

The application of Question-Answer Relationship strategies to pictures

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The use of teacher-generated questions to probe for student comprehension of narrative text is a time-honored technique. Some comprehension questions can be answered readily on the basis of meaning that the reader derives from the surface structure, while other questions require the reader to create meaning by integrating conceptual information and previously acquired knowledge (Ryder & Graves, 1998). One of my students stated this another way: "Sometimes teachers ask easy questions, and sometimes they ask questions I can't even find in the story!" This child's exasperation may be attributed to the fact that taxonomies of comprehension reflect a continuum of increasing cognitive linguistic demands, from literally reading the lines of a text to creatively reading beyond them (e.g., Roe, Stoodt, & Burns, 1991; Ruddell, 2001; Vacca & Vacca, 1999). While the majority of comprehension taxonomies assume that questions can be classified as isolated entities, Pearson and Johnson (1978) developed a classification that emphasized the notion that questions do not exist in such a separate manner. They advanced three levels of questioning that are relative to the text to which they refer, as well as to the reader's knowledge base. Rather than consider question types, this perspective views questions by their implied Question-Answer Relationships. Pearson and Johnson defined Question-Answer Relationships as textually explicit (TE) if question and answer are derived from the text and the relationship between the two was explicitly stated, textually implicit (TI) if one step of inference is necessary to answer the question and both question and answer are derived from the text, and scriptually implicit (SI) if a question is derived from the text and the answer is rea-

sonable but nontextual in nature. The Pearson and Johnson taxonomy was the first to highlight the utility of identifying question types according to their relationship to text and reader, and, in doing so, they focused attention on the source of information for comprehension questions—in effect, categorizing a question according to the source of information required for the response (Raphael, 1982).

The importance of children's ability to effectively access appropriate sources of information for responding to questions cannot be overstated. Smith (1994) suggested that "the absence of comprehension is related to not knowing the relevant questions to ask, or not knowing how to find the relevant answers" (p. 53). This statement highlights the critical connection between reading comprehension and metacognition—the ability for students to consciously reflect on their own cognitive processes during a given task, including knowledge related to aspects of the task and strategy use (Baker, 2002). An operational plan for knowing how to find relevant answers to questions is an invaluable tool for students' successful navigation of academic waters. Raphael, Winograd, and Pearson (1980) provided such a tool by refining Question-Answer Relationships (QARs) into specific strategic behaviors. The strategies helped students to find the relevant answers and to learn how to respond differentially to comprehension questions in which the cognitive task demands and available resources vary. In the QAR strategies, the TE category of Pearson and Johnson (1978) was translated to the Right There strategy of looking for the information printed right in the text; the TI category was translated to the Think and Search strategy of piecing information across text; and the SI category

was translated to the On My Own strategy, which requires the reader to reflect on his or her own knowledge to find information for the answer.

Raphael and colleagues established an impressive research base for QAR application (Raphael & McKinney, 1983; Raphael & Pearson, 1985; Raphael & Wonnacott, 1985). They highlighted the importance of students' metacognitive knowledge of sources of information as a critical skill in their ability to access appropriate information for generating answers to comprehension questions. Raphael and Pearson (1985) found that, within the research setting, training enhanced students' understanding of task demands posed by various types of questions and the overall quality of their answers, particularly for children of average and low reading-ability levels. Raphael and Wonnacott (1985) investigated the efficacy of QARs as part of regular instructional reading programs implemented by classroom teachers. They found that students were more successful in identifying Question-Answer Relationships as well as generating answers using the QAR strategy than comparable peers who received conventional instruction. Raphael and McKinney (1983) investigated developmental differences in children's ability to apply the metacognitive process of knowing about information sources. They found overall that, while training was effective for both fifth and eighth graders, the older group benefited as much from a short orientation to the concepts involved in applying the QAR strategies. The data from these investigations have been used as a basis for explaining the implementation of QARs within the classroom setting with various grade levels and developmental reading skill abilities (Gavelek & Raphael, 1982; Raphael, 1982, 1984, 1986).

In addition, a number of authors have incorporated the use of QARs with other instructional strategies. For example, Helfeldt and Henk (1990) integrated QARs within the reciprocal questioning approach called ReQuest (Manzo, 1969); McIntosh and Draper (1995) applied QARs in the content area of mathematics; Bean and Ericson (1989) suggested an instructional approach using QARs with expository reading; and Ezell, Kohler, Jarzynka, and Strain (1992) investigated QARs with peer-assisted instruction. The QAR technique certainly represents one of the more thoroughly researched instructional strategies developed (Tierney,

Readence, & Dishner, 1990), and the literature supports diverse applications.

Using QARs with pictures

I propose the application of QARs to pictures in order to provide a venue for (a) practicing the task demands associated with comprehension questions and (b) heightening student awareness of the metacognitive strategy for taking into account the various sources of information relative to those questions. The rationale behind this QAR variation was motivated in part by literature on visual literacy, which has been broadly defined as the concept of making meaning from visual stimuli in one's environment. Salient factors between visual and print literacy include but are not limited to such common cognitive processes as detecting cause and effect and main idea, predicting outcomes, drawing conclusions, and making inferences (Kossack & Bader, 1980; Read & Smith, 1982). The idea of relating reading skills to visual modalities other than print has been widely discussed (e.g., Croll, Idol-Maestas, Heal, & Pearson, 1986; Paris & Paris, 2001; Yussen & Ozcan, 1996). This nexus is exemplified in research by Croll et al. (1986), which focused on the effects of using topic-related pictures to build readers' schemata and increase background knowledge for reading comprehension. Results of this research indicated that teaching students to interpret relationships inherent in topic-related pictures improved their ability to answer questions about explicit and implicit information relevant to both pictures and stories. These same researchers commented that teaching students to carefully consider concepts and details represented in pictures provides them with practice in the higher level comprehension skills that they previously were unable to understand in print form. Interpreting the pictorial image logically presents an easier cognitive linguistic task than interpreting the meaning of the printed word. A picture involves iconic representation, and its referent is apparent; text is comparatively more abstract and necessitates deciphering a code in order for meaning to be revealed. Pictorial representations provide a venue outside the printed text for practicing cognitive tasks that are critical to reading comprehension. They contain overarching visual statements, rich details, interrelated

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subtopics, implications for past and future action, clues about human motives, and many other concepts that can be abstracted (Croll et al., 1986). Quite simply, it is a context that is familiar, non-threatening (Kossack & Bader, 1980), and unencumbered by printed language.

The presentation of information that is unencumbered by printed language is especially appealing for children who are poor readers. Many children with reading difficulties have language learning problems, with perhaps as many as half of poor readers demonstrating deficits that go beyond phonological decoding (Catts, Fey, & Tomblin, 1997). In addition to decoding factors, it is likely that limitations in processing semantic, morphologic, syntactic, and text-level factors (e.g., cohesive devices) may be present in these students (Catts & Kamhi, 1999). Providing them with a training ground for practicing cognitive task demands associated with comprehension questions within the context of pictorial representations may be tremendously beneficial. Such practice can reduce the cognitive linguistic burden on students by extricating processing demands from text.

The Picture-Question-Answer Relationship (P-QAR) strategies may serve not only to reduce the cognitive linguistic burden associated with conventional print-related QAR strategies, but they may also provide a more apparent way for students to approach answering comprehension questions. Strategies may be defined as goal-directed cognitive operations beyond those that are a natural consequence of carrying out a task (Pressley, Forrest-Pressley, Elliot-Faust, & Miller, 1985). In their discussion that learning-disabled children may lack the fundamental knowledge of how to fit strategic means to cognitive ends, Gavelek and Raphael (1982) recommended that "whatever may be done to make the question-answering strategies more overt and thus subject to feedback...should facilitate an individual's abstraction of the relationship between the strategy employed and its effects" (p. 75). Implementing Question-Answer Relationships within a picture context may promote internalization of the means-to-an-end relationship by allowing the strategy to be more overt and more easily verifiable.

Students with learning difficulties are often poorly motivated during reading tasks (Licht &

Kistner, 1986). It has been suggested that representational illustrations may provide affective-motivational effects during reading (Peeck, 1987). A situation that capitalizes on positive motivational factors might be a beneficial training ground for practicing metacognitive strategies that later can be applied to reading comprehension tasks.

Applying QARs to pictures

Raphael (1986) revised the QAR format and further delineated relationships among QAR types by modifying the categories to distinguish more clearly among strategies. Raphael's In the Book rubric subsumed the Right There and the Think and Search or Putting It Together QARs. Picture-Question-Answer Relationship strategies follow this revised format, and I propose two picture explicit Question-Answer Relationships: the Right There P-QAR strategy, in which the response depends on information depicted outright in a single location on the page, and the Putting It Together P-QAR strategy, in which the response depends on information that is depicted in various places and requires the student to sample several images. The script-implicit Question-Answer Relationship corresponds to the In Your Head rubric and includes the On My Own strategy, which directs the reader to access information exclusively from his or her own knowledge base. It also includes the Author and You strategy, which directs the reader to access information from his or her own knowledge base combined with information the author provides. When applied to pictures, the On My Own strategy is essentially the same as when it is applied to printed texts because the information required to generate a response is not media dependent. The Author and You strategy easily corresponds to my Artist and You strategy, which directs students to access information from their own knowledge base combined with information that the artist provides.

The following lesson illustrates how to use P-QARs in the classroom. I often use the technique with children who have language-learning disorders that are manifest in reading comprehension problems, as is the case with the 8-year-old child in the sample lesson. A one-to-one teacher and student situation is described, but P-QARs also work in a larger, classroom setting. The pictures used could be

scanned onto a computer disc and projected onto a screen for class participation. I have found that wordless story picture books are easily adapted for P-QARs because they typically present richly drawn, detailed illustrations that relate information in an organized manner that is consistent with narrative story structure (i.e., setting, characters, plot, resolution). The Right There P-QAR is cognitively easier and is the suggested starting point because it is motivational and nonthreatening; in addition, the information obtained often provides the skeletal framework for the story. For example, I often pair the Right There P-QAR with the prereading technique of surveying the cover picture and title to establish an anticipatory set for students.

Teacher facilitation statements are those that state outright how the student arrived at the answer and therefore facilitate learning by making the metacognitive connection explicit between the information source and the strategy used. For example, in the Artist and You P-QAR the teacher echoes the words of the strategy and relates them to the specific inference the child generated. The teacher also provides immediate feedback by identifying the strategy the child uses and by confirming the accuracy of the student's response.

I have suggested a general process for applying the QAR strategies to pictures. It can and should be modified depending on the needs of the student. For example (in Figures 1–3), I explained the application using a “chunking” method to introduce the comprehension question(s) immediately following short narrative statements in association with one picture at a time. P-QARs could be implemented following presentation of the entire narrative, using the pictures as an anchoring referent for each question. Another area of flexibility centers around the order of P-QAR presentation relative to the narrative associated with the pictures. I have found that, when introducing P-QARs, it is best to start with the cognitively easier ones—first the Right There and then Putting It Together, where the answers are found in the picture. Once the student has experience formulating answers to questions using these more obvious visual perspectives on the source of information, the Artist and You strategy is introduced and is followed by the more challenging On My Own strategy. Once the student has become familiar with the P-QAR types, they need not be implemented in this cognitive hierarchy. Narratives are diverse with re-

spect to the comprehension benefit that may be derived from the various P-QARs, and therefore they do not easily lend themselves to a linear progression of P-QAR application.

Cautions and suggestions

The P-QAR technique has the same limitations that have been associated with QARs. The first relates to the imprecision of taxonomic definitions upon which the strategies have been based (Alvermann & Phelps, 1998). For example, if a student generates a response using exact words taken from different places across the text, is the Question-Answer Relationship Right There or Putting It Together? The problem of potential overlap is equally apparent when applying these two strategies to pictorial representations, even though images rather than words are being considered. Another problem relates to potential ambiguity among QARs beyond the explicit Right There strategy. Graham & Wong (1993) pointed out that confusion between information in the text and that which exists in the student's store of prior knowledge can lead to disagreements over the appropriate classification of QARs. Whether considering QARs related to text or pictures, the issue of the

SUGGESTED BOOKS FOR P-QARS

- Day, A. (1992). *Carl's masquerade*. New York: Farrar Straus Giroux.
- Day, A. (1995). *Carl's birthday*. New York: Farrar Straus Giroux.
- Day, A. (1998). *Follow Carl!* New York: Farrar Straus Giroux.
- Kellogg, S. (1981). *A rose for Pinkerton*. New York: Dial Press.
- Kellogg, S. (1982). *Tallyho, Pinkerton*. New York: Dial Press.
- Kellogg, S. (1993). *Pinkerton, behave!* New York: Dial Press.
- Kellogg, S. (2001). *A penguin pup for Pinkerton*. New York: Dial Press.
- Mahy, M. (1969). *Mrs. Discombobulous*. New York: Franklin Watts.
- Mahy, M. (1974). *Rooms for rent*. New York: Franklin Watts.
- Mahy, M. (1990). *The Pumpkin Man and the Crafty Creeper*. New York: Lothrop.

FIGURE 1
Right There P-QAR

Right There

This story is about a birthday party. I can tell it is about a birthday party because I can see balloons, a cake, and presents *right there on the cover picture*, and the title says *Carl's Birthday*.

Teacher question: I wonder, is Carl a person?

Student response: No, he is a dog.

Teacher question follow-up: How do you know that he is a dog?

Student response: Because he is on the cover and he is wearing a birthday hat. He must be the birthday boy.

Teacher facilitation: Yes, I can see Carl is wearing a birthday hat *right in the picture*. He must be the birthday dog. (Note the indirect correction of birthday boy and dog, because the emphasis of the lesson is focused on information source.)

Teacher question: What does Carl look like?

Student response: He looks big and brown. He doesn't have a tail. He has floppy ears.

Teacher question: How do you know he is big and brown, with no tail and floppy ears?

Student response: Because I can see that in the picture.

Teacher facilitation: Yes, you answered the question by looking at the information *right there in the picture*.



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FIGURE 2
Artist and You and On My Own P-QARs

Artist and You

Carl and Madeleine are watching the mom, but they can't quite see what she is doing because she is standing over the table.

Teacher question: What do you think the mom is doing?

Student response: She is wrapping some presents.

Teacher question: How do you know that?

Student response: Because you get presents on your birthday, and I can see the ribbons.

Teacher facilitation: Oh, so you see the ribbons and wrapping paper in this part of the picture (teacher support by pointing), and *you put that information together with what you know* about birthday parties.

On My Own

Carl and Madeleine are very quiet hiding against the wall in the living room, and Mom doesn't know they are behind her.

Teacher question: Why do you think they are hiding?

Student response: Because they don't want to get into trouble.

Teacher question follow-up: Why do you think they would get into trouble?

Student response: Because the birthday party is supposed to be a surprise, and they were snooping around and found out so they wrecked the surprise.

Teacher facilitation: Yes, you figured out the answer *on your own, from the information that you know in your head*. You knew they might be in trouble if the mom caught them snooping around, and that would ruin the surprise.



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FIGURE 3
Putting It Together P-QAR



Putting It Together

The mom is gone now, and Carl and Madeleine are free to wander without worrying about getting caught looking around the house.

Teacher question: What did they do with the present they found under the table?

Student response: Carl pushed it out, and Madeleine unwrapped it. It was a fake dog, and they played with it.

Teacher facilitation: Yes, you looked at the information pictured on this page and the information pictured on this page and *put it together* to answer the question. Here Carl is pushing the present from under the table, here Madeleine is unwrapping it, and here they are playing (teacher support by pointing).

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degree to which script-implicit comprehension may be operational for any question beyond the explicit is always a factor.

I have found a variety of picture books that are ideal for the purpose of P-QARs. See the Sidebar for my suggestions. In the Carl book series, which is appropriate for a first-grade literacy level, Alexandra Day often presents salient details in a bubble off to the side of the page. I especially like to use this focused depiction to confirm the child's answer. For example, when providing feedback in the example Artist and You P-QAR (Figure 2), I initially covered the bubble and then revealed it, directing the child's attention to the corner of the page with appropriate feedback supported by pointing. For a second-grade literacy level, I recommend the

Pinkerton books by Steven Kellogg. These books, also about the adventures of a mischievous family dog, are slightly more advanced because they have one or two lines of text above each illustration. In addition, the illustrations often are presented two to a page and clearly depict linked events. A number of books by Margret Mahy are appropriate for third- and fourth-grade literacy levels; these stories typically contain a paragraph or two of text per page, but the colorful and clever illustrations are undoubtedly the focus because the text is embedded in the story depictions.

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SOURCE: Read Teach 57 no4 D 2003/Ja 2004

WN: 0333500992006

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