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Raising questions about questions

Benefits of using a Content Enhancement Routine

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Numerous research studies have shown that use of the Content Enhancement Routines developed by the University of Kansas Center for Research on Learning results in increases in student achievement. Now, researchers want to know ***how*** this happens. To begin to understand, researchers are exploring the relationship of the use of these routines to the verbal interactions that occur between students and teachers in general education classrooms. Their preliminary findings provide a starting point for thinking about and discussing the interactions that occur in your own classrooms every day.

Researchers began to ask questions to understand what teachers who use a Content Enhancement Routine say or do differently in the classroom that might affect student learning.

Raising questions

The following verbal instruction occurred in a classroom in which a teacher used a Content Enhancement Routine while presenting a lesson. Notice how many of this teacher's comments were statements of fact, as might be heard in a lecture, and how many were questions:

> Now it's time to look at the other side of the coin. There's always two sides of a coin. What's on the other side? Who were they? Ranchers, farmers, hunters. That's where the opposition is coming from? Why did they oppose it? I want it right there, right there in the middle of the cause-and-effect table. What? They feared what, feared loss of what?
>
> —Dave Taylor, Shawnee-Mission School District, Kansas

- The author, Sherrel Lee Haight, spent the fall semester 1999 on sabbatical at the University of Kansas Center for Research on Learning. This article is one of the products resulting from her sabbatical work.
- Janis Bulgren, associate research scientist at KU-CRL, has been developing Content Enhancement Routines and conducting research on them for many years along with other associates at KU-CRL. Janis provided audiotapes and transcripts from her research in progress for use in the preliminary data analysis described in this article.

The teacher encouraged students to take two different perspectives by asking a series of questions to guide their thinking about cause-and-effect relationships. Six out of 10 phrases were questions when the teacher incorporated a Content Enhancement Routine into classroom instruction.

A look at this and other teacher-student verbal interactions raises several thought-provoking questions about questions as they relate to instructional practices and the use of Content Enhancement Routines: Have you ever thought about the questions you ask your students? How do your teacher-student interactions change depending on the questions you ask? What kinds of questions and structures get the best results from your students? How do your verbal interactions with your stu-

dents change when you use a Content Enhancement Routine?

This article, which takes a closer look at the last question, describes results from prior studies of teacher-student classroom instruction. It also presents a sequence of research questions used to direct a preliminary analysis of teachers' verbal instructions. Researchers started with the first question, and additional questions naturally arose as answers became more clear. The following questions are addressed in this preliminary analysis:

- What are the characteristics of verbal instruction when one teacher uses a Content Enhancement Routine?
- What are the characteristics of verbal instruction when several teachers use a Content Enhancement Routine?
- What changes occur in verbal instruction when teachers use a Content Enhancement Routine compared to when they do not?

The preliminary analysis resulting from this study began to offer answers to some of these questions. It also strengthened evidence of a possible link between teacher verbal interaction and the effectiveness of using Content Enhancement Routines to improve student learning.

Percentage of questions in relation to statements in teacher-student verbal interaction (preliminary data)

Teacher	Before CE	After CE
1	50%	63%
2	55%	71%
3	15%	26%
4	18%	31%
5	63%	90%

Figure 1

Typical teacher-student interaction

Prior studies at the University of Kansas Center for Research on Learning (KU-CRL) tell us several facts about typical teacher-student interaction during classroom instruction. In a 1984 article, Schumaker and Deshler described one of the earliest observational studies of the demands of secondary settings, which was conducted by Moran (1980). She attempted to identify the oral language demands present in secondary school classrooms by audiotaping class sessions and coding the verbal utterances of secondary teachers in 12 categories. After coding the verbal interactions, Moran found the most prevalent type of teacher utterances were in the form of lectures (i.e., statements of fact). These statements by the teacher, requiring no verbal response from the students, were found to make up 75 percent of the utterances.

In another study using classroom observations of students and teachers, Schumaker, Sheldon-Wildgen, and Sherman (1980) found students had few interactions with their teachers. This study classified time-sampling intervals based on the activity occurring in the classroom. They found students spent about 1 percent of the class intervals speaking with a teacher. In addition, these researchers found teachers asking questions at the rate of one question every 28 minutes. During the entire observation period, which was about 50 hours, teachers gave 27 instances of praise (about one instance every two hours) and 35 instances of criticism (about one instance every hour and a half). Researchers in this study reported independent seatwork activities across several class periods made up the largest portion of class time (48 percent of the intervals), with lecture from the teacher comprising the next most prevalent activity (18 percent of the intervals).

These studies indicate that very little teacher-student verbal interaction occurs during classroom instruction. In fact, according to these studies, teachers very seldom use questions to engage students in classroom discussion, reasoning, or higher-order thinking.

Looking for answers

In a number of recent studies conducted at KU-CRL, Content Enhancement Routines have been shown to successfully increase academic learning for students with learning disabilities, as well as students at risk for failure and students within the normal range of achievement (Bulgren, Schumaker, & Deshler, 1988; Bulgren, Schumaker, & Deshler, 1994; Bulgren, Schumaker, Deshler, & Lenz, in press). Researchers began to ask questions to understand what teachers who use a Content Enhancement Routine say or do

Examples of types of questions teachers asked when using the Content Enhancement Routines

Prompt for facts	"I want to say one word that starts with 'w'...what is it?"
Thinking challenge	"Okay, by the way, did you find anything that just kind of rubbed you the wrong way when you read that sentence?"
Thinking challenge	"I really want you to see this through the eyes, the conceptual eyes, of an environmental dreamer...So take a look through Stuart's eyes, which one would he rank up there as number one?"
Steps/device	"How many steps?"
Thinking challenge	"How many people want to go for 'Introduce wolves'?"

Figure 2

differently in the classroom that might affect student learning. This preliminary analysis focuses specifically on the number of questions teachers ask in relation to the number of statements they make.

What are the characteristics of verbal instruction when one teacher uses a Content Enhancement Routine?

To answer this question, researchers analyzed a transcript of the verbal instruction of a ninth-grade science teacher who was using a Content Enhancement Routine. They analyzed several samples of interaction in the transcript of a 40-minute class period and found questions comprised about 71 percent of the teacher's verbal instruction. In addition, they found the teacher used a wide array of questions to engage students in the process of learning content knowledge as well as in the critical thinking skills of cause-and-effect relationships. This teacher used more than 12 different types of questions when he taught about cause-and-effect relationships using the Content Enhancement Routine. These findings led to the second question.

What are the characteristics of verbal instruction when several teachers use a Content Enhancement Routine?

Researchers analyzed audiotapes of four additional teachers who were using a Content Enhancement Routine during whole-class instruction. Most of the teachers asked questions in more than 50 percent of their verbal interactions. The percentage of questions ranged from 26 percent to 90 percent. In this sample of teachers, the number of questions they asked in relationship to the number of statements they made when they were using the Content Enhancement Routine was much higher than in the verbal interactions of typical classrooms reported in previous studies. These data led to the last question in the analysis.

What changes occur in verbal instruction when teachers use a Content Enhancement Routine compared to when they do not?

To answer this question, researchers analyzed audiotapes of the same teachers teaching new information without using the Content Enhancement Routine. Although all of the teachers asked questions during their baseline lessons (when they were not using the Content Enhancement Routine), all of them asked substantially more questions when they used the Content Enhancement Routine. Based on the preliminary data from this analysis, Figure 1 on page 2 shows the percentage of questions asked before the Content Enhancement Routine was implemented and after it was implemented.

Figure 2 shows some examples of the types of questions teachers asked to encourage students to respond to information about new conceptual relationships when the teachers used the Content Enhancement Routine. Although the types of questions teachers used were not routinely coded during

this study, there were indications from a few samples that teachers were using a variety of types of questions.

Conclusion

The increase in the number and variety of questions asked does not seem to be the only change in instructional quality when teachers use the Content Enhancement Routine. In the preliminary data review, other questions for future research presented themselves: Was more class time spent on teacher-student verbal interaction? Was more class time spent on activities involving specific instruction about conceptual relationships? Was more of the instruction made explicit regarding the relationship of the event? Was more analogical and personal relationship information used during instruction?

Although research into why a Content Enhancement Routine might result in increases in student achievement is just beginning, the preliminary data provide one possible clue: How much difference does a Content Enhancement Routine make in teacher-student verbal interaction? A lot!

References

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On the CRL Web site

The SIM Spotlight portion of our Web site every month features a new article related to the Strategic Instruction Model. A sampling of archived articles:

- March 2000: Edwin S. Ellis of the University of Alabama describes the new *Framing Routine.*
- January 2000: Charlie Hughes and David McNaughton of Penn State University describe the new *InSPECT Strategy* for use with word-processor spellcheckers.
- May 1999: More than half a dozen strategic teachers share ideas they have used successfully in their own classrooms.
- April 1998: Jean Schumaker, associate director of CRL, explains the relationship between Content Enhancement Routines and Learning Strategies.

www.ku-crl.org

SIM teachers honored for outstanding work

Congratulations to SIM Trainers Mary Etta Taylor of Heath Springs, South Carolina, and to Kathy Boyle-Gast of Athens, Georgia! Both teachers recently received well-deserved honors for their hard work and dedication to the teaching profession.

Mary Etta was the high school recipient of her county's Celebrate Great Teaching program award. She teaches at Buford High School in Lancaster, South Carolina.

Kathy's school, Timothy Road Elementary, voted her the school's teacher of the year, and she was first runner-up for the district award.

Say it in your own words: Tips for teaching paraphrasing

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Although various strategies are aimed at improving reading comprehension, one strategy with broad applicability for all areas of literacy is *Paraphrasing*. Paraphrasing can be used when reading, writing, and taking notes. For example, students may be asked to stop periodically when tackling a reading selection and paraphrase what they have read. Likewise, they may be asked to answer questions about a section of information they have read or write a paper or book summary. Students also may be asked to take notes as a teacher presents specific content. In each of these situations, students who are able to paraphrase information are at a distinct advantage when compared with students who copy or repeat information verbatim.

The act of paraphrasing, or putting information in your own words, helps us ***understand*** and ***remember*** information better. In one study conducted at the University of Kansas Center for Research on Learning, high school students with learning disabilities improved their grade-level comprehension scores by an average of 35 percentage points after being taught how to paraphrase (Schumaker, Denton, and Deshler, 1984). It is important to point out that these results were realized when the instructor adhered to specific stages of instruction, including describing and modeling how to use the *Paraphrasing Strategy,* as well as providing ample time for practice, feedback, and generalization.

This article originally appeared in the Disabled Readers Group Newsletter, *Volume 2, No. 4, March 2000. Reprinted by permission.*

What tips can be gleaned from this study and other research on paraphrasing?

First, it is important to model or demonstrate for students ***how*** to paraphrase as well as to provide time for practice and feedback. It is also important to practice paraphrasing across subjects and settings. This will help students realize that paraphrasing is a skill that has multiple applications.

What are some tips for teaching students how to paraphrase?

The first step in paraphrasing is to read a passage or section of information. Next, students should be able to find the main idea and details of that selection. Finally, students put the main ideas and details in their own words. Although most students can pick out details fairly easily, finding the main idea can be more difficult. Notice how the worksheet on page 6 can be used to help students identify the main ideas and details of a section (***note:*** a section is defined here as multiple paragraphs with headings).

What types of activities can I use to teach and reinforce paraphrasing?

The activities listed below can be used with virtually any content, including math, science, social studies, and language arts.

Paraphrasing critical concepts

1. After students have learned about critical course concepts, such as "slope," "fraction," "decimal," "ecosystem," "DNA," "democracy," "communism," "plot," and "theme," ask them to turn to a neighbor and paraphrase what the concept means. Explain to students that defining a difficult concept in your own words is an excellent way to determine whether you understand the concept well.
2. Rather than having students verbally paraphrase definitions of important concepts, ask them to write their paraphrases in paragraph form. In the initial stages of instruction, it may help some students to write their paraphrases using one main idea and two supporting details.

(continued on page 7)

Completed Paraphrasing Worksheet

1. What is this section about? (or What are these paragraphs about?)

Hints:
**** Look at the title or heading of the section.***
**** Your answer will likely be a short, general statement.***

The Two Houses of Congress

2. What does this section tell me about (insert answer to No. 1 above)?

Hints:
**** Be specific!***
**** The first or last sentences of each paragraph may provide clues!***
**** State your answer in a complete sentence.***

There were two major reasons why the U.S. chose a 2-house system.

3. What details or facts support the main idea?

Hints:
**** Choose details that you think will be emphasized during discussions, assignments, or tests.***
**** State your answers in complete sentences. (optional)***

Detail #1: *The first reason for two houses was so that each house could check the other.*

Detail #2: *The second reason for two houses was so big and small states would be represented fairly.*

(Continued from page 5)

You may choose to set a three-sentence limit for written paraphrases.

3. A third variation of paraphrasing critical concepts is to have students form small groups and cooperatively develop a paraphrased definition. All groups can then share their definitions, which are recorded on an overhead or blackboard for all students to see. The different group paraphrases can then be compared and common elements in all paraphrases identified and reinforced. Be sure to emphasize that since paraphrasing means putting information in your own words, it is expected that each group will have different definitions.

Paraphrasing journals

4. Have students designate a spiral notebook as their "Paraphrasing Journal" and periodically ask students to record in their own words the most important information they have learned that day or week. Increased specificity can be used for particular journal entries, such as "Tell me in your own words the steps to solving a linear equation" or "Tell me in your own words why we use the scientific method."

Paraphrasing reading guides

5. For individual course textbooks or other reading assignments, develop a reading guide that is organized according to main ideas and details. Initially, it is a good idea to fill in the titles of the main idea sections that you want students to read carefully. This gives you the flexibility to skip certain sections of the textbook. Then, for each main idea section, list below it the number of details that you would like students to extract from the reading assignment. Students can work individually or in pairs to complete the reading guides. Remember that the key to making this a "Paraphrasing Reading Guide" is to have students paraphrase the information rather than record information verbatim from their books.

Timed paraphrases

6. To help provide structure and motivation when assigning in-class reading of course materials, periodically announce to students that the next section of the chapter will be a timed paraphrase. Next, provide a time limit for a specific reading assignment and when the time has elapsed, ask for volunteers to put in their own words one main idea and two details about what they have just read. Students must close their book when doing this activity. Have on hand small incentives such as gum or candy for anyone who volunteers to state his or her paraphrase. Choose different student volunteers for each reading assignment.

Lecture paraphrases

7. If delivering a lecture on a given topic, periodically stop and ask students to tell in their own words the main idea of the information you have just covered. Before beginning the lecture, provide an advance organizer informing students that you will be stopping periodically throughout the lecture to ask them to paraphrase the information you have delivered. A variation of this activity is to have students turn to a neighbor and paraphrase the main ideas covered in the lecture. Have students number themselves "1" and "2" and rotate which number paraphrases first. Have students check to see whether they agree on the main idea of the information presented.

Notetaking paraphrases

8. Ask students to look over their notes for a specific section of content and highlight the main ideas with one color and the details that support the main ideas with a different color. Emphasize to students that when taking notes, it is wise to emphasize main ideas by capping, bolding, underlining, or placing them at the left margin, while the details should be indented and clearly fall under the main ideas. This will help students formulate a basic structure for notetaking. You may choose to provide to students different sample notes to emphasize the many ways of distinguishing main ideas from details.

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