

Building Bridges to Understanding Expository Science Text: Does the Reading Apprenticeship Framework help students learn how to effectively read and comprehend the science textbook?

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Background Information

My school district has adopted the Reading Apprenticeship Framework as a way to increase literacy skills across all content areas and has trained all teachers on how to implement the framework in the high school classroom. As a part of the Reading Apprenticeship district committee and as a credentialed science and English teacher, I want to explore the effectiveness of and the difficulty of implementing the Reading Apprenticeship Framework in my classroom.

Literature Review

- ✓ Reading skill was one of the best predictors of student achievement (O'Reilly & McNamara, 2007).
- ✓ The Reading Apprenticeship program developed by WestEd, a think tank based in California, focuses on the four dimensions of reading: social, personal, cognitive and knowledge building. Students in Reading Apprenticeship classrooms have improved their expository text reading skills as demonstrated on standardized tests and research studies (Greenleaf, 2001).
- ✓ Teachers need to "model how they read such (science) texts and engage the students in overt discussion about the language and genre conventions of such texts and how these conventions arise from history and relate to current practices" (Fang, 2006).

Methods

The Reading Apprenticeship Framework encourages teachers to balance the reading dimensions listed in the literature review. For my project, I have implemented a minimum of two strategies from each dimension.

- Personal dimension
 - Students completed metacognitive logs while reading textbook.
 - Teacher modeled "talk-to-the-text" strategy for students.
 - Students read for longer periods of times during class to build reader stamina.
- Social dimension
 - Students made and used reading strategy lists in the format of bookmarks.
 - Students worked in cooperative learning groups to discuss reading assignments for inquiry labs.
- Cognitive dimension
 - Students developed reading strategy lists (posters) during class discussion.
 - Students sketched and summarized reading assignment concepts in metacognitive logs.
- Knowledge-building dimension
 - Students completed anticipation guides before reading each section of assigned text.
 - Students identified and previewed features of the text such as bold terms and diagrams.
 - Students defined key terms and incorporated five words per week into concept maps as part of the metacognitive logs.
 - Students collectively constructed a word wall for each unit.

To increase student interest and build science literacy, students completed weekly science news assignments.

During the treatment, the average unit consisted of administering the Pre-Reading Comprehension Assessment as students read the text assignment for the first time. After the initial weekly assessment, students will complete a number of assignments and activities from the different dimensions.

At the end of the mini-unit students completed the Post-Reading Comprehension Assessments and Classroom Assessment Techniques that include confidence and attitude-related questions and a memory matrix.



Focus Questions:

- Does the Reading Apprenticeship Framework improve science textbook reading confidence-levels in Integrated Science I students?
- Does the Reading Apprenticeship Framework improve student attitudes towards reading?
- What Reading Strategies did students prefer to use? When did they learn how to read a science textbook?
- Does the Reading Apprenticeship Framework improve science textbook reading comprehension quiz scores of integrated science students?
- How was the teacher's attitude affected as she implemented the Reading Apprenticeship Framework in her science classroom?

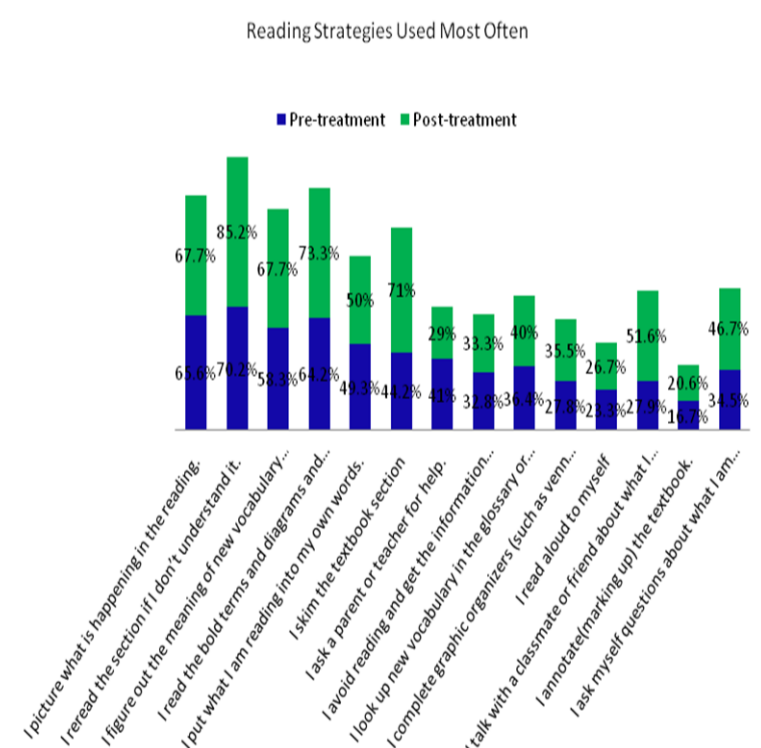
Methods (continued)

I conducted pre-, during and post- assessments about student attitudes, confidence and reading comprehension levels. I also conducted pre- and post-interviews with an academically diverse group of students about their attitudes towards and their confidence levels when reading the science textbook. Additionally, I maintained a teacher journal to measure my own attitudes and challenges while implementing the program.

Data Analysis and Interpretation

As is shown in Figure 1, students used a greater variety of reading strategies and became less dependent on parent or teacher help when reading the science textbook by the end of the treatment period. In addition both student confidence levels and attitudes towards reading the science textbook improved. Finally, comprehension levels of the textbook improved over time in a classroom setting modeled after the Reading Apprenticeship Framework.

Figure 1. Reading Strategy Survey Results



By completing action research on this topic, I have become a better teacher and have ceased allowing students to opt out of reading the textbook by presenting everything in lecture, labs and activities. I still do these things, but I emphasize teaching students to become better textbook readers because I know that they need these skills to be successful in more advanced coursework in high school and in college. The Reading Apprenticeship Framework is an effective way to set up any classroom and requires only slight changes in classroom management and teaching methods.

References Cited

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