their minds.** • Describe the picture • How does the picture change over time? • What events or information cause the picture to change? **Explore imaginings and emotional responses.** • When I read this I imagine ... • As I read in my mind I see ... • Reading this reminds me of ... • This makes me feel like... **Develop a graphic organiser to illustrate cause and effect or to explore relationships** • Concept maps • Grids, tables, charts, graphs etc. • Venn diagrams • Sociograms • Theme charts Students with LD often need visual representation of information to reinforce spoken or written sources.

general finding in many strategy training studies has been that students are more successful and more likely to transfer strategy use to new situations when the strategic procedure includes self-monitoring questions (Graham & Wong, 1993; Graves, 1986; Malone & Mastropieri, 1992; Wong & Jones, 1982).

F. Differentiating Between Common Text Structures

Research during the 1980s established that students with academic difficulties have difficulty recognizing many task demands related to comprehension activities including how to differentiate between, and strategically approach, different types of text (e.g. Englert & Thomas, 1987; Taylor & Samuels, 1983; Wong & Wilson, 1984). Students with learning difficulties tend to be unsure of the characteristics of common narrative and factual texts, and consequently experience difficulties using their knowledge of text structures and recognition of the different purposes of texts as an aid to comprehension. As more narratives tend to be used in schools, general comprehension strategies were initially taught to suit these story-oriented texts. In recent times, however, increased awareness that specific strategies apply more to one text type than another has meant that differentiating between types of text has become increasingly important.

Students in today's schools encounter a variety of texts such as poems, plays, stories, novels, essays, reports, descriptions, and textbook expositions that are presented through traditional and electronic media. The most common of these text structures are narrative and factual. With experience, most students gradually develop awareness of the different structures used in written texts. However, it is particularly important that teachers facilitate this awareness for students with learning difficulties. These students tend to be delayed in their comprehension of the different text structures used in factual or informational texts (Weisberg & Balajthy, 1989) and in their awareness of the basic elements of narratives (Montague, Maddux, & Dereshiwsky, 1990).

The elements of a narrative are organized into what can be described as story grammars consisting of setting, characters, events, and eventual outcome. Students typically develop an awareness of the story grammar appropriate to narrative text (e.g., fiction, fairytales, myths, fiction, fables, plays, and legends) as they listen to and read stories in their early years of life. Students who struggle with reading, however, are slower to develop a sense of the importance of main characters, setting, the problem, the complication and the resolution of a plot. This is evident from the stories that these students tell and their comprehension of those they read. For example, Montague, Maddux and Dereshiwsky (1990) gave students, with and without learning diabilities, tasks that required students to retell and write stories. They found that students with learning difficulties did not perform as well as their peers in terms of amount and type of information included in their recounts and written stories. Compared to their peers, students with learning problems demonstrated less developed understanding of the conventions of a narrative.

In contrast to narrative texts, the purpose of factual writing is to impart new information and develop students' general knowledge about the world and natural phenomena. Factual texts use one or more patterns of text structure, such as cause and effect, problem and solution, temporal sequencing, enumeration, or comparison and contrast (Anderson & Armbruster, 1984). Factual or expository text structure can also include embedded definitions, explanations of technical processes and procedural sequences, as well as labeled diagrams, graphs and charts that need to be "read" and interpreted.

In the same way that awareness of the conventions of narratives affects students' comprehension, awareness of structures used in factual texts affects students' understanding and recall. For example, Taylor and Samuels (1983) investigated how students' awareness of text structure impacts on their comprehension by comparing recall of well-organized passages with that of passages consisting of randomly ordered sentences. They found that fifth and sixth grade students who were aware of text structure recalled more from the well-organized passages. The students who were less aware of text structure, however, performed in a similar way on both the randomly ordered and well-organized passages. In this, and other related research, students with learning difficulties seemed unaware of their inability to comprehend and used no strategies to monitor their understanding of text (Englert & Thomas, 1987; Taylor & Williams, 1983).

Gersten et al.'s (2001) review of reading comprehension research presents the following three major research findings related to students' awareness of text structure and their comprehension of factual texts. From the literature it appears that (1) awareness of text structure increases developmentally (Brown & Smiley, 1977), (2) that some text structures are more obvious and easier to recognize than others (Englert & Hiebert, 1984), and (3) that skill at discerning text structures and then using knowledge about them appropriately, is an important factor in comprehending

factual text (Taylor & Beach, 1984; Taylor & Samuels, 1983).

Acquiring an awareness of text structure seems particularly important for readers with learning difficulties. It appears to foster an appreciation of the organizational factors that underlie factual texts and provides a way for students to remember new information. The strategy of analyzing the structure of texts may also lead to more active processing and a greater effort on the part of students to understand and remember what is read (Carlisle & Rice, 2002). While an awareness of text structure is not likely to address all the problems associated with understanding different types of texts that are experienced by students with learning disabilities, it is clearly likely to enhance the coherence of students' comprehension.

Summary of students' difficulties in reading comprehension

Students with learning difficulties can experience comprehension problems for a range of reasons. For these students reading comprehension problems often feature difficulties in recognizing and appropriately applying background knowledge, poor decoding and word recognition skills, limited vocabulary knowledge, underdeveloped reading fluency, a less than strategic approach to comprehension, including the use of ineffective or inefficient strategies, and limited understandings about common text structures. Frequently these reasons do not operate independently of one another; rather there exists a reciprocal causation between the component skills of reading comprehension, resulting in potentially complex and debilitating reading comprehension problems. Nonetheless, students' difficulties with reading comprehension can be ameliorated by focused and effective instruction.

Swanson's (1999, p. 522) meta-analysis indicated that the most important instructional components associated with improvements in reading comprehension were:

1. *Directed response questioning* which included the teacher directing students to ask questions, the teacher and students engaging in dialogue, and/or the teacher asking questions;
2. *Controlling the difficulty of the processing demands of tasks* so that activities were generally short, with the level of difficulty controlled, the tasks appropriately sequenced and the teacher providing necessary assistance through demonstration;
3. *Elaboration* which occurred when additional or redundant explanations were made about the concepts, procedures or steps in a strategy;
4. *Modeling by the teacher of steps* so that the teacher demonstrated the processes that the students were to follow;
5. *Small group instruction* either with students and a teacher or between students;
6. *Strategy cues* that included reminders to use strategy steps, the teacher verbalizing the procedures, and the use of "think aloud" models with the teacher presenting the benefits of strategy use and its applicability to certain reading situations.

Obviously there is no 'quick fix' to difficulties with reading comprehension for students with learning difficulties. However, well-considered instruction delivered over an extended period of time, and integrated across the curriculum, will support students to improve their skills, and enable them to better participate in learning at school and in the wide variety of 'real life' experiences that require effective and efficient reading comprehension.

However, unless the challenge of incorporating strategy instruction productively into school systems is met, we will continue to experience the situation where "many of the instructional practices that have the most potential to make a meaningful difference for students with LD and other poor readers are seldom employed" (Carlisle & Rice, 2002). Whole-class undifferentiated instruction still seems to be the norm in both regular classrooms (Schumm, Moody, & Vaughn, 2000) and learning assistance settings (Moody, Vaughn, Hughes, & Fisher, 2000). Gersten, Vaughn, Deshler, and Schiller (1997) found that when strategy instruction is used in schools, the quality of instruction can be poor and implementation erratic with essential elements, such as the fostering of active participation from students, omitted. It is clear that we must strive to do better. Children need well-designed instruction in comprehension in order to reach the levels of reading achievement necessary to meet the demands of life in our increasingly technologically oriented society. Researchers and teachers must work together to foster critical thinking, motivation, and comprehension competence for all. What better testimony to the possibilities of effective comprehension instruction than the comments of a student who learned a reading comprehension strategy during a successful intervention (Graham, Bellert, & Pegg, 2001, p 21):

"Before I couldn't answer very many questions.

Only one like, 'What's the title?' or something like that. I couldn't do any of the others. It was hard for me to understand. I didn't know what the heck to do. I was scared of it. I know what to do now!"

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