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Promoting Content Knowledge of Secondary Students With Learning Disabilities Through Comprehension Strategies

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Abstract

Students with learning disabilities struggle with basic comprehension skills across all content areas. By pairing comprehension strategies with content instruction, secondary content area teachers can strengthen students' reading skills and content knowledge. This article provides an overview of two comprehension strategies, anticipation guides and double entry journals, that align with research-based recommendations in adolescent literacy and that can be employed across the primary content areas (i.e., English language arts, social/global studies, mathematics, and science).

Many students with learning disabilities (LD) struggle to make adequate progress in their content area classes at the middle and high school levels (Deshler et al., 2001; Heller & Greenleaf, 2007). One of the primary challenges that adolescents experience is with comprehension of content text. Although comprehension strategies have been shown to increase both students' reading comprehension and content knowledge, students with LD rarely spontaneously and individually use comprehension strategies (Deshler et al., 2001). Rather, students with LD need explicit instruction and modeling to

learn how to self-monitor their learning, so that they know when comprehension breaks down and can apply appropriate strategies (Watson, Gable, Gear, & Hughes, 2012). This article discusses how teachers can implement and integrate two comprehension strategies, anticipation guides (Barry, 2002; Duffelmeyer, 1994; Herber, 1978) and double entry journals (DEJ; Beers, 2003; Tovani, 2000), in content classes to elicit more successful content area learning for students with LD.

Impact of Reading Difficulties

Research suggests that approximately 74% of students with identified reading deficits in third grade continue to experience these problems in sixth grade and ninth grade (Graves, Brandon, Duesbery, McIntosh, & Pyle, 2011). Moreover, results of the National Assessment of Educational Progress (NAEP, 2015) reflect the continued difficulty students have accessing and making meaning from text. The NAEP data in reading from 2015 demonstrate that 89%, 94%, and 92% of students with disabilities performed at or below basic on the exams in Grades 4, 8, and 12, respectively.

Even though many students with LD are capable of mastering content-area subject matter, insufficient comprehension skills make the general core curriculum and corresponding instructional materials inaccessible (Graves et al., 2011). Success with content learning is further compounded by the number of students arriving in high school lacking the skills and competency of grade-level subject matter. What results is a proficiency gap that significantly prohibits students from being able to work at grade level. Thus, the level of supports and tools needed to address this proficiency gap intensifies (Somers et al., 2010). Additional direct and explicit instructional strategies are needed to support students who have missed foundational reading skills early in their academic careers. Such direct supports are also needed given the increase in curricular demands across the secondary grades (Benner, 2011).

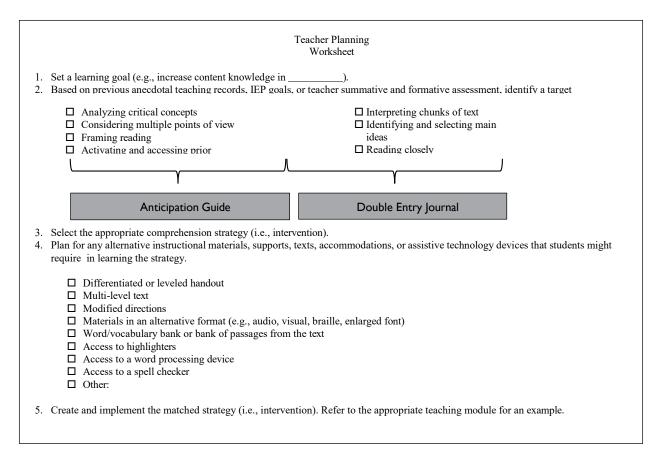Given that students may have had years of failure in reading by the time they reach the secondary grades, teachers need to focus on strategies with the greatest impact. Perhaps one of the strongest recommendations for adolescent literacy in the literature is the need for teaching com- prehension strategies (Kamil et al., 2008; Scammacca et al., 2007; Torgesen et al., 2007). This recommendation, providing direct

and explicit instruction in comprehension strategies, has received a rating of *strong* in terms of instructional effectiveness as outlined by the What Works Clearinghouse (Kamil et al., 2008). A rating of *strong* suggests studies with evidence of strong internal and external validity are avail- able. Moreover, the same report has provided a rating of *moderate* for a subsequent recommendation, providing opportunities for extended discussion of text meaning and interpretation, which is also a component of the two strategies discussed in this article.

Comprehension strategies are routines, procedures, or actions taken that allow one to make sense of text. This can include summarizing, asking questions of the text and the author, paraphrasing, identifying main ideas, and clarifying new and unknown vocabulary (Kamil et al., 2008). Pressley (2000) identified a series of comprehension strategies that benefit students including activating prior knowledge, generating questions, visualizing, summarizing, and identifying key details, elements that are reflected in the strategies presented here. Similarly, Edmonds et al. (2009) suggested that strategies that prompt older struggling readers to think about text, engage in discussion, and learn about text should result in better comprehension, which is the overall out- come teachers are seeking for their students. Comprehension strategies that have been developed for students who have disabilities and that can be utilized in content area courses are ideal (Gajria, Jitendra, Sood, & Sacks, 2007; Hughes & Parker-Katz, 2013). This article focuses on two strategies, anticipation guides and DEJs.

Comprehension Strategies for Content Area Learning

Anticipation guides and DEJs are two comprehension strategies that help promote the acquisition of content area knowledge. These strategies are well supported in the literature, are straightforward to teach, can be used with a variety of texts, and can be utilized at different points throughout the reading process. They are also commonly recommended strategies in reading texts and cited as strategies that teachers say they use (Barry, 2002; IRIS Center, 2014; Tovani, 2000). A teacher worksheet is provided in Figure 1 to assist teachers in planning, creating, and using the strategies outlined below.

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                              Teacher Planning
                                  Worksheet

  1. Set a learning goal (e.g., increase content knowledge in _____).
  2. Based on previous anecdotal teaching records, IEP goals, or teacher summative and formative assessment, identify a target

        □  Analyzing critical concepts          □ Interpreting chunks of text
        □  Considering multiple points of view  □ Identifying and selecting main
        □  Framing reading                        ideas
        □  Activating and accessing prior       □ Reading closely


        ┌──────────────────────────────┐    ┌──────────────────────────────┐
        │       Anticipation Guide      │    │     Double Entry Journal      │
        └──────────────────────────────┘    └──────────────────────────────┘

  3. Select the appropriate comprehension strategy (i.e., intervention).
  4. Plan for any alternative instructional materials, supports, texts, accommodations, or assistive technology devices that students might
     require in learning the strategy.

        □  Differentiated or leveled handout
        □  Multi-level text
        □  Modified directions
        □  Materials in an alternative format (e.g., audio, visual, braille, enlarged font)
        □  Word/vocabulary bank or bank of passages from the text
        □  Access to highlighters
        □  Access to a word processing device
        □  Access to a spell checker
        □  Other:

  5. Create and implement the matched strategy (i.e., intervention). Refer to the appropriate teaching module for an example.
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Figure 1. Teacher Planning Worksheet.

Anticipation Guides

Anticipation guides were originally designed by Herber (1978) and the objectives of the strategy are to activate students' prior knowledge before reading and to aid in scaffolding students' comprehension of text. As Kamil et al. (2008) and Pressley (2000) have suggested, routines focused on sequenced steps to comprehension strategies are important for instruction. Traditional anticipation guides, such as the one in Figure 2, Part a, provide students with thematic statements about a given text, like To *Kill A Mockingbird* (Lee, 1960); oftentimes, these statements are designed to address controversial topics (e.g., statements reflecting moral and ethical judgments) or they may be statements that help students evaluate the meaning of new concepts (e.g., key concepts) in mathematics, science, or social/global studies. The objective is to have students engage in activities that promote discussion about differences in interpretation and beliefs, allowing students to experience and confront alternative viewpoints that may challenge their own, and which they will encounter within the text selection (Adams, Pegg, & Case, 2015; Duffelmeyer, Baum, & Merkley, 1987; Pegg & Adams, 2012). This

occurs during a before-reading conversation about the statements after students have individually evaluated whether they agree or disagree with each statement.

Teaching Module: Anticipation Guides
Creating an anticipation guide: 1. Identify a short selection of about two pages or less from a class text. 2. Create no more than five thematic statements that capture the major idea(s) of a text, activate and tap students' background knowledge, are more general than specific, and challenge students' beliefs (Duffelmeyer, 1994). 3. Explain the strategy to students and pre-view the statements. 4. Use a model-lead-test framework to teach the strategy (i.e., I do, We do, You do). 5. Have students complete the remaining statements independently. 6. Discuss students' responses.
Sample script for thinking aloud: The first statement says, "The law must be upheld at all times." First, I must decide what this statement means. When I read it, it makes me think that it is saying that the law, which is oftentimes composed of rules, has to be followed all the time. Once I've decided what the statement means, then I have to determine whether I agree or disagree with the statement. I know that many rules have to be followed in school and that laws have to be followed in society otherwise I might get in trouble. It seems that laws and rules are meant to help keep order and to ensure that people are treated fairly and have equal opportunities. However, I wonder if there is ever a time when it's not necessary to uphold the law? [Continue thinking out loud to make your thinking more visible, but ultimately come to a decision. Also consider asking students to help you brainstorm ideas.] Thus, I [agree/ disagree] with this statement so I'm going to put an "X" on the line for [agree/disagree].

(a) Traditional Anticipation Guide

Agree	Disagree	
____	____	1. The law must be upheld at all times.
____	____	2. Children are wiser than adults.
____	____	3. Initial judgments of people are always right.

(b) Extended Anticipation Guide

Before Reading				After Reading		
Agree	Disagree	Evidence		Evidence	Agree	Disagree
____	____		1. The law must be upheld at all times.		____	____
____	____		2. Children are wiser than adults.		____	____
____	____		3. Initial judgments of people are always right.		____	____

Figure 2. Teacher Module: Anticipation Guides.

Adapting anticipation guides.

Although anticipation guides can help students activate and assess prior knowledge, and motivate them as they begin to engage with a novel text, traditional anticipation guides do not provide extended opportunities for students to reevaluate their responses after having read the text. Thus, modifications like those represented in Figure 2, Part b can be made, which allow the anticipation guide to also be used during and after reading (Duffelmeyer, Baum, & Merk- ley, 1987; IRIS Center, 2014; Pegg & Adams,

2012). These adaptations allow students to confront their initial beliefs and to reexamine them based on reading the text and the discussions held in class. Kozen, Murray, and Windell (2006) also indicated that the anticipation guide can be adapted by providing additional visual and auditory supports, chunking the length of the passage, using peer buddies or cooperative groups, providing differentiated levels of anticipation guides for the variety of learners within a classroom, providing opportunities for preteaching and sharing with a partner, and checking for understanding (e.g., formative assessment).

Anticipation guides in the content areas.

Anticipation guides have also become a popular comprehension strategy across the content areas. Pegg and Adams (2012) described the use of anticipation guides in science, explaining that they can be very helpful in making sense of scientific texts. For example, teachers could scaffold students' understanding of key scientific events by using a supplementary reading from a science journal and then asking students to apply and explain the phenomena or relate it to something local within their environment. Similarly, in mathematics content, Adams et al. (2015) suggested that the reasoning that students must complete with the anticipation guides is a com- parable skill used in mathematical problem solving. For example, anticipation guides might be used to introduce new key concepts (i.e., before reading, preteaching) and later to have students explain how the new learning relates to previous knowledge (i.e., how multiplying fractions relates to adding fractions). For a social studies example and an additional science example, see the IRIS Center's online module on *Secondary Reading Instruction* (IRIS Center, 2014).

Creating an Anticipation Guide.

To use an anticipation guide, a few steps are recommended for teachers. These steps are detailed at the top of Figure 2, beginning with selecting a reading through modeling and independent practice. Figure 2 also provides an excerpt of a sample think-aloud script (e.g., materials and protocols) that corresponds to the example provided at the bottom of the figure, the teacher module. To extend this strategy, the teacher can create a before-and- after column so students can respond to each statement after

reading the text, provide space or lines for students to identify textual support during reading (i.e., statement or key ideas from the text supporting their interpretation), or have students write a brief reflective response (i.e., 2–3 sentences) that encourages them to synthesize the meaning of the thematic statements as it relates to their reading of the text. Only when students begin to demonstrate a level of independence with the strategy is it appropriate to introduce another strategy. In addition, even when a new strategy has been introduced, students should continue to utilize both strategies on a frequent basis with new text prompts to use the strategies independently.

Double Entry Journals

A DEJ is an after-reading strategy in which students identify key quotations in a text and then explain their meaning. The objective of DEJs is for learners to practice interpreting textual information to develop reading comprehension. Opportunities for extended discussion of text meaning and interpretation is critical to fostering reading comprehension (Kamil et al., 2008; Torgesen et al., 2007). Opportunities for extended discussion include students putting the text into their own words and attaching meaning to text (i.e., through prior knowledge and personal connections). Central to the DEJ strategy is helping students understand how to select important, key concepts and ideas. Key elements of this strategy include (a) reading closely, (b) synthesizing, (c) analyzing, and (d) identifying important information.

One useful way to use DEJs is to identify important quotations and passages from an assigned text, like those from the novel *Hero* (Rottman, 2007) shown at the bottom of Figure 3, the corresponding teacher module for DEJs. However, because students often struggle with identifying key concepts, like important quotations, it might be appropriate to provide students with the statements when first using this strategy before requiring them to identify their own statements. In addition, students may also need to be taught what is meant by the term "quotation," and how the teacher has made a determination that a quotation is note- worthy or important (e.g., thematic statement, exploration of character, moral or lesson). After completing the DEJ, it may be useful to have students synthesize and reflect on their thinking either through group discussion or an individual, written response. The DEJ strategy could be easily extended by following

with critical thinking questions that prompt students to merge their thinking from all of their responses in the DEJ or it could be flexibly modified to serve as a triple entry journal, for example, to demonstrate elements of an experiment in science class (Herman & Wardrip, 2012).

Teaching Module: Double Entry Journals

Creating an anticipation guide:
1. Identify a short text (e.g., chapter) that students are currently reading.
2. Identify no more than five direct quotations from the selected text.
3. Read the text selection either individually, with a partner, or as a class.
4. Use a model-lead-test framework to teach the strategy (i.e., I do, We do, You do).
5. Have students complete the remaining statements individually.
6. Discuss students' responses.

Sample script for thinking aloud:
Look at this first passage from the novel, it says, "[. . .] It's the things that you do in life that matter, not the things you see."

[provide a context here about what was happening in the novel]

In the next column it asks me about my thinking, so that would be what the quote makes me think about. When this passage is spoken, it reminded me of what I've heard others say about one's actions saying a lot about a person. I think actions are like "the things that you do in life." It might even be how you respond to a situation. It's not what you see or what you observe. Maybe it's related to how you react to what you see. Sean is always in trouble in the story and sometimes he tries to blame others and other situations. I think Mr. Hassler is trying to help Sean understand that what is important is how he responds to all of the challenges he faces.

Page 1		Page 2
Quotation / Passage	**My Thinking / Meaning – what it makes me think about**	**My Response** ~ You may want to consider how you are feeling, what the reading makes you think about, how you feel about the characters, etc. Use your comments above as a reference.
"[. . .] It's the things that you do in life that matter, not the things you see." (p. 80) "[. . .] what do you say to a kid whose father lives only an hour away and still is too busy to come visit? For that matter, what do you think when you're that kid? (p. 87)	*The experiences that one engages in in life mean more than simply what one observes or sees.* *The father seems selfish and appears not to care about his son, Sean. While I might feel bad for Sean at times, he really is not doing anything to help himself. In a way, maybe, he is becoming more like his dad (and his mom).*	_____ _____ _____ _____ _____

Figure 3. Teacher Module: Double Entry Journals.

Adapting double entry journals.

The versatility of the DEJ design also makes it easily adaptable in several other ways. For example, the right column could provide a variety of sentence starters such as (a) "This reminds me of . . . ," (b) "I think this means . . . ," (c) "I wonder . . . ," (d) "I infer . . . ," (e) "This is important because . . . ," (f) "I am confused because . . . ," (g) "I will help myself by . . . ," (h) "The picture in my head looks like . . . ," and (i) "This passage suggests . . . ," while maintaining the direct quotation in the left column (Tovani,

2000). Other layouts might include (a) writing interesting facts/details in the left column while identifying the author's message in the right column, (b) identifying a confusing part of the text in the left column and having the student identify what he or she did to get unstuck in the right column, and (c) identifying a confusing vocabulary term in the left column and having the student write what he or she knows about the term in the right column. Furthermore, while the DEJ is easily used with works of literature and other fictional pieces, it could also be used with other text genres and in other content areas.

Double entry journals in the content areas.

DEJs have been used across literature classrooms as well as at the collegiate level. In two studies in science, Herman, Gomez, Gomez, Williams, and Perkins (2008) along with Herman, Perkins, Hansen, Gomez, and Gomez (2010) demonstrated that the use of DEJs resulted in increased science outcomes for high school students. Scofield (1994) used DEJs within an inter- mediate accounting curriculum and demonstrated that DEJs improved student involvement in the course content and provided a way to build communication skills, writing, and problem solving. Patterson (2012) demonstrated that three students (i.e., African American adolescent males) who received comprehension instruction in using DEJs had the highest level of engagement with the text as compared to the three African American males in the control group and the three African American males in the extended response group.

To use DEJs, teachers might work with students across content areas to identify main ideas or key passages in a text and then explain what the passage means, describes, suggests, relates to, and so on. Teachers can also use DEJs by asking students to identify why a particular historical event is important to emphasize cause and effect in social studies class for instance, and to support students' content vocabulary knowledge by helping students make connections to previously learned concepts.

Creating a double entry journal.

To use a DEJ, a few steps are recommended for teachers. The top of Figure 3 details these steps, beginning with selecting a reading through modeling and independent practice. Figure 3 also provides an excerpt from a sample think aloud script

(e.g., materials and proto- cols). In presenting this strategy to students, it is important to explain why each passage was selected (e.g., because it is central to the meaning of the chapter, it helps the reader understand the protagonist). As students become familiar with the strategy, work together to identify other key pas- sages. To further support students' comprehension skills, students might be asked to prepare a paragraph response that merges their thinking across the reflections annotated at the end of the direct quotations.

Table 1. Individualizing Supports for Students With LD in Reading.

Type of Change	Does the Student Need	In Instruction, Then…	In Using the Strategy, Then…
Changes to Setting and Format	More Time?	• Reteach the strategy • Increase the length of the instruction	• Provide opportunity to read at home in advance • Allow student to share with a partner before sharing with the class • Preteach the strategy or use the strategy to preteach content
	Unique textual supports?	• Provide with shorter instructional texts • Provide texts in alternative format (e.g., audio, visual, with hyperlinks) • Utilize shorter statements and/or quotes • Adapt the vocabulary or instructional language • Support students with highlighting important concepts	• Create differentiated or leveled anticipation guides or use multileveled texts maintaining the look but varying the level of difficulty
	More individualized supports?	• Spend more one-on-one time during small group intervention • Spend more one-on-one time outside small group intervention	• Add peer-mediated component (e.g., peer buddy or mentor) • Allow students to use the strategy in cooperative groups

Changes to Delivery	More opportunities to practice?	• Offer individual practice opportunities to the student • Check frequently for student understanding using various methods of response	• Provide specific feedback that relates to the student's use of the strategies
	More explicit instruction?	• Provide models with clear explanations • Scaffold with less complex text • Provide guided practice opportunities • Use pictures, manipulatives, and "think-alouds" • Repeat the directions	• Provide immediate and specific feedback
	More systematic instruction	• Reteach foundational skills that might have been missed • Break down strategies into smaller steps • Break down instruction into simpler segments	• Provide scaffolded support that can be reduced over time

Supporting Implementation

Prior to and following implementation of either of these strategies, teachers should reflect on strategy implementation. First, teachers should reflect on the strategy and their teaching of the strategy by brainstorming a list of additional supports (i.e., developing and recording a list of alternative instructional methods) that students might require to use or continue using the strategy (i.e., what students need to be more successful in using the strategy). See Step 4 of Figure 1 for a listing of program modifications and accommodations that might be required. Second, teachers should reflect on their students' abilities and comprehension of the text by brainstorming a list of additional supports that students might need to aid their understanding of the content.

If students require additional support with the strategy, consider (a) teaching or reteaching the benefits of strategy use; (b) reviewing and/or repairing any past models; (c) providing additional explicit instruction with error correction by modeling, leading, and testing—or providing indpendent practice; or (d) remodeling with more focused teacher or student think-alouds. Alternatively, students could practice with a peer.

Teachers can also provide more scaffolded examples, help the student to monitor his or her use of the strategy, and explore when and where the strategy could be used (i.e., generalization). If students require additional support with the content, consider developing stu- dents' background knowledge and preskills, preteaching, or reteaching key vocabulary and terms, targeting a smaller chunk of the original content, or working from a para- phrased version of the text that might be more appropriate to the learner's reading level.

Moreover, to ensure that these strategies are effective for all learners in the classroom, including students with LD in reading, teachers can implement a number of modifications. Intensifying supports for students with LD are often needed to the setting and format and delivery of instruction. Teachers should ask themselves what the student needs (see column 2 of Table 1). Then, determine the identified student need—in instruction (column 3) or in using the strategy (column 4). The examples provided in Table 1 should be seen as recommendations and not as an exhaustive list. Teachers are also encouraged to access the website for the National Center on Intensive Intervention at http://www. intensiveintervention.org for additional ideas on intensify- ing instruction.

Conclusions

All content areas are text-filled environments, meaning that students are exposed to text through textbooks, lab materials, and web-based content. Thus, students who struggle with comprehension often experience greater difficulty in content area classrooms. To some extent, teachers may be deliberately or unknowingly limiting exposure to text for students with LD, for as topics become more difficult, fluency and comprehension of associated text also become difficult (Vaughn et al., 2011).

However, students with LD can benefit from instruction in comprehension strategies, especially when they are taught in systematic and explicit ways. Furthermore, com- prehension strategies can be adapted for use in content classrooms like mathematics (Draper, 2002) and science (Herman et al., 2008). General and special educators, though, must ensure that strategies are of an appropriate intensity and closely aligned with the curricular expectations required of students in their content

area classes (Deshler et al., 2001).

Unfortunately, literacy texts, practitioner resources, and guidance documents providing recommendations for adolescent literacy in the literature emphasize the importance of teaching comprehension strategies, but rarely suggest specific strategies to use (Kamil et al., 2008; Scammacca et al., 2007; Torgesen et al., 2007). While more research needs to be conducted on strategies for secondary students with LD in reading, the strategies presented here, anticipation guides and DEJs, are promising and supported techniques that teachers could utilize.

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