

USING READING IN CONTENT AREA STRATEGIES TO IMPROVE STUDENT UNDERSTANDING IN FAMILY AND CONSUMER SCIENCES

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This study assessed the effectiveness of using a pre-reading strategy in high school foods and nutrition classes. One class was randomly assigned to use the pre-reading strategy, while one did not use the pre-reading strategy. A pretest was administered. During the semester, both classes received the same instruction, with the exception of the use of the pre-reading strategy in the experimental group. A posttest was administered at the end of the semester. The t-test for independent samples showed no significant difference in mean gains on test scores between the two classes.

Teachers assume that students learn most from context material, primarily content area textbooks. However, most research suggests that textbook reading is not as prevalent as assumed, and most students depend on the teacher, not the textbook, as their primary source of information (Armbruster, Anderson, Armstrong, Wise, Janisch, & Meyer, 1991; Vacca, 2002). Because of the usefulness and validity of the information presented in the text, teachers feel they cannot abandon the textbook. Yet, many teachers become frustrated with students' apparent lack of critical reading skills and their inability to comprehend effectively from their texts (Allington, 2002; Barton, 1997). Since these teachers are not themselves trained in teaching content area reading strategies, many resort to telling their students what they need to know rather than requiring them to read the text. Instead of employing strategies that make use of active learning, many secondary teachers rely on passive approaches such as retelling and memorizing (Simpson, 1995).

Reading is a dynamic process in which the reader works actively to construct meaning from the material (Barton, 1997). Students need to have the abilities to adjust their reading to fit the type of material being presented. Effective readers are involved in the process of reading, actively looking for meaning. Ineffective readers play a passive role when reading, not connecting the text material with prior knowledge. Content area teachers can equip their students with strategies that will help them access and use background knowledge, text feature knowledge, and general knowledge gained from the world, or as some would call it, common sense knowledge.

Prior knowledge can act as a framework through which the reader filters new information and attempts to make sense of what is read (Barton, 1997; Jacobs, 2002; Vacca & Vacca, 1999). If students' background knowledge is well-developed and accurate, they will understand and remember more of what they read. Because of the usefulness of prior knowledge to comprehending, processing, and remembering new information, pre-reading strategies need to be used when reading in content areas.

Teachers can serve as catalysts for promoting interaction between students and the textbook information (Allington, 2002; D'Arcangelo, 2002; Neal & Langer, 1992). They can

help activate and organize students' prior knowledge about a topic and the text. When teachers know what students bring to their reading, they can purposefully choose strategies that connect the *old* and *new* of the text (Jacobs, 2002). These strategies can help clarify unfamiliar vocabulary and concepts, help students anticipate the text, and help them make personal connections with it, thus encouraging their interest, engagement, and motivation.

Pre-reading activities can include brainstorming; graphic organizers of students' background knowledge, including concept maps; or close exercises, during which students attempt to replace important vocabulary or concepts that the teacher has deleted from the text in order to draw attention to those points (Fisher, Frey, & Williams, 2002; Jacobs, 2002). SCAIT is another strategy used: S – select key words; C – complete sentences; A – accept final statements; I – infer from facts; and T – think at applied levels (Wiesendanger & Bader, 1992). In addition, the teacher or students may develop writing or interactive discussions regarding what students already know and what they need to know before reading (Jacobs, 2002). Such pre-reading activities not only prepare students to understand text but also help build students' vocabulary and study skills.

Purpose

The purpose of this study was to implement a reading in the content area strategy into a family and consumer sciences classroom. Theoretically the introduction of this strategy would increase the students' reading comprehension of the textbook materials. The increase in the knowledge gained from the textbook, along with the connections created by the pre-reading activities drawing on prior knowledge, would increase student understanding. With increased student understanding, test scores would improve. Thus, the hypothesis for this study was that there would be a significant gain in scores in the experimental group, the students who were exposed to the reading in content area strategy.

A pre-reading strategy, the anticipation guide, was utilized in this study. The anticipation guide, also called reaction or prediction statements, is a teacher prepared instrument. This type of interactive strategy helps students activate their prior knowledge by associating what they already know with new information presented in the text. The anticipation guide consists of five or more questions, usually true-false statements, related to the topic to be covered. These are short declarative statements that in some way reflect the world the students live in or know about, avoiding abstractions (Vacca & Vacca, 1999). These questions relate to the important factual concepts, not minor details in the reading. The students have an opportunity to react or predict the answers to the questions.

The use of the anticipation guide helps the teacher assess the amount of background knowledge possessed by the group. If more background knowledge is needed, a teacher can present this before the students read. With increased prior knowledge, students should be able to make associations with the material to be read, thus increasing understanding. The responses can also help the teacher correct any misconceptions the students may have about a particular topic. Correcting misconceptions can prevent students from making an inaccurate interpretation of the material presented in the textbook.

Anticipation guides can give students an idea about the material to be studied. It can motivate readers to want to know more about the topic, encouraging them to read. If the statements are challenging, students may discuss or debate the answers. Students who are a part of a discussion become active learners and are more likely to have a positive reading experience.

Students who have predicted answers bring expectations to the reading. The value of the anticipation guide lies in the discussion before reading.

Methodology

The participants in this study were high school students from two foods and nutrition classes taught by the same instructor. Each class was composed of freshmen through senior level students. Because the students were assigned to their classes by the school’s computerized scheduling program, the groups were not truly randomized. The designation of groups, experimental and control, was randomly assigned.

Before completing assigned reading in the text, the experimental group was given anticipation guides that consisted of five to eight questions related to the main factual concepts of the reading. The students were first asked to respond individually to the questions and then to pair up with another student to compare and discuss answers. After working together in pairs, the students came together as a large group to discuss the questions. The students were given an opportunity to present the reasons they felt their answers were correct and to predict the subject matter of the reading. The students were then asked to read the text. After reading, students were asked to correct any misconceptions or wrong answers on their anticipation guides. The following is an example of an anticipation guide used in this study.

Foods and Nutrition
Chapter 19, Meats, Poultry, and Seafood
Anticipation Guide

Directions: Before reading the chapter, check the items you think are true in the “Before” column. Then as you read, circle those that are correct. Check any others you find are true in the “During Reading” column.

| <u>Before Reading</u> | | | <u>During Reading</u> | |
|-----------------------|----------|--|-----------------------|----------|
| Agree | Disagree | | Agree | Disagree |
| _____ | _____ | 1. Of beef, pork, chicken, and fish, pork usually has the most saturated fat. | _____ | _____ |
| _____ | _____ | 2. Elastin is the fiber that holds meat together. | _____ | _____ |
| _____ | _____ | 3. Seafood refers to fish that comes from salt water. | _____ | _____ |
| _____ | _____ | 4. All beef and pork can be eaten rare or medium rare. | _____ | _____ |
| _____ | _____ | 5. It is okay to stuff poultry ahead of time to save time on the day of cooking. | _____ | _____ |

Instead of using the anticipation guide, the control group was given a brief overview of the reading by the teacher including the main ideas in the chapter or section. The group was asked to complete the vocabulary and end of chapter questions. All other instruction provided to the experimental and control groups was the same. This instruction included group work, demonstration, videos, foods labs, and worksheets. In addition, the two groups spent the same amount of time on each unit of study.

The instrument used to measure student achievement in this study was the North Carolina standardized VoCats (Vocational Competency Achievement and Tracking System) pretest and posttest for foods and nutrition. Pretests and posttests are generated by the state and are

administered according to the policies of the State Department of Public Instruction. For this study, the students were given the pretest on the second day of classes, and the posttest was administered at the end of the semester.

Discussion and Findings

A total of 31 students completed both the pre- and posttests. Scores of students who were pre-tested and dropped the course during the semester were not used. Likewise, scores of students who completed only the posttest were not used.

T-tests for independent samples were used to determine whether the experimental group and control groups differed regarding their pretest scores. The experimental group had a mean score of 43.20 with a standard deviation of 9.34 and a standard error of mean of 2.95. The control group had a mean score of 39.62 with a standard deviation of 13.85 and a standard error of mean of 3.02. Levene's equality of variance was $f = 1.197$ and $p = .283$. The test for the equality of means had a 2-tail significance of 0.466. No significant difference in the pretest scores of the two groups was shown, so it can be assumed that at the beginning of the study the two groups had the same level of knowledge.

A comparison of the mean pretest scores and posttest scores was made using the t-test for independent samples. The difference in the pretest and posttest scores for the experimental group showed a mean of 21.20 with a standard deviation of 12.12 and a standard error of mean of 3.83. The control group had a difference of the mean scores between the pretest and posttest of 19.48 with a standard deviation of 8.69 and a standard error of the mean of 1.90. Levene's test of equality of variance between the two groups was $f = 2.144$ with a significance of 0.154. The t-test of equality of means had a 2-tail significance of 0.653.

The hypothesis was that there would be a significant gain in scores in the experimental group, the students who were exposed to the reading in content area strategy. The null hypothesis, that there would be no significant difference in the two groups, was accepted. There was no significant difference between the scores of the experimental group and the control group.

In this study, traditional reading strategies were as effective as the reading in content strategy used in this study. In the review of recent literature, reading in content strategies were used to improve reading skills and not specifically to raise test scores. This research assumed that improved reading skills would lead to improved test scores, but this was not proven. A test to assess the improvements of students' reading of content was not completed.

The findings of this study suggest that perhaps a variety of reading in content area strategies should be used, rather than using only one strategy as in this study. Also using these strategies over a period longer than a semester might give different results.

Some time was needed to familiarize students with the pre-reading strategy to accustom them to relying on their prior knowledge to answer preliminary questions. The students in the experimental group wanted to use the book to look up the answer without reading. It took time to accustom the students to rely on their own knowledge and not worry about the grade they would receive on the anticipation guide. Without a grade, the students tended not to respond and not to work on the guide when it was given to them. This seemed to be the most difficult concept for the students to grasp. However, once the students were accustomed to the anticipation guide, they began to discuss and analyze answers.

Summary and Implications

The findings of this study indicate that further research in this area is needed to determine the effectiveness of reading in the content area in family and consumer sciences classrooms. Involving more family and consumer sciences classes for a longer duration, specifically a year or more, would increase the number of participants. Once strategies were implemented, students would not need the time to become accustomed to the different approach to reading material.

Research about the effectiveness of the different types of strategies could help determine the most effective strategies to use with high school students in family and consumer sciences classes. This study used only one reading in content area strategy which was particularly suited to a foods and nutrition class. However, there are many other strategies that are available for use by teachers at the middle school and high school level. If teachers were made aware of reading in content area strategies, given some instruction, and urged to implement the strategies in their classrooms, the students' reading skills might increase. Workshops and inservice training related to content area reading strategies could be made available to teachers. These would most likely be well received if they provide useful information and apply to teachers' particular situations.

In talking with colleagues and reviewing recent literature, it was clear that the lack of reading and comprehension of material by students is a concern of teachers. Some systems in the state of North Carolina have implemented these strategies, and all teachers are given training. With the emphasis on test score improvement, teachers are beginning to realize that teaching reading does not stop in the elementary grades. Teaching reading is the job of all teachers, regardless of the subject area or grade level they teach.

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