Learning from Text

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Learning to read is the predominant focus of reading instruction in grades 1-3. However, in grade 4 and beyond, the focus shifts to reading to learn. The predominant instructional model, probably exceeded only by use of the blackboard, involves learning from print (Sorrells & Britton, 1998). Thus, what happens when a child cannot read at grade level?

For most literate individuals, the challenges of struggling readers are incomprehensible. As fluent readers, typically little cognitive energy is required to recognize and understand the meaning of a given text. It is difficult to imagine the frustration, embarrassment, and difficulty associated with every encounter with text. Multiply these feelings several times within each class period, by the number of hours spent each day in school, over the number of years spent in K-12 education, and it is easily to understand the eroded self-concept and associated personal costs that result from not being able to read.

Learning to read is a developmental milestone celebrated by hundreds of thousands of young children every school year.

Many labels are used to describe students with reading difficulties: delayed reader, struggling student, disabled reader, dyslexic, print disabled, and learning disabled. One of the leading reasons for referral to special education involves reading difficulties. Estimates suggest that 80% of students with learning disabilities receive services for a reading disability (Bryant, Young, & Dickson 2001).

The purpose of this article is to examine critical issues associated with the mismatch between the skills that students with disabilities bring to the general education classroom and the expectations deeply rooted in learning from text instructional models. The goal is to enhance systemic decision-making skills about the types of instructional and assistive technology interventions that make it possible for students to learn from text when the intrinsic nature of their disability impacts negatively their decoding, fluency, and comprehension skills.

Urgency

The current accountability climate associated with implementing NCLB, "No Child Left Behind Act of 2001," (P.L. l07-110) outlines a national educational goal that all children will be able to read by grade 3. A key component of NCLB is known as, Reading First, a $900 million grant program which promotes the use of scientifically based research to provide high-quality reading instruction for grades K-3, in order to help every student in every state become a successful reader (http://www.nochildleftbehind.gov/start/facts/readingfirst.html). Clearly this federal mandate has raised awareness about the importance of helping all children learn to read and the value of interventions that make a difference. Readers interested in additional information about research-based practices for reading instruction in the general education classroom are encouraged to review Schmidt, Rozendal, & Greenman (2002).

Given that the majority of students with disabilities spend most of their school day in

The importance of printed text in our culture cannot be underestimated. To understand the role of text in the general education curriculum, review the following excerpt from the book, *Teaching Every Student in the Digital Age* by David Rose and Anne Meyer: http://www.cast.org/teachingeverystudent/ideas/tes/chapter3_6.cfm

general education classrooms (U.S. Department of Education, 2002), questions have been raised about the value and usefulness of inclusion for students lacking basic reading skills. For example, how and when will students with disabilities learn to read when they spend all of their school day in general education classes? As special education teachers are required to support reading in the content areas of general education, when do they have the opportunity to teach basic reading skills to students with IEPs that document considerable deficits in reading? These unanswered questions take on new importance as NCLB mandates require schools to report performance outcomes associated with reading achievement with a cascade of penalties associated with failing to demonstrate adequate yearly progress.

Instructional Practice

The essence of schooling involves teachers presenting information to students. A variety of methods may be used as part of the instructional process: demonstrations, field trips, and textbooks to name a few. Consider the differences in instructional methods used in the preschool classroom which emphasizes hands-on experiential learning and the middle school classroom which is primarily teacher directed and increasingly focused on learning from text. In both cases, when all goes well, students learn what is expected of them and confidently demonstrate their newly acquired knowledge.

However, can students demonstrate appropriate academic achievement when the instructional model expects reading fluency at grade level and their disability reflects skills at a much lower level? Students with disabilities have a cumulative file that illustrates their history of school failure. The current IEP reflects their present level of performance. Hence the question: How much failure data is needed document the fact that a student can't do a given task? Based on the evidence, can't failure be predicted in advance? That is, if a student has a third grade reading level and can't read the seventh grade science textbook, is it likely he will pass the test on the material in Chapter 3? Because of the difficulty, time, expense, and lack of tools for modifying text-based information, the one-size-fits-all curriculum has been impenetrable for students with reading difficulties (Edyburn, 2002b).

What should be done when a student fails to learn necessary information because he can't read the instructional materials? Given the value placed on curriculum coverage, common educational practice has been simply to assign a failing grade and move on to the next topic. This practice has recently been called into question in the context of standards-based school reform which is predicated on students mastering a given body of knowledge.

Evidence of a Performance Problem

The emerging dilemma for teachers, administrators, and policy makers centers on the relationship between the variables of time, conditions, and achievement. While all students may be expected to learn a given body of knowledge, if only one instructional approach is used, the time they will need to master the material will vary. If time and conditions are held constant (e.g., we have two weeks to study rocks and minerals), achievement will vary. If a given level of performance must be achieved by all students (the constant), then what must vary is time or the conditions under which the goal is achieved. In practice, the general education classroom has become a one-size-fits-all curriculum as three variables (time, conditions, and achievement) are all held constant under the guise of high-standards.

The logic of the proceeding argument reveals a powerful insight concerning the role of assistive technology for enhancing educational achievement:

> When allocated instructional time and learning outcomes are held constant for all students, it is unreasonable to expect that typical instruction will yield acceptable levels of student performance if a student with a disability has documented deficits in academic achievement. In such cases, proactive efforts must provide a compensatory technology enhanced performance system that produces functional outcomes indistinguishable from those of his peers.

While this observation is intrinsic to the mandate for assistive technology consideration, interventions are not often considered until here has been academic failure. In the context of reading

and learning from print, one central issue polarizes teachers, parents, and administrators: Is the core task learning to read or reading to learn? And, if I can't read, which task takes priority?

Making Decisions Explicit

Two groups of theorists (Cook & Hussey, 1995, 2002; King 1999) have highlighted a critical, but overlooked question, associated with assistive technology consideration that has major implications for helping students be successful. That is, how do we decide if the best course of action is remediation (i.e., additional instructional time, different instructional approaches) versus compensation (i.e., recognizing that remediation has failed and that compensatory approaches are needed to produce the desired level of performance)? Central to this article, when should students be provided with compensatory technologies when they can't read?

If the question about remediation vs. compensation were asked routinely, we would not have secondary students unable to solve math problems because they never mastered their basic facts. If instruction had failed to produced the desired skill level, compensatory strategies, such as using a calculator, would be introduced so that the student could be successful in the expectations associated with higher level math achievement. If someone is going to make the argument that the calculator is assistive technology for a given student, the claim would need to be supported with evidence to show that the student's math performance is indistinguishable from his peers. Otherwise, there is still a performance problem.

Because the question about remediation vs. compensation is not asked routinely, it is common for struggling students to drop out of school without learning how to read. Further, they enter the world of work without compensatory skills that enable them to overcome the lifelong handicap of not being able to read.

> If the instructional and remediation efforts of all my teachers have failed to teach me to read, will I be provided with compensatory tools that allow me to access the meaning of text that I cannot read by myself?

Remediation/Instruction

Teachers are extremely comfortable with interventions associated with remediation and instruction: reteach the information, use alternative instructional strategies, break the tasks down into smaller parts to analyze what the child knows and what components are problematic, provide additional practice, engage in one-on-one tutoring, etc. Technology applications in this realm are often thought of as instructional technology. Table 1 outlines a number of instructional technology tools that are commonly used in teaching students to read. Readers interested in a review of computer assisted instruction in support of beginning reading instruction are encouraged to consult Blok, Oostdam, Otter, & Overmaat (2002).

Table 1
Examples of instructional technology products for teaching students to read.

Carefully sequenced reading instruction with extensive student management systems

Balanced Literacy
http://www.intellitools.com

Lexia Early Learning
http://www.lexialearning.com

Read 180
http://www.scholastic.com;

Simon Sounds It Out
http://www.donjohnston.com

WiggleWorks
http://www.scholastic.com

Specific skill development

First Words
http://www.laureatelearning.com

Reading for Meaning
http://www.tomsnyder.com

Improving Reading Through Individual Performance Assessment

Soliloquy Reading Assistant
http://www.reading-assistant.com

100% effort devoted to instruction

Figure 1
Traditional instructional approaches focus exclusively on instruction and remediation to enhance performance.

100% effort devoted to compensation

Figure 2
Historical approaches of assistive technology have focused exclusively on compensation since their was no other way for a task to be completed (i.e., use of a wheelchair since a person's mobility is impaired as a result of a disability).

Historically, educators have focused their energy and efforts exclusively on the instruction and remediation (see Figure 1). That is, 100% of their effort is focused on teaching the student a task, for example, how to read. This is a valuable goal since it means that the student is able to independently complete a task regardless of the environment. Often, the most important outcome of education is considered to be the knowledge that a person carries around in their head.

However, if remedial approaches always worked, we would never see high school students that couldn't read independently beyond the second grade level. What happens when a student fails to learn to read? Historically, educators search for different instructional methods or materials. Seldom do they raise the question: Are there other ways of performing the task? Routine failure to attain appropriate levels of academic performance should trigger assistive technology consideration. That is, compensatory strategies that use technology to enhance performance.

Assistive Technology as Compensation

Perhaps it is not coincidental that writers Cook and Hussey (2002), and King (1999) are therapists by training and thus are experienced in making decisions about physical performance. For example, if I cannot complete certain tasks without my right arm, additional therapy may be an option if I am recovering from surgery (remediation), but not an option if I've had an amputation (compensation). Certainly, the benchmarks to guide decision-making about remediation and compensation are much clearer in situations involving mobility and sensory impairments. Unquestionably, compensatory approaches are often used because there are simply no other ways to complete the task (see Figure 2). Historically, the need for assistive technology has been demonstrated with the rationale that there simply is no other way to complete the task.

At some point in the educational process, we must recognize the need for compensatory approaches. For example, if a known characteristic of a student's disability involves difficulty processing and retrieving information, then why doesn't the IEP team's consideration of assistive technology result in the recommendation of the web search engine, Ask Jeeves? Functionally, this would allow a child to look up the answer to any question s/he doesn't know. Of course, our first response is that would be cheating. However, change the context. If I was an employer, would I value your ability to find information in a timely manner, or would I prefer to penalize you for the fact that you didn't know? (For additional information on fairness, see Welch, 2000.)

Compensation approaches recognize that ongoing persistent deficits in performance must be addressed through strategies that minimize or eliminate the impact of disability on performance. Despite the critical importance of reading, beyond text-to-speech applications, little attention has been devoted to advancing theory and practice relative to assistive technology for reading (Cook & Hussey, 2002).

Unfortunately, few guidelines are available to inform decision-making about assistive technology for learning. If a child has repeatedly fails to read and understand printed text, how much failure data do we need before we have enough evidence that the child can't perform the task? When do we intervene? And, what do we do?

The pervasive problem of children not being able to read textbooks is well documented (Allington, 2002; Cibrowski, 1993). The key question in the NCLB-era is: What do we do about it? Whereas the assistive technology consideration process provides a mechanism for addressing the critical decisions associated with whether to pursue remediation or compensation strategies, the question should be explicitly addressed rather than assumed that the question is intrinsic to the

process. Further, it may not be an either/or decision. Rather, it may be necessary to ask, what percentage of time and effort will be devoted to remediation and what percentage of time and effort will be devoted to compensatory approaches?

Making Text Accessible

Figure 3 illustrates the relationship between remediation and compensation as a balance. When considering performance problems, such as not being able to read a science textbook, decisions about interventions should consider strategies involving remediation/instruction as well as compensation. Thinking of these comparable strategies as components that equal 100% provides a solution to the time problem described earlier. First, use of compensatory tools will allow students to experience success and achieve the functional outcome expected in their academic classes. Second, using technology tools that compensate for performance problems has the potential to reduce the time necessary for completing a task; time that can be devoted to direct instruction and skill building. At the present time, there are no guidelines on what is the appropriate balance for different tasks nor what the percentages should be at different age levels.

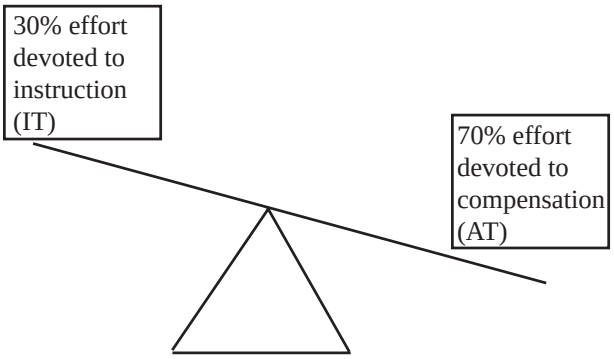

Figure 3
Understanding that performance may be enhanced through instruction as well as compensation reveals a unifying model for instruction technology (IT) and assistive technology (AT). Concerns about performance problems must raise the remediation vs. compensation question to resolve what percentage of effort will be placed on each approach in order to attain successful completion of the given task.

Text Modifications

The majority of efforts by assistive technology specialists to make reading materials accessible have involved scanning textbooks into the computer and teaching students to use text-to-speech software so they can listen to information that they could not read independently. Observers have noted the extensive time required of teachers to make these modifications (Dyck & Pemberton, 2002; Edyburn, 2002a, 2003). Critics bemoaned the fact that listening to text is not the same as reading (notice the unresolved remediation vs. compensation issues in this argument), while universal design advocates argued that text-to-speech could prove beneficial to everyone. The lack of theoretical constructs and systemic decision-making guidelines have contributed to confusion concerning what types of modifications should be made and who could benefit from which modifications.

The theoretical void on this topic has been partially filled recently through the work of Dyck and Pemberton (2002). They advanced a model for making decisions about text adaptions and outlined the theoretical rationale for five types of text adaptations: (1) bypass reading, (2) decrease reading, (3) support reading, 4) organize reading graphic organizers, and (5) guide reading. Their work provides examples of how these interventions might be used by struggling readers and their teachers. Despite my excitement about the work of Dyck and Pemberton, assistive technology is not central to the proposed interventions. Nonetheless, inspired by the clarity of their approach, Table 2 profiles a taxonomy of text modifications strategies I developed to help standardized decision-making about the kinds of interventions needed for different types of reading difficulties (Edyburn, 2003).

A Systems Approach to Making Text Accessible

While inclusion has facilitated physical access to the general education classroom, little evidence suggests that the general education curriculum is cognitively accessible to students with disabilities. As a result, I perceive the need to use a systems approach to the challenges associated with making text accessible for students with disabilities and other low performing students. Six factors are organized in Figure 4 around key questions that must be addressed if the academic achievement gains mandated by NCLB are to be met.

Figure 4
A Systems Approach for Making Text Accessible

Factor	Key Questions	Selected Responses
1	What environment will students be expected to read?	school classroom, learning center home school bus, car
2	What student characteristics need to be considered? when designing effective instruction?	can't won't does so slowly limited attention blind low vision cognitive disability
3	What reading tasks are students commonly expected to complete?	read in class read for homework answer questions about what has been read engage in learning activity based on information gained from reading
4	What type of source documents are students expected to read?	textbook trade books classic literature ready reference teacher-made materials worksheet quiz/exam current events web pages
5	If there is a performance problem in reading, will the intervention involve remediation, compensation, or both?	remediation literacy acquisition compensation vocabulary/concept development study skills higher-level thinking compensation bypass reading decrease reading support reading organize reading guide reading
6	Given many stakeholders concerned about student success, what responsibilities will each person assume?	student general education teacher special education teacher assistive technology specialist administrator

Table 2
A taxonomy of text modification strategies (Edyburn, 2003).

If the reading problem is due to...	...the functional difficulty is...	...then, AT consideration should explore...
inability to see the text	low vision	screen magnification
the fact that English is a second language	limited English language skills	language translation
a lack of interest	motivation/interest	high interest reading materials
poor decoding skills	inadequate word attack skills	multimedia reading materials
too many unknown words	vocabulary deficiencies	electronic word tools
a lack of fluency	reading is slow and tedious	audio books text-to-speech software text-to-speech utility software
a mismatch between the text's reability level and the reader	poor comprehension	cognitive rescaling
difficulty understanding due to limited background knowledge	poor comprehension	locate comparable content at a lower developmental level
difficulty understanding concepts and relationships	poor comprehension	concept mapping pre-reading guides
difficulty identifying important information	poor comprehension	electronic quizzes

Key questions that must be addressed when creating a building-wide plan for the success of all student readers: What environment will students be expected to read? What student characteristics must be considered when designing effective instruction? What reading tasks are students commonly expected to complete? What type of source documents are students expected to read? If there is a performance problem in reading, will the intervention focus on remediation, compensation, or both? Given many stakeholders concerned about student success, what responsibilities will each person assume?

Creating a system for making text accessible will take vision, commitment, and collaboration. Certainly, NCLB provides the motivation. Hopefully, the systems approach outlined here will provide a roadmap.

In the following sections, each of the compensatory strategies are describe along with relevant instructional and assistive technology tools that could be used in implementing the strategy.

Bypass Reading

Part of the attraction of the term "print disabled" involves the clarity that suggests interventions that simply bypass reading. That is, if a student with a learning disability is print disabled, why not teach him as if he were blind? That means teachers would need to read all directions and that all printed text material would need to be available in audio format at the same time nonhandicapped peers access the text.

The no-tech response for implementing this strategy involves locating a person to serve as the

reader for the student. This could be a teacher, a peer, the parent, or a para professional.

The low-tech response for implementing this strategy involves audio recordings on the required readings. Selected resources for obtaining audio recordings:

American Printing House for the Blind
http://www.aph.org/

Audible.com
http://www.audible.com

Audio Books for Free
http://www.audiobooksforfree.com/

Books Aloud
http://www.booksaloud.org/

Recordings for the Blind and Dyslexic
http://www.rfbd.org

The high-tech response for implementing this strategy involves converting the printed text into digital format and then creating digital audio files. Typing text that students cannot read into a talking word processor allows students to open a text file on the computer and listen to the computer "read" the information. Selected Windows products that support this feature include:

Write OutLoud
http://www.donjohnston.com

WordQ
http://www.wordq.com

ReadPlease
http://www.readplease.com

Selected Macintosh products that support this feature include:

Write OutLoud
http://www.donjohnston.com

SimpleText
(Macintosh system software)

If the source materials that students need to read are in a printed format, it may be desirable to scan the materials into the computer in order to take advantage of text-to-speech tools. Specialized products that involve the integration of three components: scanning, optical character recognition (OCR), and text-to-speech are:

Kurzweil 3000
http://kurzweiledu.com/products_k3000win.asp

TextHelp
http://www.texthelp.com/

WYNN
http://www.freedomscientific.com/WYNN/

If many reading assignments involve web-based information, then text-to-speech web browsers may be a good option:

CAST eReader
http://www.cast.org

IBM's Home Page Reader
http://www-3.ibm.com/able/

pwWebSpeak
http://www.soundlinks.com/pwgen.htm

A relatively new development in text-to-speech technology is related to the popularity of digital music that creates a digital equivalent of books on tape. This is accomplished by scanning text into the computer, typing text into a word processor, or copying and pasting text from one program to another. By using utility software that allows users to save text files as audio files, teachers and students can create digital files that can be used to listen to have the computer "read" a text. However, the real value is when these audio files are saved in MP3 format, students no longer need the computer–they can listen to their reading assignment with the portable (MP3-compatible) music players. Windows utility software for converting digitial text to audio include:

Text to Audio
http://www.premier-programming.com/text_to_audio.htm

Text Aloud
http://www.readaloud.com

Text to Speech Software
http://www.text-to-speech-software.com/

TextSound
http://www.bytecool.com/textsnd.htm

Similar Macintosh utility software is

Audio Bookmaker
http://www.kartania.com/software.php?Show=audiobookmaker

These conversion tools offer many new possibilities for schools committed to providing equitable access to information. For example, what if students could pick up a cdrom with audio files for each chapter in the science textbook or download the audio file of selected reading assignments from the school's web page?

Decrease Reading

Historically, teachers have sought to reduce the reading demands for students by trying to locate comparable reading materials written at lower readability levels. Certainly, use of the web makes this search process easier.

An interesting example of reading materials written at three interest levels, presumably to engage students with different interests and abilities is Windows on the Universe (http://www.windows.ucar.edu). Each page of the web site has text information presented at the beginner, intermediate, and advanced level. This model has interest implications for the future design of curriculum materials, that is, what if all of our curriculum materials could be delivered in this format?

Cognitive rescaling is a process of altering the cognitive difficulty of information. Edyburn (2002a) describes two strategies for altering the difficulty of text for students with disabilities and other struggling readers. Creating executive summaries for students is possible by using the AutoSummary feature in Microsoft Word (see Table 3). To create rebus-enhanced texts, he describes the use of Slater Software's Picture It (http://www.slatersoftware.com). Both strategies to cognitively rescale the difficulty of the text require that the user begin with digital text that is copied from the source file and pasted into one of the software programs. Initial research on the value of cognitive rescaling interventions suggests the approach holds some promise for engaging struggling secondary students with disabilities (Mortensen, 2003).

Table 3
Procedure for cognitive rescaling text using the Microsoft Word AutoSummary feature

Microsoft Word includes a feature for creating executive summaries. As a result, this tool can be used to create summary versions of of any text document. The following description will highlight step-by-step directions for accessing and using this tool.

1. To begin, you'll need a text document. This can be information you have copied and pasted, a document that you typed or scanned into a word processor, or an etext that you have downloaded (see Table 4).

2. Open Microsoft Word, and paste the desired text into a new document file.

3. Under the Tool menu, select: AutoSummarize.

4. A window will appear when AutoSummarize is selected. The first section, "Type of Summary," offers four possibilities for viewing your executive summary. The first option provides a slider for users to interact with the percentage of the summary and view highlighted information that will be included (non-highlighted text will be left out of the executive summary). The second option creates a new document with the summary. The third option inserts the summary at the beginning of the document. The fourth option hides the text of the original document and includes the summary. The second section, "Length of Summary" allows user to select three types of lengths for their executive summary: predetermined number of words (100 or less, 500 or less), predetermined number of sentences (10 or 20), or a % of the original text (10, 25, 50, 75). Select the first type of summary and a 10% summary then click ok.

5. You will know see your text with the summary elements highlighted in yellow. Experimenting with the slider will visually reveal how increasing or decreasing the percentage of the summary will add or delete text.

6. After you have interacted with the text and selected the optimal size for the executive summary, return to AutoSummarize and select the second option: create a new document and put the summary there. Your executive summary now appears in a new file. Save this file containing your executive summary of the text. Print and distribute to individual students as needed. Check your watch: this entire process has only taken a few minutes!

Support Reading

Another strategy to enhance comprehension involves supporting the reading process with vocabulary support or illustrations. Often these issues are considered to be the responsibility of the author. However, as teachers engage in text modifications, several tools are helpful.

The image search capabilities of Google (http://www.google.com; click on the image search tab) makes it easy and efficient to locate images on any word or phrase. While there are copyright limitations to be considered in how these images may be used, this image search engine represents a powerful option for educators seeking to add illustrations to text in order to enhance understanding.

When students encounter unknown words, few are motivated to look up the meaning of the word. However, multimedia dictionaries may hold special potential to engage students in exploring new words and concepts:

Little Explorers English Picture Dictionary
http://www.enchantedlearning.com/Dictionary.html)

The Plumb Design Visual Thesaurus
http://www.visualthesaurus.com

Usborne's Animated First Thousand Words
http://www.tomsnyder.com

Routine use of hyperlinks may serve to integrate multimedia dictionaries in the future of all reading materials.

Organize Reading with Graphic Organizers

Many teachers and textbook authors recognize the importance of providing readers with graphic organizers that illustrate the relationships among key ideas within a selected reading. Readers interested in a comprehensive review of the literature on graphic organizers are encouraged to consult Hall and Strangeman (2003). Numerous tuypes of organizers have been identified in the literature as being effective for understanding specific types of relationships and connections among key ideas.

Table 4
Where to find e-texts

e-texts are the digitial files of complete books. It is always preferable to download an e-text file rather than to scan an entire book into the computer. A few sources for locating e-texts:

e-texts via membership

BookShare.org
http://www.bookshare.org

e-texts in the public domain

Bibiomanic
http://www.bibliomania.com

Electronic Text Center
http://etext.lib.virginia.edu/

Infomotions
http://www.infomotions.com

Library of Congress
http://www.loc.gov

Project Gutenberg
http://promo.net/pg/

The Plays of William Shakespeare
http://www.theplays.org

Worditude
http://www.worditude.com/ebook/index.html

The software products, Kidspiration and Inspiration, are widely recognized for their ease-of-use and flexibility for teachers interested in creating concept maps and other types of graphic organizers for their students. Similarly, these programs are also valuable when used by students to map their understanding of material they have read.

Guide Reading

Effective teachers have also recognized the fact that certain texts are difficult to read and fully appreciate (e.g., Shakespeare). As a result, they prepare extensive study guides and structured

notes to facilitate student engagement with a text. Commercial curriculum materials may also included specially designed learning materials that facilitate student understanding of assigned readings.

The no-tech response for implementing this strategy involves teaching students generic strategies of pre-reading, skimming, rereading, and self-questioning. For additional resources on this strategy, visit the Study Guides and Strategies page at the University of St. Thomas: http://www.iss.stthomas.edu/studyguides/

The no-tech response for implementing this strategy involves teacher-created materials that tailor the purposes for reading a given text with the specific abilities and interests of a class of students.

The high-tech response for implementing this strategy involves accessing web sites that offer a variety of reading aids in the form of character and plot analyses, chapter summaries, etc. Selected examples include:

Cliffsnotes
http://www.cliffsnotes.com

SparkNotes
http://www.sparknotes.com

NovelGuide
http://www.novelguide.com

Free Book Notes
http://www.freebooknotes.com

Pink Monkey
http://www.pinkmonkey.com

Concluding Thoughts

The paradox of assistive technology consideration (Edyburn, 2000) is that while members of an IEP team are mandated to consider assistive technology possibilities, limited knowledge about assistive technology often deprives the team of opportunities to actually consider the full array of technology possibilities for enhancing performance. Further, since the question of remediation vs. compensation is implicit rather than explicit, decision-making about the use of technology to enhance performance is often suspect.

The purpose of this article has been to highlight issues associated with reading deficiencies in the general education classroom, beyond grade 3, and ways in which technology can facilitate learning from text and subsequently enhance learning. Considerable work remains to help all children learn to read, and if that fails, to provide suitable technology enhanced performance systems that enable them to achieve high academic standards despite the presence of a disability.

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