BOOSTING STUDENT COMPREHENSION OF INFORMATIONAL MATERIALS AT THE SECONDARY LEVEL

AT

BENJAMIN HOLT COLLEGE PREPARATORY ACADEMY

AN ACTION RESEARCH PROJECT

A Research Paper
Presented
to
The Faculty of the Department of Educational Leadership
College of Education
San Jose State University
and
The principals and executive staff of
Aspire Public Schools

In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts in Education
Focus: Administration and Supervision

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April 28, 2008

Abstract

Without proficiency in content reading skills, seventh grade students were at risk of not being able to achieve understanding of what they read in non-fiction texts, a skill that is absolutely necessary for college-bound students. The purpose of this action research study was to investigate whether an approach that involved specific and focused instruction in content reading skills would boost student comprehension of subject-area texts. The research question was: Would students who were scoring below proficiency in comprehending non-fiction subject-area texts be able to increase their understanding of informational materials after participating in ten weeks of content-reading intervention instruction? Two sub-questions helped to further explore the problem: Did students know how to infer and make meaning from non-fiction texts? Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts? Bloom's Taxonomy was used as a guide in creating pre- and post-assessments, and students were taught reading strategies. Surveys were administered to monitor changes in attitude towards reading non-fiction along with monitoring use of strategies. A daily reading requirement and weekly journal writing rounded out the methodology. Research findings suggested that when students were provided with frequent opportunities to learn, practice, and apply reading strategies, their ability to comprehend and understand non-fiction texts increased. The researcher recommended that subject-area teachers model their own metacognition and provide students with the opportunity and time to learn, practice and apply reading strategies through cycles of learning, revisiting each strategy on a regular basis. School administrators were urged to investigate the level of involvement of their teaching staff in ensuring that students understand how to "unpack" or access informational texts, making comprehension of non-fiction materials a schoolwide priority.

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Background to the Problem

Background

Secondary educators today face a challenge that is not new to subject-area instruction. Along with helping students to understand the content in their subject area, secondary teachers are also faced with the necessary task of boosting content literacy comprehension in order that their students understand the plethora of informational materials that are a key component to subject-area instruction (Fordham, 2006). "Content area teachers must carefully consider how to use reading and writing to teach their subject area because understanding subject matter involves more than 'doing' or 'knowing' something," (Knipper and Duggan, 2006, p. 462). In the current pressurized high-stakes testing environment, the need for literacy instruction beyond the English classroom becomes that much more paramount. If students are to be tested on state standards, and teachers are to design their instruction along the specific guidelines of those state standards, then students must be fortified with the skills necessary to understanding informational texts (Moss, 2005).

Content reading instruction is more than just decoding what is on the printed page. Content reading instruction must push students to be "strategic readers," using a "tactical thinking" approach, wherein an instructor models his or her own meaning-making processes, and expects students to do the same in turn. "Drawing students' attention to their reading processes and helping them make the most of the reading experience is surely a goal content teachers can embrace," (Fordham, 391).

The School

Benjamin Holt College Preparatory Academy experienced tremendous growth in its Academic Performance Index (API) on the 2006 California Standards Tests (CST), increasing

seventy-three points from 751 to 824, and earning a state rank of nine out of ten and similar schools rank of ten out of ten.

Looking specifically at schoolwide reading comprehension strand results for Ben Holt, however, revealed that comprehension of informational materials, while on a slow rise, was an area where specific attention was needed, especially since the school is in the business of preparing students for the rigors of college (see Figure 1).

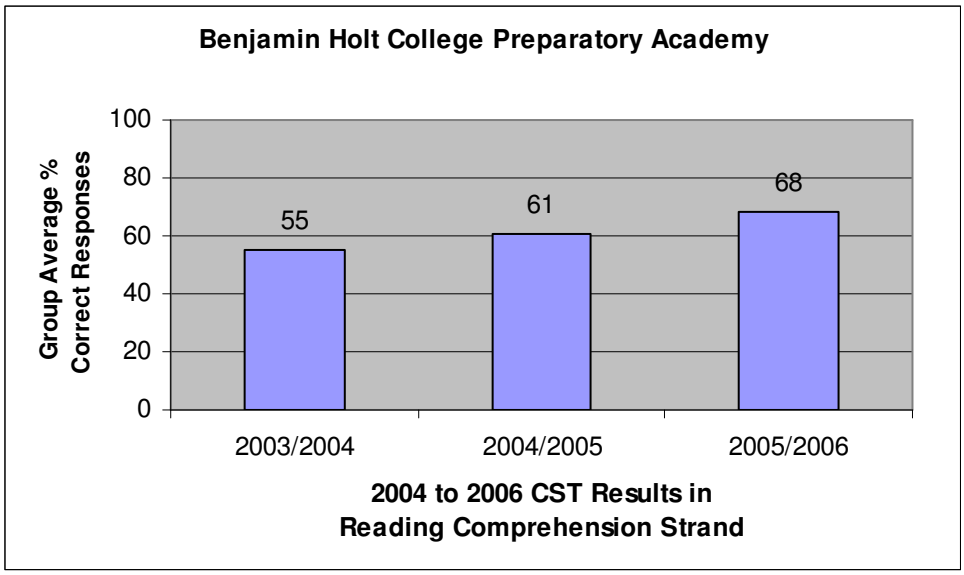


Figure 1. 2003 to 2006 Schoolwide Results in California Standards Test (CST) Reading Comprehension Strand

Setting

Benjamin Holt College Preparatory Academy was founded July 28, 2003, with 336 students, serving grades six through nine. Located in the northern part of Stockton, Ben Holt Academy was the ninth school opened by Aspire Public Schools, California's leading non-profit charter school organization.

Now in its fifth year, Ben Holt Academy has grown to include grades six through twelve. Exactly as the name implies, Holt's curriculum emphasizes college preparedness. College

admission is addressed at each grade level through advisory and in core classes. Each classroom and office is named after a college or university. Holt's advisory program is dedicated towards ensuring that each student grows socially, emotionally, and academically.

As an "early college" high school, Ben Holt Academy has a memorandum of understanding with California State University Stanislaus and Delta College to provide lower-division college-level courses on campus. College instructors teach a myriad of courses in Ben Holt classrooms, including cultural anthropology, psychology, Spanish, and computer technology.

As of 2007, there were 510 students enrolled at Ben Holt Academy (336 middle school; 174 high school) with gender balanced at forty-nine percent male and fifty-two percent female students. Of the 510 students, twenty-seven percent had free or reduced lunch and about eight percent were designated English Language Learners. The ethnicity of Ben Holt students in 2006/2007 was as follows: White, 42.8%; Hispanic, 32.8%; Asian, 13.3%; African American, 9.1%; Pacific Islander, 0.9%; and Filipino, 1.1%. The languages spoken at home for Ben Holt students included: Spanish 3.3%, Hmong 1.6%, Punjabi 0.9%, Khmer 0.7%, Tongan 0.4%, and other 0.9%. Overall, in 2006/2007, 7.8% of Ben Holt students spoke a second language.

Ben Holt Academy had twenty-two classrooms in 2006/2007. Children were assigned to classes based upon their grade levels and educational needs. There were twenty-two teachers on staff, with twenty-one instructing full-time and one part-time. Eighty-two percent of the teachers had a full credential, fourteen percent were anticipating receiving certification in 2007, and four percent had an emergency credential. The average years of teaching experience for Holt teachers in 2006/2007 was six, with twenty-three percent in their first year of teaching. The adult-to-student ratio was approximately one adult for every twenty-four children.

In 2006/2007 all Ben Holt Academy students received standards-based instruction in English through humanities courses (English and history combined) at most grade levels. The exception was twelfth grade, where seniors took English Composition as an on-campus college course. Teachers used regular cycles of inquiry to continually assess how their students performed in their coursework, using teacher-made and Aspire-created benchmark tests found on Edusoft, a web-based standards assessment system. As soon as 2005/2006 California Standards Test data was released, teachers met in grade level teams and by departments in order to strategize which students needed specific intervention attention. Action plans were drawn up for individual students and in most cases, involved mandatory participation in reading and math intervention courses. Ben Holt Academy used Scholastic's Read 180 reading intervention program for students who tested at far-below-basic and below-basic on the 2006 California Standards Test. Through the Read 180 instructional model, reading intervention students experienced three rotations, along with whole-group instruction, four to five days a week. Small-group direct instruction, modeled and independent reading, and individual skills practice using Read 180 software, provided reading intervention students a comprehensive approach to improving all aspects of reading and understanding.

In 2006/2007, about sixty Ben Holt Academy students were involved in math intervention (grades six through eight) and there were about twenty-five Read 180 students. In addition to intervention classes, tutoring was offered to all grades (6-12); additional support was made available to students both during lunch and after school by content-area teachers.

The Experimental Group

This action research study focused upon improving reading comprehension of non-fiction reading materials at the seventh grade level. On the 2006 California Standards Test the

2006/2007 Benjamin Holt College Preparatory Academy seventh grade students scored an overall average of seventy percent in reading comprehension, several percentage points higher than the state minimally proficient level of sixty-eight percent.

A humanities (English and history) teacher at Ben Holt Academy, the researcher daily encountered the ways students interacted with and comprehended non-fiction texts. Despite a moderate achievement in reading comprehension on the state test, she witnessed first-hand that students did not necessarily comprehend what they read in subject-area informational materials. For example, when asked or assigned questions from a history text, the researcher found that students relied heavily on copying directly from the book, rather than thinking or looking beneath the surface of the page. When students were asked to theorize why an ancient civilization chose a particular way of dealing with invaders (requiring inference), the researcher further observed that her seventh grade students copied random words and terms from the text, missing the point of the question. She observed that the students did not behave like *strategic readers*.

One of the researcher's grade-level colleagues, H. Sadiq (science), who was also conducting an action research project on content reading comprehension, concurred that students seemed to lack either the interest and/or the skill in understanding what they read. Sadiq noted that when her seventh grade students answered questions from science readings that required inference, they instead regurgitated in writing what they saw on the printed page. "Answers [were] directly from the text – knowledge level questions on Bloom's. When higher level questions [were] asked, involving thinking beyond the surface of the book, students [would] leave them blank or answer incorrectly" (H. Sadiq, personal communication, January 20, 2007). Sadiq saw a trend wherein students "[would] try to find a word from the question in the reading

and then write down what it [said] right there. In other words, they [were] not inferring, not synthesizing, not analyzing; [it is as if they were] not used to higher level question[ing]" (Sadiq).

To further probe student understanding of non-fiction text, Sadiq and the researcher together created and administered an in-house preliminary assessment in October 2006. This test was designed to analyze specific content reading skills in all of the seventh grade students at Ben Holt. Sadiq and the researcher were interested in writing an assessment using Bloom's Taxonomy of Learning (Bloom, 1956) to guide their development of questions that were beyond the surface of the text – higher order thinking questions – so that they could capture whether or not the students had a grasp on how to comprehend beneath the surface of the text. Although Ben Holt's seventh grade students scored average on the California Standards Test (CST) in reading comprehension, data from the in-house reading assessment uncovered specific areas of student weakness in content reading. Students experienced a higher rate of incorrect answers to content questions created along higher levels of Bloom's.

To strengthen the case for a study on content reading skills, the researcher delved further into looking at data. Given that the study encompassed just half of the seventh grade at Ben Holt, the data in Table 1 corresponds to just two sections of students: Group 1 and Group 2 (see Table 1).

Table 1

Average Score on 2006 California Standards Test (CST) & Preliminary Pre-Test

Group	2005/2006 CST Reading Comprehension Strand Results	October 2006 Preliminary Pre-Test Results	Average Score on Both Assessments
1 (7A)	71% (26 students)	56% (25 students)	64%
2 (7B)	69% (28 students)	65% (28 students)	66%
Total Average	70%	61%	66%

While a subsequent in-house reading benchmark assessment (administered in March 2007) showed tentative growth in seventh grade reading comprehension standards (Group 1-76% and Group 2-79%), the combined data in Table 1 revealed considerable need still existed for students to receive specific instruction in content reading skills. Students lacked a strategic toolkit through which they could access informational text by using skills to move them beyond the surface of the page.

On the 2005/2006 California Standards Test, the state average in reading comprehension was sixty-one percent, the state minimally proficient average was sixty-eight percent, and the state minimally advanced average was eighty-two percent. The researcher's seventh grade students ranked just slightly higher than the state minimally proficient average. For the purposes of this study, the researcher considered seventy-five percent as the target proficiency, which was the difference between the state minimal proficient and minimally advanced averages.

Table 2

Combined Average Below-Proficiency on California Standards Test (CST) & Pre-Pre-Test

Group (Section) & Test	Total Number of Tested Students	Students Who Were At/Above 75% Proficiency	Students Who Were Below 75% Proficiency
1 (7A) – 2006 CST	26	11 (42%)	15 (58%)
1 (7A) – 2006 Pre-Pre	25	2 (8%)	23 (92%)
2 (7B) – 2006 CST	28	12 (43%)	16 (57%)
2 (7B) – 2006 Pre-Pre	28	5 (18%)	23 (82%)

As shown in Table 2, more of the researcher's seventh grade students tested below than above proficiency in reading comprehension for both the 2005/2006 CST and the Preliminary Pre-Test.

Statement of Problem

With seventy-five percent as the target proficiency, the combined data from the 2005/2006 California Standards Test and the Preliminary Pre-Test suggested that approximately seventy percent of the researcher's seventh grade students were not proficient in comprehension of informational materials. For example, the preliminary pre-test revealed the students' inability to comprehend, analyze, apply, and infer meaning from content text. Without proficiency in content reading skills, these seventh graders were at great risk of not being able to achieve understanding of what they read in subject-area courses, a skill that is absolutely necessary for college-bound students.

Purpose of the Study

The purpose of this action research study was to investigate whether an approach that involved specific and focused instruction in content-reading skills would increase student understanding of subject-area texts. Bloom's Taxonomy (1956) was used as a guide in creating pre- and post-assessments, and students were taught simple yet effective strategies they could use when reading informational materials. This action research study encompassed ten weeks, from April through June 2007 (see Appendix A).

Intervention

The intervention involved three stages: Pre-Intervention, Intervention (phases one and two) and Post-Intervention.

Pre-Intervention Stage

Interview Experts

Prior to the start of the study, the researcher consulted with several local experts in the field of reading literacy. J. Zwolinski, Lead Literacy Specialist at Lionel Wilson College Preparatory (Aspire Public Schools) stressed the importance of determining text readability and suggested two resources: Microsoft Word's Flesch-Kincaid tool and Metametric's Lexile Analyzer (J. Zwolinksi, personal communication, March 5, 2007; http://tinyurl.com/6ewqc).

Time was also spent with A. Calimbas, Read 180 Specialist at Benjamin Holt Academy. Calimbas emphasized the importance of providing students with "specific, usable reading strategies," underscoring the relevance and purpose of this study (A. Calimbas, personal communication, March 12, 2007).

Administer Student Questionnaire

The students completed a questionnaire designed to obtain information about the strategies they used before, during, and after reading, as well as details about their reading habits and attitude towards non-fiction materials (see Appendix B).

Content-Area Teacher Survey

Benjamin Holt Academy teachers answered questions about their students' behavior and approaches with reading informational texts. Teachers also commented on their instruction of content reading skills (see Appendix C).

Pre-Test

At the outset of the intervention, a pre-test was administered to Group 1 (Section 7A) and Group 2 (Section 7B) students. After learning more about Bloom's Taxonomy (1956) and higher level questioning, it was clear to the researcher that the questions developed for the preliminary assessment were not closely aligned along all levels of the taxonomy; therefore, another test was carefully constructed, making sure all six levels of Bloom's were included in the questions: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (see Appendix D).

Intervention Stage - Phase One: Establishing a Foundation

Structural Features of Informational Materials

Students were instructed about the differences in structure and purpose between various categories of informational materials.

Silent Sustained Reading/Independent Reading

Prior to the start of the intervention, the students were required to read nightly from fiction texts; during the intervention, students were required to read non-fiction source material

during Silent Sustained Reading at school, as well as seven nights a week for Independent Reading during the intervention window (see Appendix E).

How to Choose a Non-Fiction Book

Students reviewed techniques learned earlier in the year for choosing a book, and used at least two when selecting their first non-fiction Silent Sustained Reading/Independent Reading text.

Intervention Stage - Phase Two: Learning & Applying Reading Strategies

Reading Journal

Students kept a weekly journal of their non-fiction reading for Independent Reading homework, using a double-entry journal format. Reading journals served as one means to track student growth in understanding informational materials (see Appendix F).

Features of Narrative and Expository Texts

Using a lesson from the Strategic Literacy Initiative (WestEd, 2002), students were instructed about how textual features and patterns differed in narrative and expository texts (see Appendix G).

Individual Reading Conference Record

Students met with the researcher on a regular basis for a brief conference during which they shared excerpts from their reading journals.

Reading Strategies List

With guidance from the researcher, students listed and explained eight key reading strategies (see Appendix H).

Modeling and Practicing Think-Aloud with Text

After the researcher modeled think-aloud strategies, students practiced the same techniques using a variety of non-fiction readings (WestEd, 2002).

Post Intervention Stage

Aspire Secondary Content-Area Teacher Survey

A similar questionnaire to the survey referenced earlier was sent out to all Aspire Public Schools secondary content-area teachers after spring break concluded. Teachers answered questions about their perception of their students' behavior with reading informational texts. Teachers also commented on their instruction of content reading skills (see Appendix C).

Student Questionnaire

Students completed the same questionnaire mentioned previously, noting any changes in their behavior and approaches with reading non-fiction texts (see Appendix B).

Intervention Post-Test

Designed in similar fashion to the pre-test, students read a selection from the seventh grade history textbook and answered questions aligned with Bloom's Taxonomy (1956; see Appendix I).

Second Round of Spring Reading Benchmark

Students retook the Spring Reading Benchmark (first given in March 2007), and results were compared.

A cross-section of Ben Holt Academy's seventh grade students participated in this action research study. The students in sections 7A (Group 1) and 7B (Group 2) served as the experimental group and received specific instruction in content reading skills (as outlined above). The students in the remaining two seventh grade sections (7C & 7D) did not receive

specific instruction in content reading skills during their English classes. It is important to note, that students in 7C and 7D participated in an action research study conducted by the researcher's colleague, science instructor H. Sadiq. Because the entire seventh grade student population was involved as participants in action research (the researcher and Sadiq's), there was no control group for this study.

Research Questions

Would students who were scoring below proficiency in comprehending non-fiction subject-area texts be able to increase their understanding of informational materials after participating in ten weeks of content-reading intervention instruction?

To further explore this general question and to help determine the effectiveness of intervention approaches, two additional focus questions were included:

- Did students know how to infer and make meaning from non-fiction texts?
- Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts?

The researcher hypothesized that an increased number of students (experimental group) would score at or above the seventy-five percent target for proficiency in comprehending informational materials at the conclusion of the implementation stage of this action research project.

Review of Literature

An array of literature was reviewed in order to uncover applicable research that was conducted in the field of content reading instruction. This search included articles that focused on the importance of building cognition through meaningful learning, Bloom's taxonomy as an assessment tool, as well as articles that provided a wealth of tools and strategies for helping students to uncover subject-area texts.

"Meaningful learning occurs when students build the knowledge and cognitive processes needed for successful problem solving" (Mayer, 2002, p. 227). In his analysis of meaningful learning, Mayer (2002) affirmed the importance of knowledge acquisition as a foundation for expanding cognitive processes in students (p. 226). A key aspect of moving up the hierarchy of thinking is *transfer*. "Transfer is the ability to use what was learned to solve new problems, answer new questions, or facilitate learning new subject matter (Mayer & Wittrock, 1996)" (Mayer, 2002, p. 226). Transfer is similar to Benjamin Bloom's (1956) *synthesis* level in his taxonomy of learning, where students compile "information together in a different way by combining elements in a new pattern or proposing alternative solutions" (Barton, 1996, p. 4).

Because the researcher wanted to foster meaningful learning in her students, it was therefore prudent to design a research intervention that focused on high level outcomes (such as problem solving, drawing inferences, and deductive reasoning) with an emphasis placed on the processes that go beyond recall (Mayer, 2002; Guskey, 2001). The goal of this intervention was not only to increase students' comprehension, but also to move them beyond rote learning (Ball & Washburn, 2001) using reading strategies as a foundational tool.

According to Fordham (2006), now more than ever, subject area educators (outside of English classes) have been expected to support student reading in their single subject courses.

Knipper and Duggan (2006) saw content area teachers as having the necessary task of building comprehension in subject areas through explicit reading strategies. "Mastery of content is demonstrated not only through reading but also through writing" (p. 462). Focus on content reading intervention instruction, therefore, must "not be on the print, but on how readers interact with the print (McLaughlin & Allen, 2002, p. 2)" (Fordham, 2006, p. 381).

Writing is an important tool in teaching content reading comprehension to students, because decoding the words alone is not enough; students must be able to make meaning of what they read. "Writing to learn helps students think about content and find the words to explain what they comprehend, reflect on how they understand the content, and consider what their own processes of learning involve" (Knipper & Duggan, p. 469).

Like Knipper and Duggan (2006), Moss (2005) has advocated the use of writing as a way to extend meaning. Reading ("learning") logs provided an important source of data in this action research study. "Learning logs are simply notebooks in which students record information; this can include questions about content, reflections on what students have learned, webs, charts, or diagrams of processes or events" (p. 50). Brushaber (2003) found that student reading journal writing increased in terms of breadth and depth over the course of a four-week intervention (p. 8). In this intervention, therefore, Group 1 and Group 2 students responded to what they read through a reading journal, logging their reactions and how they made meaning of the texts they read.

Fordham (2006) argued that at the heart of comprehension "is how students think their way through a text *while* reading, and the quality of that thinking depends, in part, on the type of questions teachers ask (Alvermann et al, 2004; Hoyt, 2002; Miller, 2002; Vacca & Vacca, 2005)" (p. 381). Myers and Savage (2005) suggested that teachers ask questions before, during and after reading, so as to "generate alternative views and require reasoning and exploration

beyond the text…to encourage students to think critically rather than merely to answer factual, recall questions for assessment purposes" (p. 21). Fordham (2006) suggested that teachers craft "strategic questions" (p. 381) through their own modeling of how they make meaning and then require that students do the same.

Read-aloud is a reading strategy tool wherein students discuss aloud their thinking as they read subject-area texts, thus gaining how they process what they read (boosting meta-cognition – the thinking behind their thinking as they read). Using read-aloud as a strategy in this action research intervention therefore did not only provide a means to model how the researcher made meaning, but also provided students with a method for breaking down difficult and unfamiliar non-fiction texts. When modeling a think-aloud approach, it was imperative that the importance of questioning while reading informational texts was demonstrated.

Prior to the study, the researcher's (in-class) silent-sustained reading and (at-home) independent reading programs (SSR/IR) were focused upon fictional texts. Research strongly suggested that requiring students to also read informational texts could boost content reading skills. "Fourth graders who reported experiences [in the 1995 NAEP] with magazines and information books in their classrooms had higher average reading proficiencies than students who had never read these types of materials" (Moss, 2005, p. 49).

Benjamin S. Bloom (1956) found that only a small number of students "[learn] well the concepts and material from [a content-area] unit" (Guskey, 2001, p. 10) when taught through traditional methods of reading text and then answering questions at the end of the reading (or end of the unit assessment). According to Bloom (1956), end-of-unit assessments are not the end of the unit, but a means to "diagnose individual learning difficulties (feedback) and to prescribe specific remediation procedures (correctives)" (Guskey).

This feedback and corrective procedure was not new to the researcher; it was an important aspect of Ben Holt Academy's cycle of inquiry process. The implications of the literature were clear: as the researcher assessed student understanding of non-fiction texts, adjustments had to be made that allowed for differentiated instruction. Regular feedback was offered to students during the intervention. This was achieved through short conferences with individual students where they shared from their journal entries and discussed what they gained through reading non-fiction texts.

Bauman (2002) conducted an action research study that looked at ways to improve student comprehension of non-fiction texts in social studies through the teaching of reading strategies. One way that Bauman documented comprehension difficulties was through the use of teacher and student surveys in order to track changes in use/perception of strategies by teachers and students from the start to the completion of the study period. Bauman found that student self-perception was virtually unchanged by the end of her intervention; however, because of greater use of reading strategies, students grew in their ability to respond to higher level questions and ultimately made academic gains by the end of the study. Bauman's student and teacher questionnaires provided an excellent survey instrument, and were slightly modified for use in this action research project (see Appendices B and C).

Manton, Turner and English (2004) provided a very practical model of how instructors could create very specific and accurate-to-taxonomy questions that engaged the student in higher levels of cognition during assessment. The authors noted that traditionally, "not enough testing [has been] done to evaluate the student's ability to analyze, synthesize and evaluate material…the student's critical thinking ability is not being evaluated" (p. 682). Because this intervention was grounded in building students' ability to move beyond the surface of informational text, assessments were designed using Bloom's Taxonomy (1956).

The articles discussed in this literature review provided clear justification for an action research study focused on content reading skills, using an array of reading and assessment strategies that became key components of the intervention:

- Structure of text (Brushaber, 2003)
- Student & Teacher Questionnaires (Bauman, 2002)
- Reading journal (Brushaber, 2003; Knipper & Duggan, 2006; Moss, 2005)
- Reading non-fiction regularly (Moss, 2005)
- Think-aloud (Fordham, 2006; Myers & Savage, 2005)
- Regular feedback (Guskey, 2001)
- Assessments created using Bloom's (Ball & Washburn, 2001; Cross & Wills, 2001; Guskey, 2001; Manton, Turner, & English, 2004; Mayer, 2002).

Methodology

The aim of this action research study was to discover whether or not an intervention that delivered specific instruction in content-reading skills would increase student understanding of subject-area texts. Table 3 lays out the plan for research (see Appendix A for project timeline).

Table 3

Action Research Plan Data Sources

Data Sources			
1	2	3	4
Pre-Assessment (Stage One)	Observation (Stage Two)	Conventional Sources (Stages One & Two)	Post-Assessment (Stage Three)
○ CST (2005/2006 reading comprehension strand results)	○ Active participant observer (as researcher delivered intervention instruction)	○ Questionnaires (teacher and student)	○ CST (Compare 2007 reading comprehension strand results with 2006 data)
○ Pre-Test (built using the six levels of Bloom's Taxonomy)	○ Intervention Journal	○ Artifacts (reading journals, reading logs)	○ Post-Test (built using the six levels of Bloom's Taxonomy); was similar in scope to the pre-test.
○ Spring Reading Benchmark Assessment (only the results involving reading comprehension standards)			○ Re-administered the Spring Reading Benchmark Assessment

Based upon literature review findings, the design of this intervention included the teaching and tracking of content reading strategies. Assessments were administered to track student growth in comprehension skills. The pre-test was created using excerpts from the seventh grade history text, with questions designed along the six levels of Bloom's Taxonomy (1956; see Appendix D). Reading logs were collected and assessed on a regular basis (see Appendix E). Students conferenced with the researcher and shared excerpts from their reading journals (see Appendix F). In addition, the researcher kept a running narrative journal throughout the study that was a result of her observations as active participant (for excerpts, see Appendix J).

Student questionnaires, modified from those used by Bauman (2002), used a Likert Scale and were administered twice during the study in order to measure the impact of the work upon student attitude (see Appendix B). In addition, a teacher survey (modified from Bauman's, 2002) was used to obtain information from Ben Holt Academy and other Aspire secondary content-area teachers about their perception of their students' behavior with reading informational texts. Teachers were asked to comment on their instruction of content reading skills (see Appendix C).

Artifacts, including student reading logs and journals, were collected and analyzed at intervals in order to reflect upon what had been achieved, and whenever necessary, changes were made to data collection.

At the conclusion of the study a post-test, similar in scope to the pre-test, was administered and used as a comparison tool (see Appendix I). The majority of the analysis of testing data was obtained through measures of *central tendency* (using mean and mode).

Feedback and input from a select group of 'critical friends' was utilized during the interpretation process.

Finally, pre-intervention data was compared with post-intervention data. The improvement gains from each of the two groups of students, along with individual results, were tracked and noted.

Research Findings

The objective of this action research study was to increase student understanding of non-fiction (informational) materials after participating in a ten-week intervention that involved focused instruction on content-reading skills. The researcher specifically asked if students, who were scoring below proficiency in comprehending non-fiction subject-area texts, would be able to increase their understanding of informational materials by the conclusion of the intervention period. Two further questions guided the design and focus of the intervention:

1. Did students know how to infer and make meaning from non-fiction texts?
2. Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts?

In accordance with the Action Research Project Timeline (Appendix A), fifteen steps were implemented during this study; the quantitative and qualitative results of these steps are detailed below in six sections.

Student Questionnaire

During the first week of the intervention, on April 4, 2007, a student questionnaire modified from the one used by Bauman (2002) was administered that focused on student perception of their use of strategies before, during, and after reading (Appendix B). The survey also questioned students about their reading habits and overall attitude towards non-fiction materials. Based upon a Likert Scale, students chose from among the following responses for each area focused upon: Always, Usually, Sometimes, and Hardly Ever. This same questionnaire was completed again by the students ten weeks later on June 12, 2007, at the conclusion of the intervention.

The following figures display the results of the pre- and post-intervention questionnaires for Group 1 (Section 7A) and Group 2 (Section 7B). In the majority of the graphs, the pre- and post-questionnaire results were compared side-by-side.

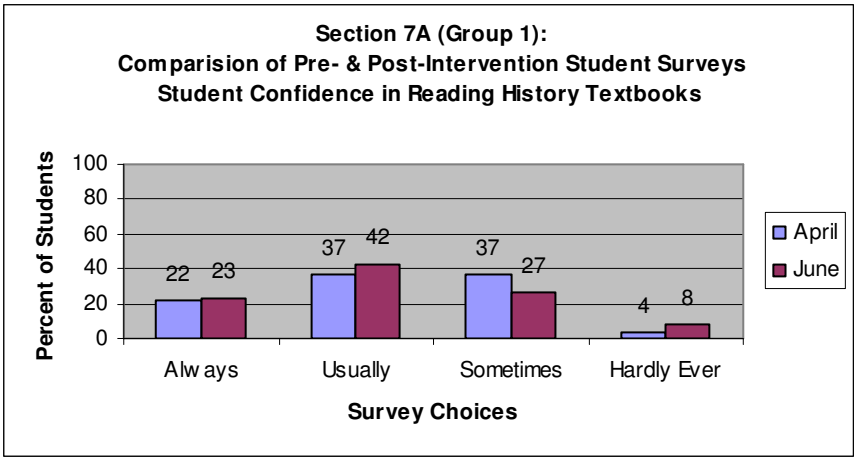


Figure 2. Group 1 Student Confidence in reading history textbooks (April 2007 & June 2007)

Figure 2 compares how confident students in Group 1 felt when reading a history textbook both before and after the invention period. At the start of the intervention, twenty-two percent of Group 1 students expressed that they *always* felt confident with history texts, thirty-seven percent *usually* felt confident, thirty-seven percent *sometimes* felt confident, and four percent *hardly ever* felt confident with reading history textbooks. At the conclusion of the intervention, overall, more students expressed feeling confident with reading history texts. While twenty-three percent indicated they always felt confident, an increased number of students showed they usually felt confident, rising from thirty-seven to forty-two percent. Fewer Group 1 students indicated a lack of confidence in reading history texts at the conclusion of the intervention, dropping overall from forty-one to thirty-five percent ("sometimes" and "hardly ever" combined). Twenty-seven percent expressed they sometimes felt confident, by the end of

the intervention (rising from 27%), slightly more students indicated they hardly ever felt confident in June, increasing from four to eight percent.

Figure 3 compares how confident students in the other class, Group 2, felt when reading a history textbook both before and after the invention period. At the start of the intervention, in April 2007, twenty-seven students expressed that they always felt confident with history texts, another twenty-seven percent usually felt confident, thirty-eight percent sometimes felt confident, and eight percent hardly ever felt confident with reading history textbooks. At the conclusion of the intervention, in June 2007, more Group 2 students expressed feeling confident

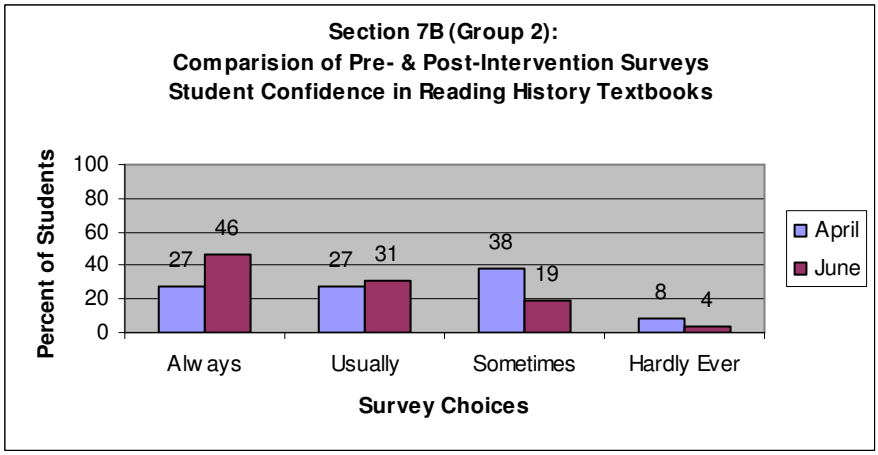


Figure 3. Group 2 Student Confidence in Reading History Textbooks (April 2007 & June 2007)

with reading history texts. Forty-six percent indicated they always felt confident and thirty-one percent usually felt confident, showing a combined increase from fifty-four to seventy-seven percent. Fewer Group 2 students indicated a lack of confidence in reading history texts at the conclusion of the intervention, dropping from thirty-eight to nineteen percent for "sometimes" and from eight to four percent for "hardly ever."

The intervention focused on building students' skills in accessing non-fiction texts, including lessons in how to examine the structure of informational books. Students who took the time to read titles, bolded and italicized words, read charts, graphs and maps, were better set up to become more familiar with text, and would have therefore been better able to dig below the text surface. While alternative materials were often used in history during the intervention (such as articles), the majority of the reading texts for history was conducted out of the *History Alive! Medieval World and Beyond* (2005) textbook. Continual practice using a familiar text structure (i.e. the history textbook) was probably a major reason why both groups of students felt confident with using the history textbook by the end of the intervention.

Between the two sections of students, Group 2 indicated a greater confidence with reading history texts, as opposed to Group 1. The survey results for Group 1 raised an important question, and that was whether or not these results were an accurate reflection of student attitude towards history texts, given that the questionnaire was administered on the afternoon of the last day of the school year. It was possible that the lack of growth in the "always" category (static at 23% between pre- and post-surveys) and a four percent increase in the *hardly ever* category for Group 1 students may not have been completely indicative of a lack of confidence in reading history texts.

Figures 4 and 5 illustrate Group 1 and Group 2 student perceptions on their use of reading strategies, comparing results of the pre- and post-intervention questionnaires.

The data collected from the Group 1 questionnaire did not indicate much change in student perception of their use of strategies "before" reading a text. With just slight fluctuations between the pre- and post-surveys, nineteen percent of the students felt they always used *before-reading* strategies prior to the start of the invention, while eighteen percent felt the same at the

conclusion of the study. In both the pre- and post-questionnaire, twenty-eight percent Group 1 students felt they usually used before-reading strategies. Fewer students indicated they sometimes used before-reading strategies on the post-survey, decreasing from forty to thirty-two percent. Slightly more students felt they hardly ever used before-reading strategies, increasing from fourteen to seventeen percent, at the conclusion of the intervention.

Overall, students in Group 1 did not indicate much growth in their use of before-reading strategies. Although lessons about reading strategies such as making predictions and previewing text were delivered during the intervention, the data indicated that from the students' point of view, their use of these skills did not increase. Described in greater detail later on in this report, while Group 1 students increased their use of using reading strategies in reading journal writings, this was not the case with before-reading approaches (see Figure 39). Despite instruction and practice in using before-reading strategies, Group 1 students did not perceive an increased use of these skills by the end of the intervention. It was a possibility that these findings were an indication of the students' lack of understanding of how strategies used before reading could enlighten their comprehension of non-fiction texts.

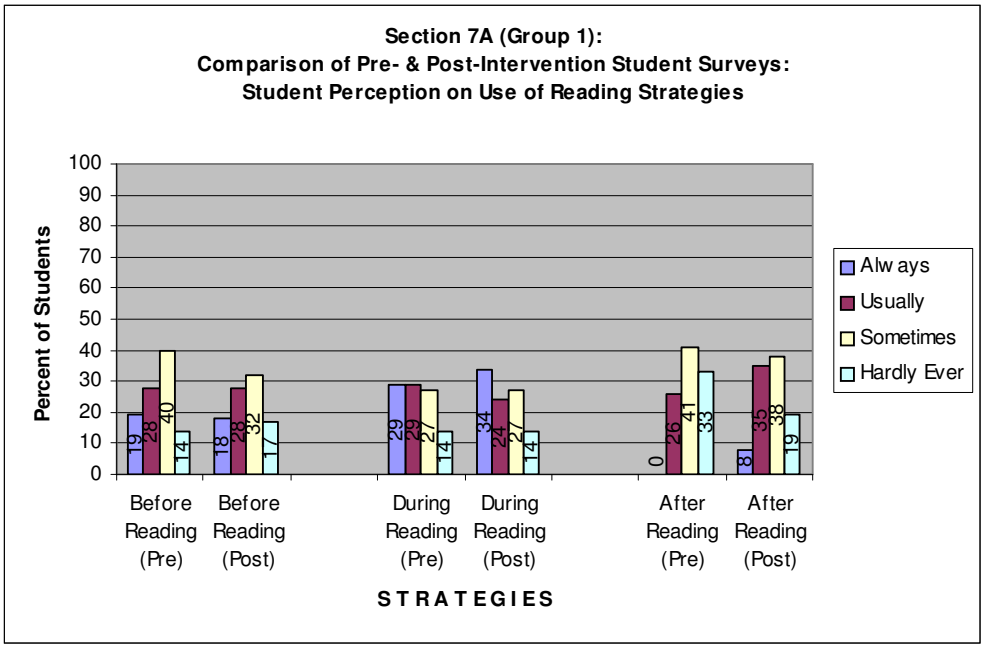


Figure 4. Group 1 Student Perception on Use of Reading Strategies (April 2007 & June 2007)

More Group 1 students felt they always used *during-reading* strategies at the conclusion of the intervention, increasing from twenty-nine to thirty-four percent. Slightly fewer students felt they usually used during-reading strategies according to the post-questionnaire, dropping from twenty-nine to twenty-four percent. The same percentage of Group 1 students felt they sometimes and hardly ever used during-reading strategies from the pre- and post-intervention surveys, remaining at twenty-seven and fourteen percent respectively.

During the intervention, strategies, such as questioning the text (talking to the text while reading), making connections with text, and visualization were specifically taught and practiced by students using *Think-Aloud* bookmarks (WestEd, 2002), which accounted for an increased number of Group 1 students perceiving that they usually used during-reading strategies.

The survey results in the latter two response categories ("sometimes" and "hardly ever"), however, were inconsistent when compared with *actual* use of reading strategies by Group 1 students. Data from the Student Reading Journal Analysis for Group 1 students indicated that

more students were using during-reading strategies by the end of the intervention (see Figure 39). It was highly possible that Group 1 students might not have been specifically *aware* of their *use* of during-reading strategies. In other words, the practices that were so obviously taking place in their journal writings had progressed to a point of *automaticity*, where their use became routine; this would be an interesting facet to study in a future action research project.

At the conclusion of the intervention, more Group 1 students felt they used *after-reading* strategies than before the start of the study. On the pre-questionnaire, none of the Group 1 students indicated they always summarized after completing reading. On the post-questionnaire eight percent felt they always summarized after reading. A greater number indicated they usually summarized, showing an increase from twenty-six to thirty-five percent. Slightly fewer students indicated they sometimes summarized post-reading, decreasing from forty-one to thirty-eight percent, and even fewer felt they hardly ever summarized, dropping from thirty-three to nineteen percent.

Overall, Group 1 students indicated more growth in their use of after-reading strategies than in the other two categories (before- and during-reading). Drawing inferences, speculating beyond the text, and writing summaries of readings were a few of the after-reading skills students were given time to develop during the intervention window. These skills were not only practiced during the intervention, but were also taught and reinforced throughout the school year because they are contained in the seventh grade English language arts standards. Group 1 student perception of their use of reading strategies increased the most with after-reading skills, which reflected greater confidence with their use of these important comprehension building practices.

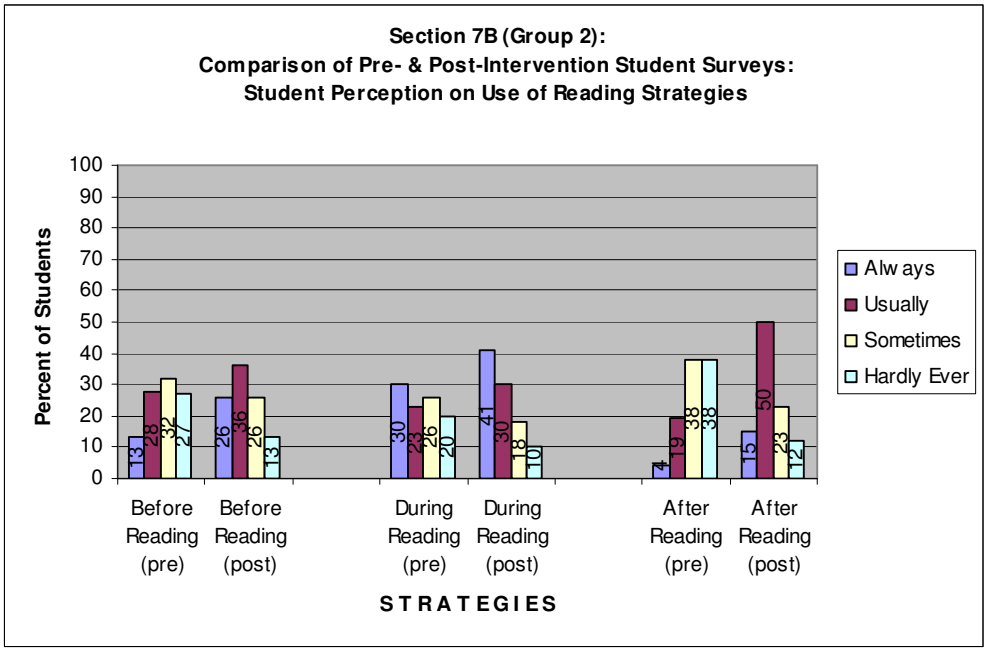


Figure 5. Group 2 Student Perception on Use of Reading Strategies (April 2007 & June 2007)

Unlike the data collected from the Group 1 student questionnaire, Group 2 student perception of their use of reading strategies grew for every category (see Figure 5). At the conclusion of the intervention window, more students in Group 2 indicated that they were likely to use before-, during- and after-reading strategies.

On the pre-questionnaire, thirteen percent of Group 2 students felt that they always used before-reading strategies, which increased to twenty-six percent on the post-questionnaire. In addition, more Group 2 students felt they usually used before-reading strategies, rising from twenty-eight to thirty-six percent by the end of the intervention. Fewer students felt they sometimes or hardly ever used before-reading strategies by the end of the study, showing a combined decrease from fifty-nine to thirty-nine percent. Accordingly, having many opportunities to practice before-reading strategies during the intervention window most likely accounted for the significant rise in awareness of their use of these skills by Group 2 students.

Many Group 2 students felt they always used during-reading strategies at the study's conclusion, increasing from thirty to forty-one percent. Seven percent more Group 2 students felt they usually used during-reading strategies according to the post-questionnaire, increasing from twenty-three to thirty percent. Fewer students indicated they sometimes or hardly ever used during-reading strategies, decreasing from twenty-six to eighteen percent (for "sometimes"), and from twenty to ten percent (for "hardly ever"), according to the post-survey. Because of teacher modeling and frequent opportunities to practice during-reading strategies in class (e.g. the *Think Aloud* bookmark), more Group 2 students felt comfortable and confident with using these techniques.

At the conclusion of the intervention, many more Group 2 students felt they used after-reading strategies than before the start of the study. On the pre-questionnaire, four percent of Group 2 students indicated they always summarized after completing reading, while on the post-questionnaire, fifteen percent felt they always summarized. A greater number indicated they usually summarized after reading, showing a significant increase from nineteen to fifty percent. On the post-intervention survey, fewer students indicated they sometimes summarized post-reading, decreasing from thirty-eight to twenty-three percent. Even fewer Group 2 students felt they hardly ever summarized, dropping from thirty-eight to twelve percent. These results revealed that the greatest amount of growth in attitude and perception towards use of reading strategies for Group 2 occurred with after-reading skills. An explanation for this significant increase could be found in the further number of opportunities the students had to extend understanding of their reading through discussion, oral and written summaries, and drawing conclusions. Having reviewed survey results for Group 2 students' self-perception of their use of reading strategies, it was easy to conclude that by the end of the intervention period the

students felt more comfortable and confident with using skills that enabled them to comprehend non-fiction texts.

According to survey results for both sections of students, between the two classes, a greater number of Group 2 than Group 1 students perceived they actively used strategies before-, during- and after-reading by the conclusion of the intervention. Group 2's increased confidence in "unpacking" non-fiction texts resulted in greater confidence with reading informational materials (see Figure 3).

Another goal of the student questionnaire was to determine student attitude towards reading, asking students how likely they were to read non-fiction and fiction texts, what types of informational materials they were likely to choose, and finally, the survey asked students to determine what would influence them to read more non-fiction materials.

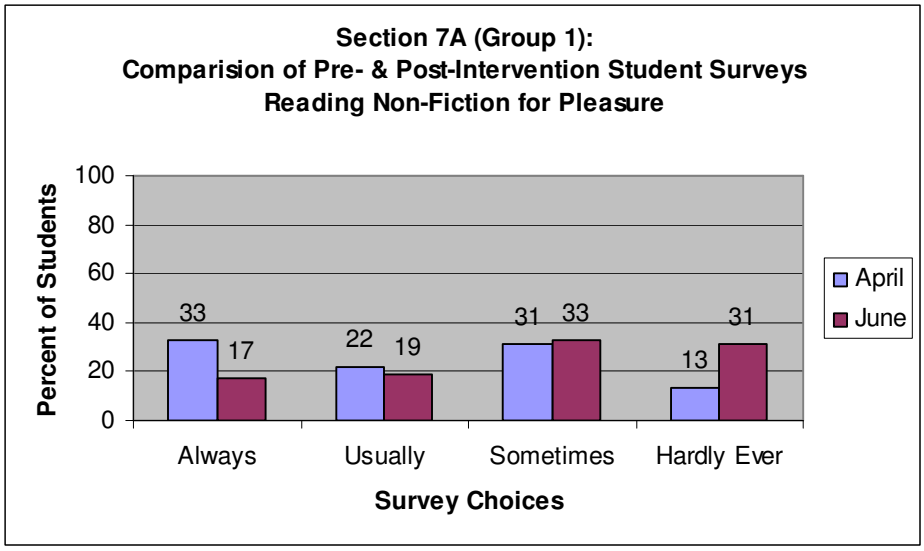


Figure 6. Group 1 Reading Non-Fiction Texts for Pleasure (April 2007 & June 2007)

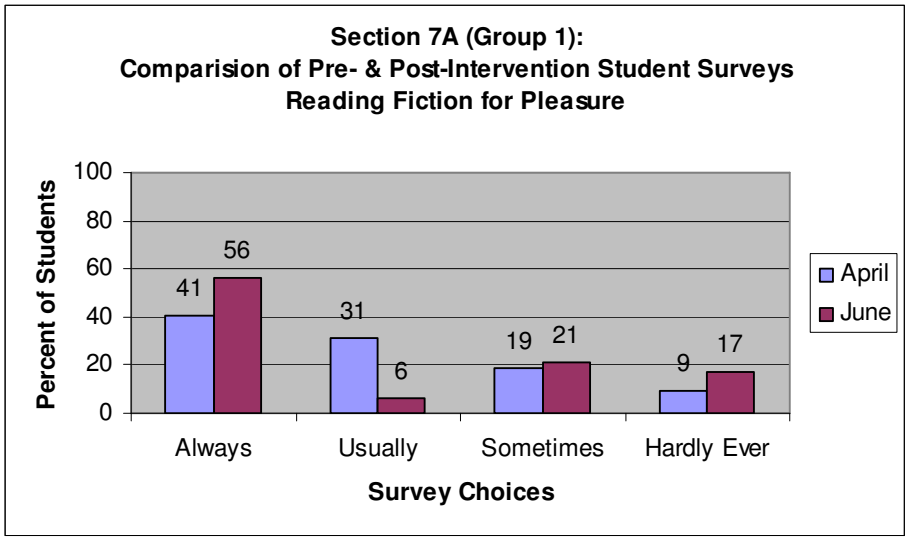


Figure 7. Group 1 Reading Fiction Texts for Pleasure (April 2007 & June 2007)

Figures 6 and 7 indicate the attitudes of Group 1 students towards fiction and non-fiction texts, before and after the intervention. Across the board, fewer students in Group 1 were likely to read non-fiction texts for pleasure after the intervention. The number of students who felt they always read non-fiction books dropped from thirty-three to seventeen percent according to the post-survey questionnaire. Only slightly fewer Group 1 students indicated they would usually read non-fiction texts at the conclusion of the intervention, dropping from twenty-two to nineteen percent. The two remaining categories showed increases between the pre- and post-survey results, which rose from thirty-one to thirty-three percent for those students who felt they sometimes read non-fiction for pleasure; even more dramatically, thirty-one percent indicated on the post-survey they would hardly ever be likely to read informational texts for pleasure, as compared to thirteen percent on the pre-intervention survey.

The post-survey results on reading non-fiction texts for pleasure certainly raised questions about what might have contributed to Group 1's dramatic disinterest in informational materials between the pre- and post-questionnaires. Was this data indicative of the students' *true*

feelings about non-fiction texts? A comparison of these survey results with the reading tally data for Group 1 (see Figure 35), did not support the supposition that Group 1 students were disinterested in reading non-fiction texts; on the contrary, the reading tally results for Group 1 showed quite the opposite, as they read far more items and pages than did Group 2 students. In other words, student survey results for this question were not consistent with actual performance results by Group 1 students. An additional piece of evidence from the researcher's intervention journal for the first week of the study further contributed to speculation about the authenticity of survey results for Group 1 student attitude towards non-fiction: "Their response was really surprising to me – they cheered when I announced the switch [from exclusively reading fiction to non-fiction for silent sustained reading at school and independent at-home reading]" (See Appendix J). The dramatic results of the post-survey for Group 1's attitude towards reading non-fiction materials served to fuel the question whether this class of students took the post-survey seriously.

More Group 1 students indicated a high interest in reading fiction for pleasure on both the pre- and post-intervention surveys. Forty-one percent of Group 1 students felt they always read fiction for pleasure on the first survey, which rose to fifty-six percent on the post-questionnaire. However, fewer students indicated that they usually read fiction at the conclusion of the intervention, sharply decreasing sharply from thirty-one to six percent. In like fashion, on the post-survey, slightly more students from Group 1 indicated they would sometimes read fiction texts for pleasure, rising from nineteen to twenty-one percent. Lastly, eight percent more students felt they hardly ever read fiction for pleasure between the pre- and post-surveys (from 9% to 17%).

These post-survey results revealed an interesting trend. On the one hand, a greater number of Group 1 students (more than half) indicated that they always read fiction for pleasure; yet at the other end of the spectrum, more students also indicated that they hardly ever read fiction for pleasure, which created polarized results. From the beginning of the school year in August 2006 through the start of the intervention in early April 2007, students exclusively read fiction materials for pleasure for silent sustained reading and independent reading, which accounted for greater interest in this genre over non-fiction. However, the increase of students' disinterest in reading fiction by the end of the school year added to the researcher's growing speculation about the authenticity of the post-survey results for Group 1 students. Is it possible that Group 1 students did not take the post-intervention questionnaire seriously?

Figures 8 and 9 indicate the attitude of Group 2 students towards fiction and non-fiction texts, before and after the intervention. Overall, slightly more Group 2 students were likely to read non-fiction texts for pleasure after the invention than before the start of the action research study. Nineteen percent Group 2 students felt they always read non-fiction for fun, which rose to twenty-nine percent on the post-questionnaire. Fewer Group 2 students felt they usually read non-fiction for pleasure, decreasing from twelve to eight percent at the end of the intervention. The two remaining categories showed very slight fluctuations, with thirty-seven percent of Group 2 students indicating they sometimes read informational materials for pleasure at the start of the intervention, and thirty-one indicating the same by the conclusion of the study. The same amount of students felt they hardly ever read non-fiction texts for pleasure, remaining at a consistent thirty-three percent on both surveys.

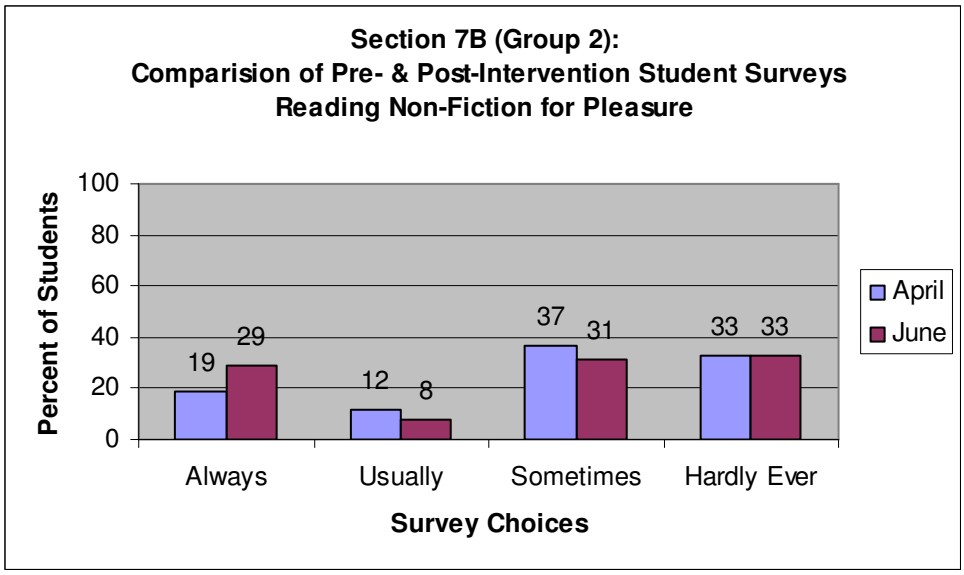


Figure 8. Group 2 Reading Non-Fiction Texts for Pleasure (April 2007 & June 2007)

These results illustrated growth in Group 2 student interest in non-fiction materials; however, this was not true for the majority of the class. Group 2 reading log data supported the survey findings, as fewer numbers of non-fiction materials were read by Group 2 students than Group 1 (see Figure 35). There was no clear indication why student interest did not increase further; however, given that there was some positive change in interest, it is possible that if this study were held over a longer period of time, that more Group 2 students might have increased their interest in reading informational materials for pleasure.

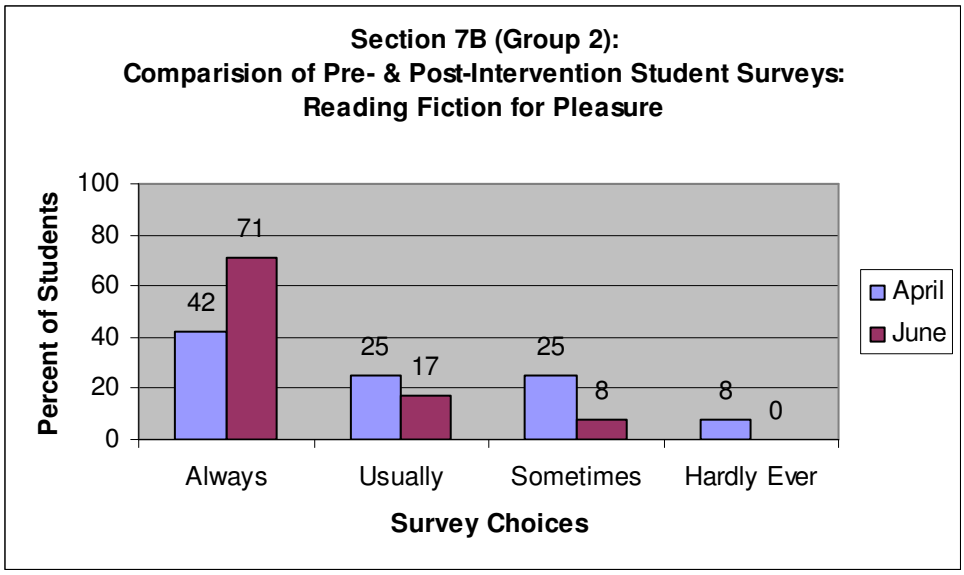


Figure 9. Group 2 Reading Fiction Texts for Pleasure (April 2007 & June 2007)

Group 2 student attitudes towards reading fiction for pleasure increased dramatically between the pre- and post-intervention questionnaires, rising from forty-two to seventy-one percent (see Figure 9). Slightly fewer students indicated they usually read fiction texts for pleasure, dropping from twenty-five to seventeen percent on the pre- and post-surveys. Even fewer students indicated they sometimes read fiction for fun at the conclusion of the intervention, decreasing from twenty-five to eight percent. And, the downward trend continued in the last category, with eight percent of Group 2 students showing they hardly ever read fiction for pleasure at the start of the action research project, dropping to zero percent by the conclusion of the study. Clearly, these results demonstrated a dramatic and increased interest by Group 2 students in reading fiction over non-fiction texts.

With a heavy emphasis on historical fiction in the humanities middle school curriculum, typically through literature circles, coupled with nearly eight months of having exclusively read fictional texts for silent sustained reading and independent reading, both classes of students experienced greater exposure to fictional texts for the majority of the school year. The survey

results for this question highlight the importance of increasing the use of non-fiction texts in elementary and middle school English language arts classrooms, which would, in all likelihood (as the survey results for Group 2 revealed), boost student interest and use.

Although Group 1 students demonstrated a diminished interest in reading non-fiction texts for pleasure by the conclusion of the study, their interest in the various types of informational materials increased over the course of the intervention, as illustrated in figures 10 and 11.

Out of the six categories that Group 1 students were surveyed on, the two most popular choices of non-fiction materials were magazines and books, both in the pre- and post-intervention questionnaire. At the start of the intervention, forty-four percent students from Group 1 indicated that they always chose magazines when reading non-fiction materials for pleasure, which rose to fifty-four percent at the conclusion of the study. Non-fiction books were also a popular choice for Group 1 pupils. In April, thirty-seven students felt they always chose books when reading non-fiction texts. This interest rose to forty-six percent by June. On the pre- and post-surveys, about the same percentage of students indicated they typically (always or usually) read Internet news. More Group 1 students showed they hardly ever read news on the Internet by the end of the study (from 26% to 38% in this category). Newspapers was another category that experienced a slight dip between the pre- and post- surveys; the number of Group 1 students who indicated they always read the newspaper dropped from eleven to four percent by June. About the same number of students indicated interest in online blogs on the pre- and post-questionnaires, with sixty-one students less likely to read an online blog for pleasure by the conclusion of the intervention. On the post-survey, fewer students responded in the "other"

category than at the start of the intervention, dropping from nineteen to eight percent in the always category; however, of those who responded, slightly more students indicated that they

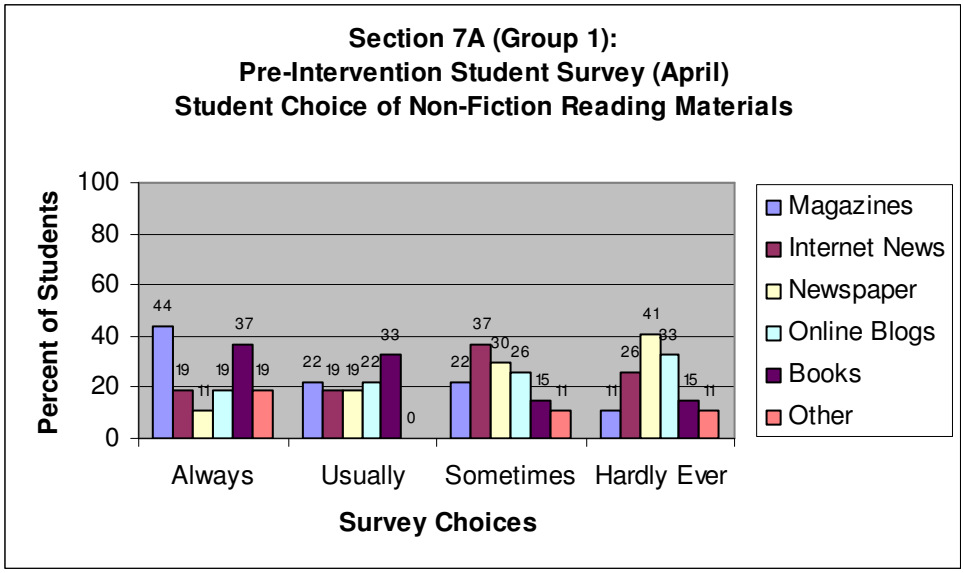


Figure 10. Group 1 Student Choice of Non-Fiction Reading Materials (April 2007)

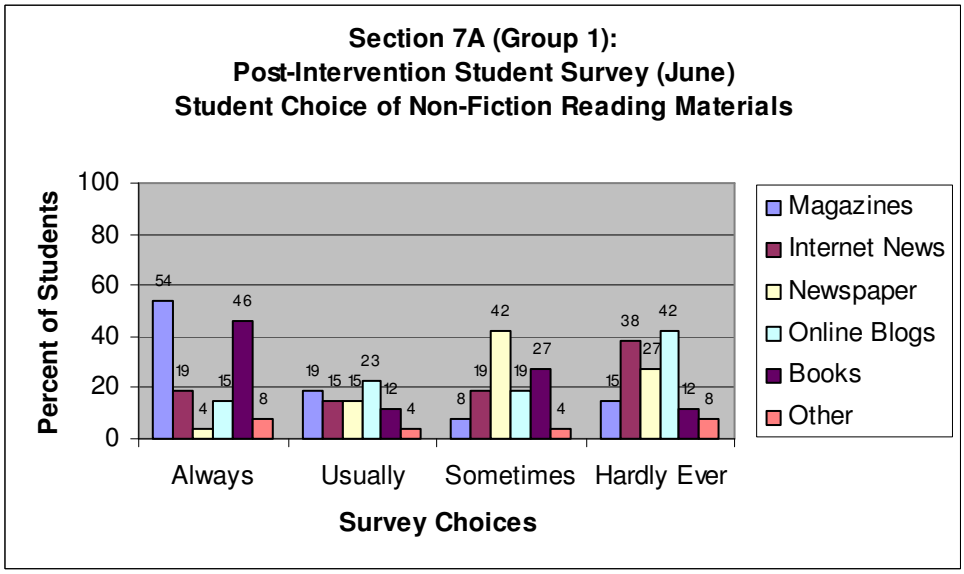


Figure 11. Group 1 Student Choice of Non-Fiction Reading Materials (June 2007)

usually read other types of informational materials on the post-survey, rising from zero to four percent. Some of the items Group 1 students listed as "other" non-fiction materials included game manuals, newsletters, Internet websites, and e-mail.

During the course of the intervention window, students were required to read non-fiction materials daily for silent sustained reading and nightly for independent reading homework; they were given free-choice in terms of the types of non-fiction texts they wanted to read. Our classroom library contained about fifty non-fiction books from which students could choose to check out for use at school and at home. A possible explanation for Group 1 students' increased interest in reading non-fiction books and magazines was the daily reading requirement coupled with frequent access to non-fiction books. While not many magazines were available in the classroom library, students were encouraged to choose whatever non-fiction genre interested them the most (and they could bring non-fiction materials in from home to read at school). The survey data suggested that because Group 1 students were provided with the opportunity to select non-fiction books and were allocated time for reading at school and home, their interest in reading magazines and books increased.

On the post-intervention questionnaire Group 2 students showed a greater interest in non-fiction materials than did Group 1; Group 2 showed increased interest in all but one category. Figures 12 and 13 reflect that magazines, followed by books, were most likely to be chosen as non-fiction reading material by Group 2 students. Rising from twenty-seven to fifty-eight percent, these students felt they always chose magazines when reading informational material for pleasure. Likewise, more Group 2 students indicated they always chose non-fiction books to read, with this category rising from twenty-three to forty-six percent. Interest in Internet news showed gains in the post-survey, with thirty-one percent of Group 2 students revealing they would always read online news, rising from just eight percent on the pre-intervention questionnaire. More Group 2 students felt they would always choose to read a newspaper for pleasure by the end of the study, rising from eight to nineteen percent. Also showing gains were

online blogs, with twelve percent more students in Group 2 indicating they would always choose to read this category of informational material by the conclusion of the intervention. As with

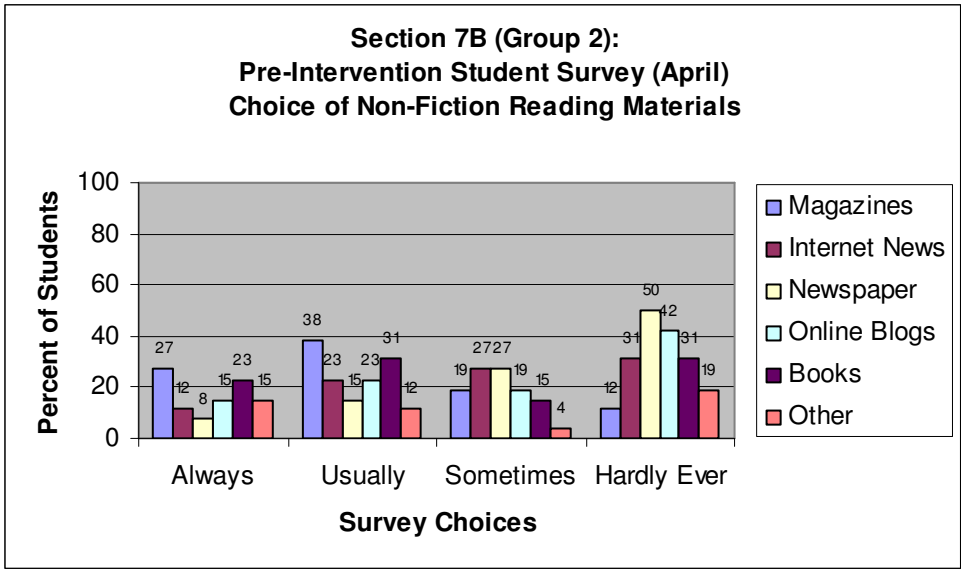


Figure 12. Group 2 Student Choice of Non-Fiction Reading Materials (April 2007)

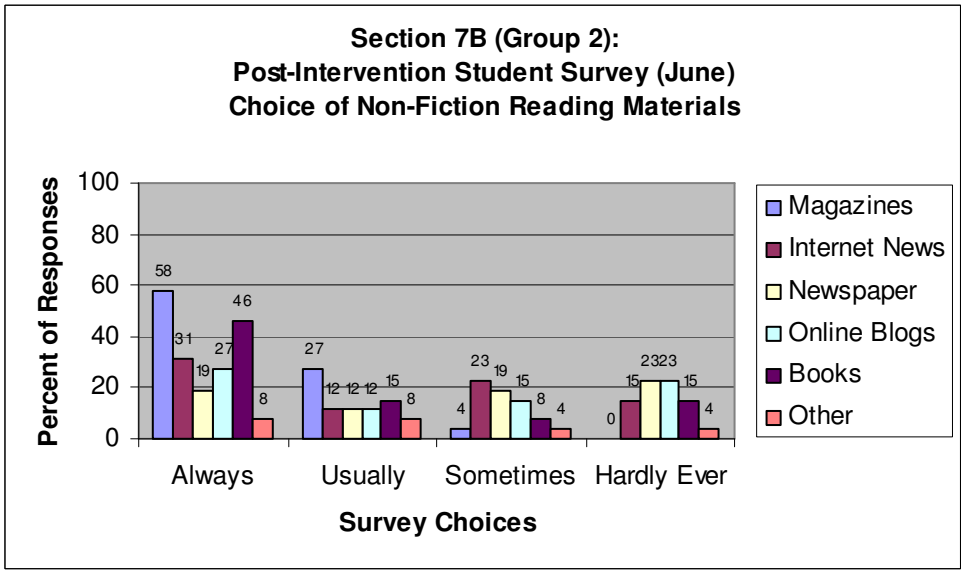


Figure 13. Group 2 Student Choice of Non-Fiction Reading Materials (June 2007)

Group 1, fewer Group 2 students responded to the "other" category on the post-questionnaire, showing an even further reduced interest, dropping in the always and usually categories from

thirty-eight to eight percent. Group 2 students listed comics, e-mail, IM, My Space, video game instruction/strategy books, and journals as their choices for "other" forms of informational materials.

Group 1 and Group 2 students both indicated on the post-intervention student survey an increased interest in reading non-fiction books and magazines, which, as explained earlier, was more than likely a result of having the requirement and opportunity to read non-fiction materials. Between the two groups, Group 2 exhibited an increased interest in a greater variety of non-fiction genres than did Group 1 students, which pointed to their willingness to examine texts outside of their comfort zone. As surmised earlier, the results for both groups demonstrated that with the opportunity to read non-fiction materials, student interest in reading these types of texts for pleasure increased, which was further proven in the results of the next survey category.

On the survey students responded about four potential sources that might influence their decision to read more non-fiction texts. As figures 14 and 15 illustrate, on both the pre- and post-intervention surveys, most Group 1 students felt that having a *choice* in the topics they read would always influence them to read more informational materials. Although slightly fewer students ranked this area high in the post-questionnaire (dipping from 74% to 69%), out of all other categories, "choice" remained the highest source of influence. Consistent in both surveys, nearly half of Group 1 students felt that having a quiet place to read would always influence their decision to read non-fiction, with forty-eight percent on the pre- and forty-six percent on the post-intervention surveys. By the end of the study, more students felt that recommendations from other students would always influence their decision to read informational materials, rising from fifteen to thirty-one percent. Likewise, a greater number of Group 1 students indicated they would always or usually be influenced to read more non-fiction by learning reading strategies,

rising from a combined thirty-four to thirty-nine percent for both choices. At the end of the intervention, an equal percentage (23%) of students in Group 1 revealed that learning strategies would sometimes or hardly ever influence them to read more informational texts.

The results of this portion of the survey further highlighted that with choice of text (i.e. "having a choice in topic") and opportunity (i.e. "having a quiet place to read"), Group 1 students were more inclined to read non-fiction materials for pleasure. Because of the requirement (during the intervention window) of solely reading non-fiction texts for silent sustained reading and independent reading, students were more likely to make reading recommendations to each other, accounting for the increased responses in this category. With more exposure to specific reading approaches through this intervention, Group 1 students were better armed with strategies, which, as this section of the survey demonstrated, made them more inclined to choose to read informational texts.

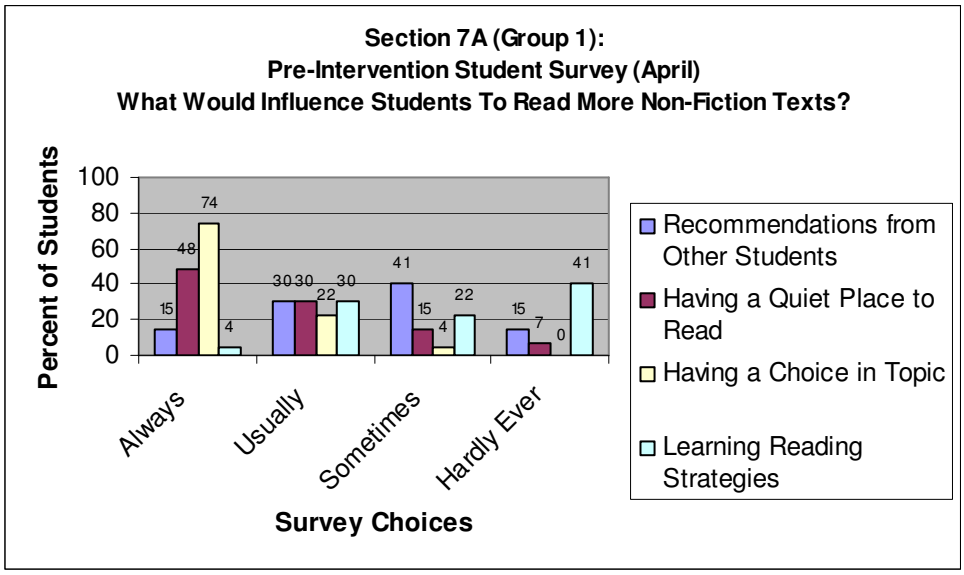


Figure 14. Group 1 What Would Influence Students to Read More Non-Fiction? (April 2007)

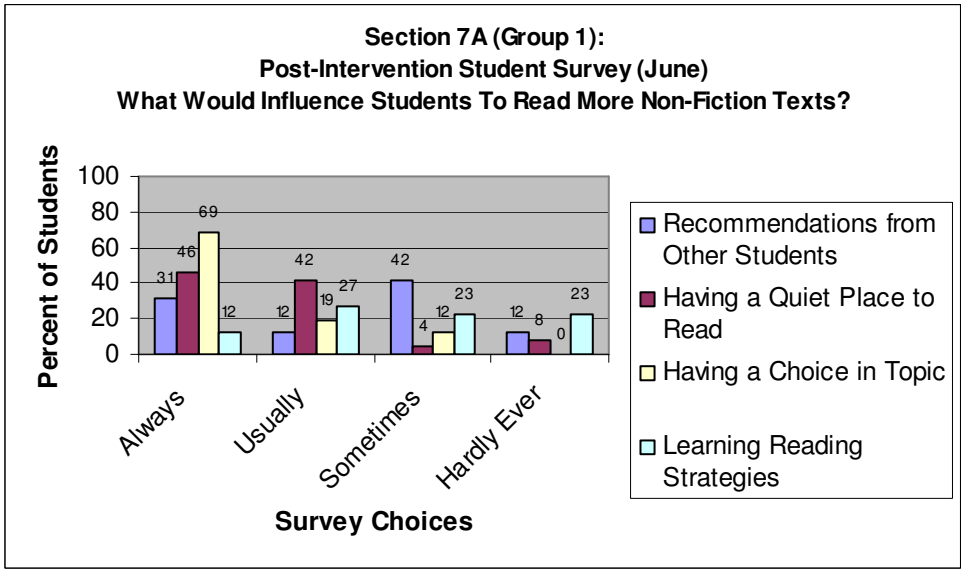


Figure 15. Group 1 What Would Influence Students to Read More Non-Fiction? (June 2007)

As with Group 1, the number one factor that would influence Group 2 students to read more non-fiction texts for pleasure was having a choice in the topic they read, rising from forty-six to seventy-three percent on the post-intervention survey. As figures 16 and 17 illustrate, on the post-questionnaire, just eight percent of Group 2 students saw having a choice of topic as sometimes or hardly ever influencing them to read more non-fiction texts. Following the same trend as Group 1, Group 2 students indicated that having a quiet place to read was the second greatest influence on their decision to read more non-fiction materials (27% versus 42% on the pre- and post-surveys).

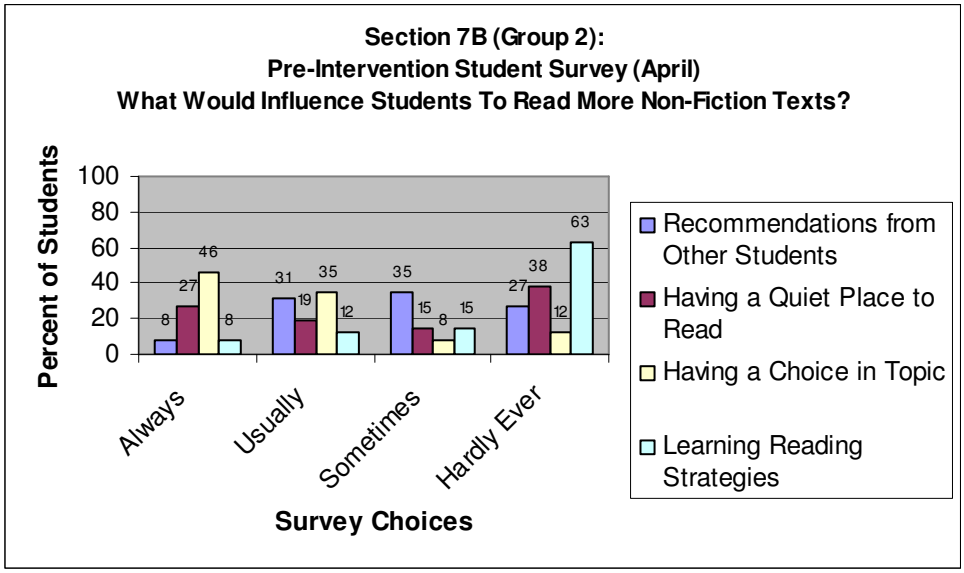


Figure 16. Group 2 What Would Influence Students to Read More Non-Fiction? (April 2007)

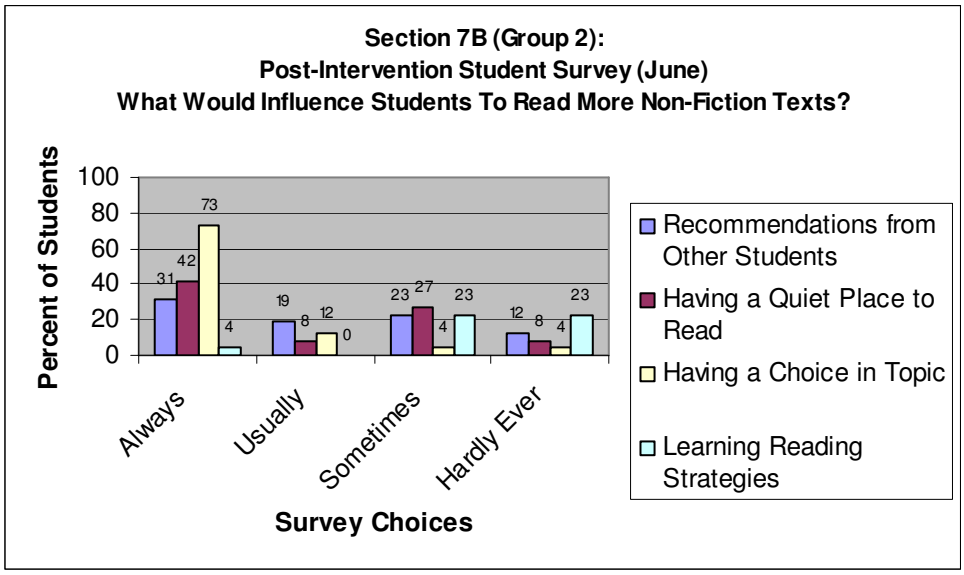


Figure 17. Group 2 What Would Influence Students to Read More Non-Fiction? (June 2007)

A greater number of students in Group 2 felt that recommendations from other students would always influence them to read more informational texts, rising from eight to thirty-one percent by the conclusion of the intervention. Unlike Group 1, fewer students in Group 2 felt that learning reading strategies was a major influence on their decision to read non-fiction. In April, twenty-percent of Group 2 students indicated that learning strategies would influence them to read more informational texts; however, only four percent felt the same by June.

As with Group 1 students, the results for this portion of the survey for Group 2 pupils served to authenticate that given the time and opportunity to read non-fiction texts, students were inclined to choose to read similar texts for pleasure. Group 2 students were further influenced to choose non-fiction because of recommendations from their peers (similar to Group 1); however, greater exposure to learning reading strategies did not appear to play a role in influencing Group 2 students to read informational texts. Was this due to an increased confidence in their ability to

comprehend non-fiction texts? Testing data, explained further in this report, would support that hypothesis.

Overall, the student questionnaire provided an interesting viewpoint into the growth and progress of pupil attitude and perception towards reading non-fiction texts over the course of the intervention. The pre- and post-intervention questionnaires helped to address the second of the research sub-questions: Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts? Survey results proved that with more experience with and choice in reading non-fiction texts, *interest* in reading rose for most students; however, with increased interest, did student *understanding* (comprehension) also improve?

Pre- & Post-Intervention Content Reading Assessments

During the first week of the intervention period, the students were given a content-reading assessment based upon a passage from the seventh grade history text, *History Alive! The Medieval World and Beyond* (Frey 2005; see Appendix D). The pre-test was carefully constructed with questions designed and aligned along Bloom's six levels of questioning. The text readability of the passage, "4.3 Guilds" (Frey, p. 43), was determined to be at grade level 6.1 using Flesch-Kincaid and at seventh grade (Lexile level of 1000) using Metametric's Lexile Analyzer (http://tinyurl.com/6ewqc).

During the final week of the intervention students took a content-reading post-test, again based upon a passage from their history text, with questions aligned along Bloom's (see Appendix I). The readability of this second passage, "25.2 Class Structure" (Frey, 2005, p. 280-281) was rated at 8.0 using Fleisch-Kincaid, and at 7.5 (890L) using Metametric's Lexile Analyzer (http://tinyurl.com/6ewqc).

Data from the pre- and post-tests were examined along three viewpoints: by group average, by student, and by comparing results along the six levels of Bloom's taxonomy (1956; see Appendices D and I).

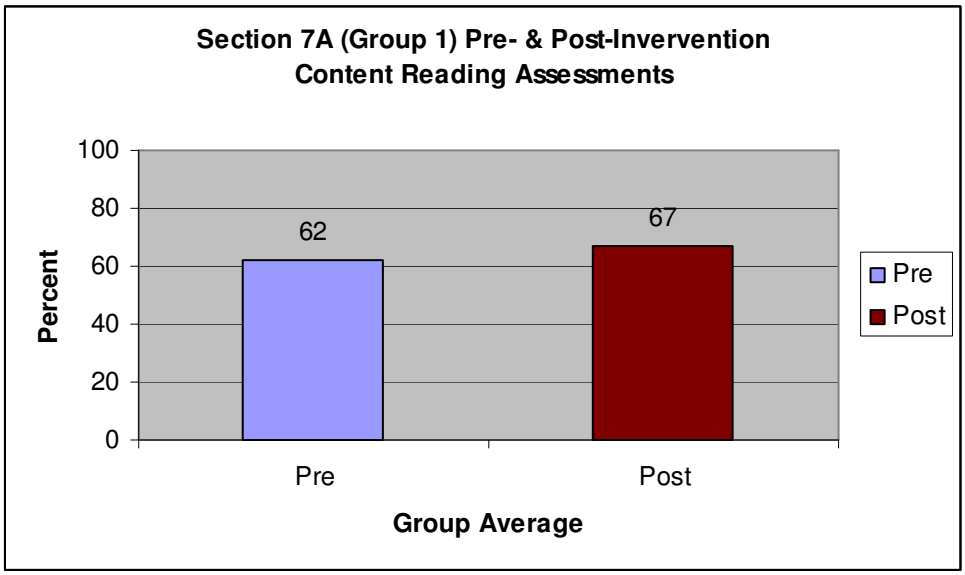


Figure 18. Group 1 Overall Class Average on Pre- and Post-Content Reading Assessments (April 2007 & June 2007)

The content reading pre-test overall class average for Group 1 was sixty-two percent and the post-test overall class average was sixty-seven percent, showing a five percent growth from pre- to post-assessment (see Figure 18).

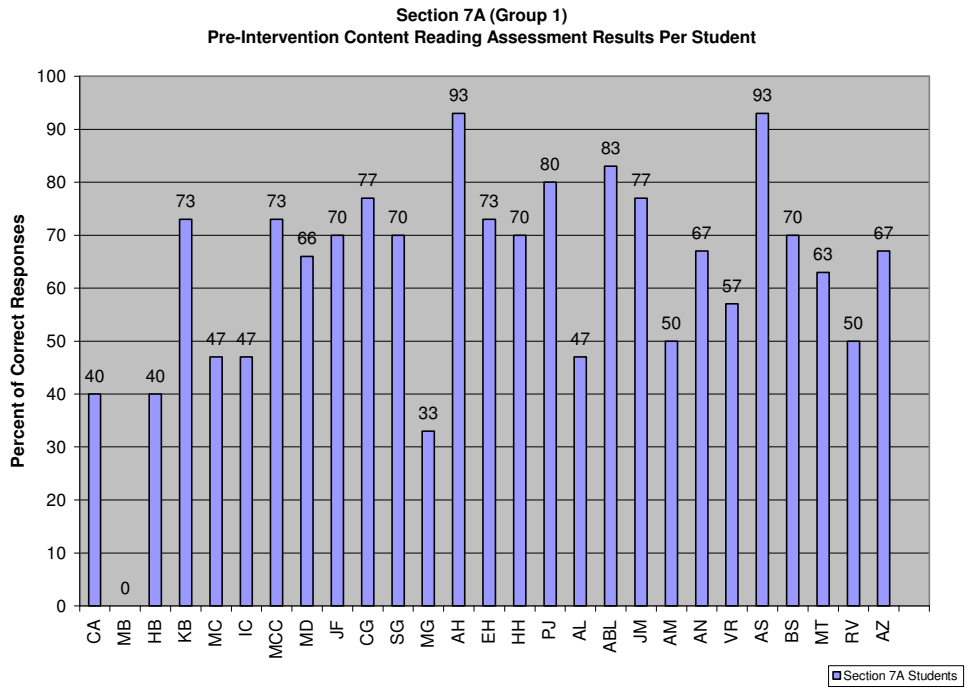


Figure 19. Group 1 Content Reading Pre-Test Results per Student (April 2007)

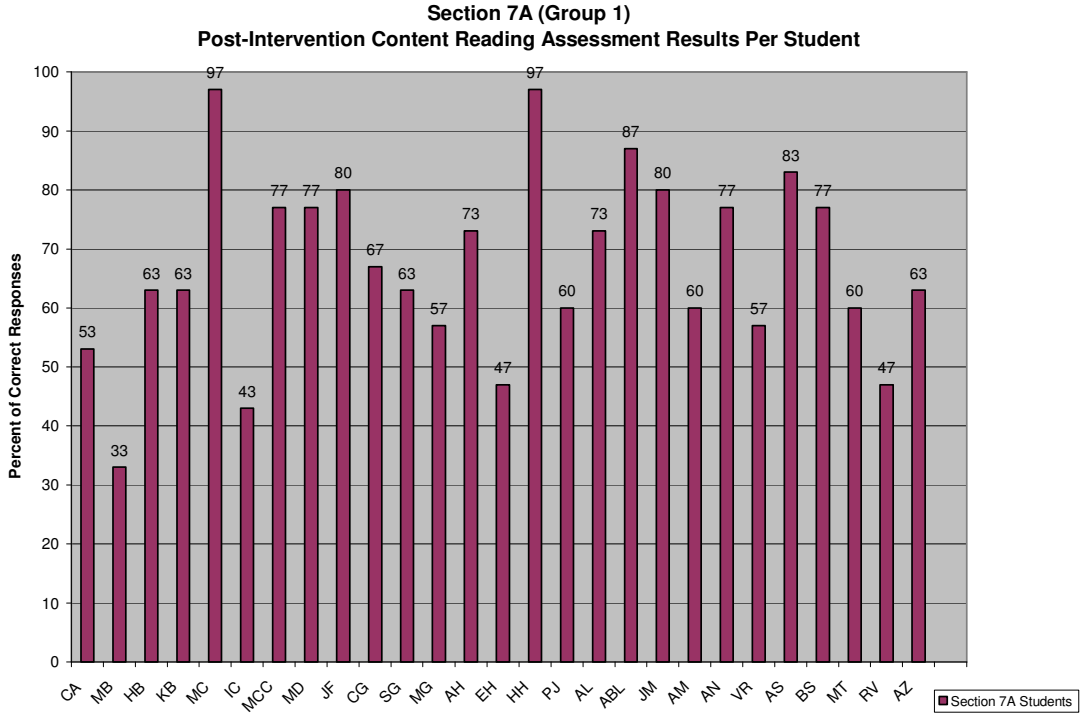


Figure 20. Group 1 Content Reading Post-Test Results per Student (June 2007)

Figure 19 displays Group 1 individual student scores for the content reading pre-test. Using the study's target proficiency of seventy-five percent, twenty-one Group 1 students scored below proficiency, and six students scored above. Group 1 individual student scores for the content reading post-test revealed that seventeen students scored below proficiency, and ten students scored above a proficiency of seventy-five percent (see Figure 20).

Between the pre- and post-content reading assessments, there was a nineteen percent decrease in students scoring below proficiency. The data for Group 1 students scoring above proficiency rose from twenty-two to thirty-seven percent.

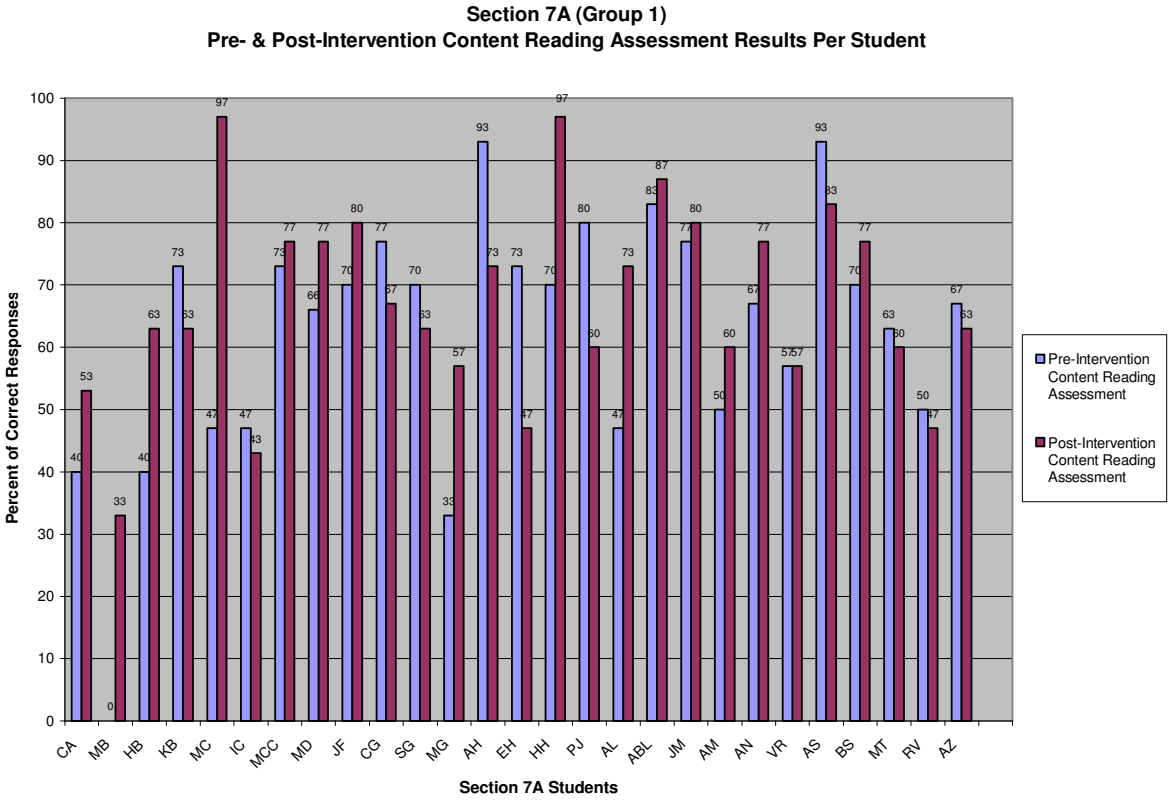


Figure 21. Group 1 Content Reading Post-Test Results per Student (April 2007 & June 2007)

Figure 21 displays a comparison of Group 1 pre- and post-content reading assessment individual student scores. When comparing pre- and post-test results, eleven (41%) students'

scores dropped from the first to the second test, one (4%) student's score remained the same, and fifteen (56%) students' scores increased. It should be noted that the student whose pre- and post-reading assessment scores remained the same, achieved below the seventy-five percent target proficiency on both tests.

The content reading post-test results for Group 1 produced evidence that student comprehension of non-fiction texts increased from April 2007 to June 2007. A closer analysis of student results along Bloom's Taxonomy (1956) presented further specific corroboration about which areas of thinking and reasoning improved for Group 1 students.

Because the content reading assessment questions were designed along Bloom's Taxonomy (1956), it was important to examine how students performed at each level of questioning. Each test question was scored on a scale of zero to five points; as a result, student data for each question was ranked using a similar scale to the California Standards Test of levels of proficiency (see Table 4).

Table 4

Scoring Guide for Pre- (April) & Post- (June) Content Reading Assessments

5 Points	4 Points	3 Points	2 Points	1 Point	0 Points
100%	80%	60%	40%	20%	0%
Advanced	Proficient	Basic	Below Basic	Far Below Basic	Far Below Basic

Figure 22 shows the percentage of Group 1 students who achieved advanced (100%), proficient (80%), basic (60%), below basic (40%), and far below basic (0-20%) for each level of Bloom's on the content reading pre-test.

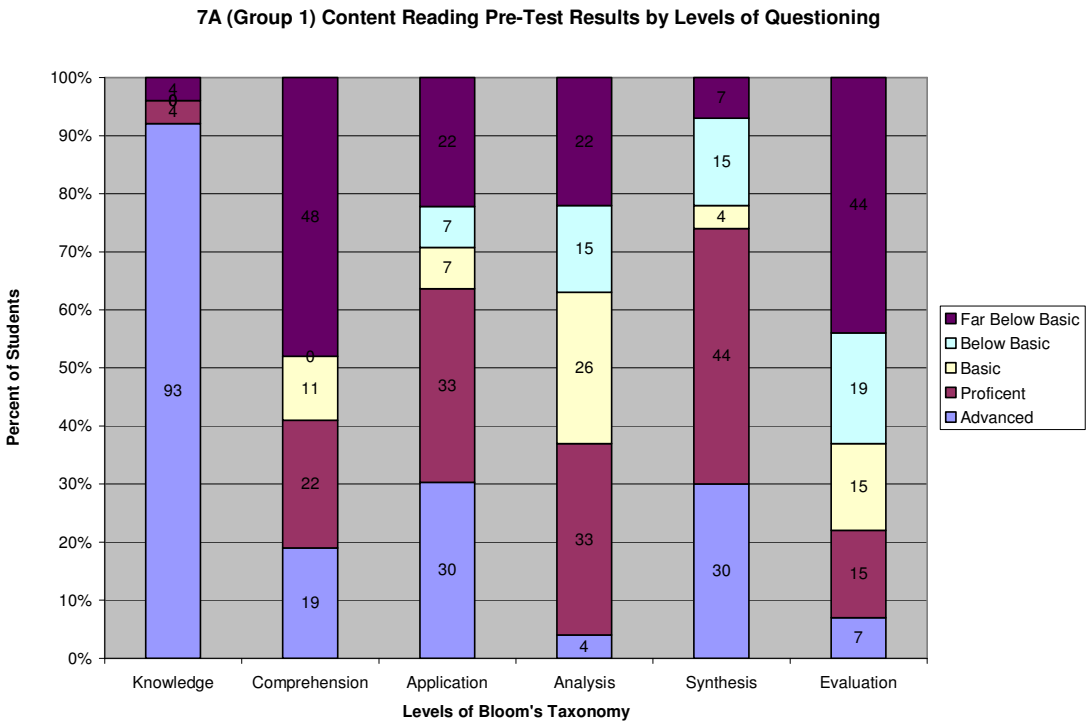


Figure 22. Group 1 Content Reading Pre-Test Results by Bloom's Taxonomy (April 2007)

On the content-reading pre-test, ninety-three percent Group 1 students scored advanced on the *knowledge* level of Bloom's; the remaining students scored in the proficient (4%) and far below basic ranges (4%). For *comprehension*, the majority of students scored far below basic (48%), with nineteen percent advanced, twenty-two percent proficient, and eleven percent basic. On the third level of Bloom's, *application*, a little over half of Group 1 students scored at advanced (30%) and proficient (33%), with the next highest category far below basic (25%). Basic and below basic were even, at seven percent. For *analysis*, four percent Group 1 students scored advanced, thirty-three percent scored proficient, twenty-six percent scored basic, fifteen percent scored below basic, and twenty-two percent scored far below basic. Nearly half of Group 1 students scored proficient at the *synthesis* level of questioning (44%), with thirty-percent scoring at advanced, four percent scoring basic, fifteen percent at below basic, and seven

percent scoring far below basic. The highest level of Bloom's, *evaluation*, showed nearly half of Group 1 students at far below basic (44%), with seven percent scoring advanced, fifteen percent at proficient, another fifteen percent scoring basic, and nineteen percent at below basic.

The results of the content reading pre-test for Group 1 students reflected inconsistent performance along Bloom's levels of questioning. A large number of Group 1 students performed well on the synthesis level; however, an even larger portion of the students performed poorly with comprehension, a lower level of questioning on Bloom's Taxonomy (and presumably easier skills). Preliminary guesses as to why Group 1 students scored poorly on comprehension included a possible lack of enough exposure to and experience with answering comprehension questions, which *suggested* that prior to the intervention, students had more experience with answering "knowledge" (answers that can be derived directly from the surface of text), "synthesis" and "application" types of questions.

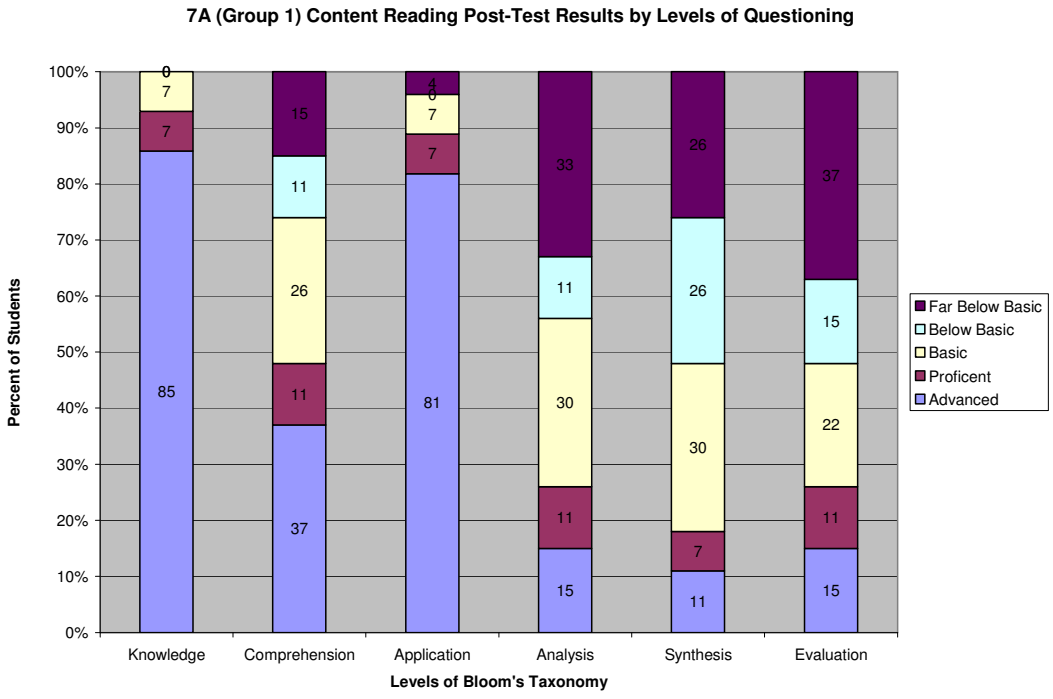


Figure 23. Group 1 Content Reading Post-Test Results by Bloom's Taxonomy (June 2007)

On the content reading post-test, Group 1 students showed gains in proficient/advanced categories for three levels of Bloom's Taxonomy (comprehension, application, and evaluation), and losses in the remaining three questioning levels (knowledge, analysis, and synthesis; see Figure 23). The knowledge level showed an eight percent decrease for Group 1 students in the advanced category. However, no students scored in the below basic or far below basic categories, which ultimately indicated growth, as more Group 1 students shifted towards the basic and proficient categories (both at 7%). Eighteen percent more Group 1 students achieved an advanced score in comprehension, and more students shifted from far below basic upwards to below basic and basic (from 48% to 11% and 26% respectively). Students also performed a great deal higher at the application level, with fifty-one percent more students achieving advanced. Fewer students scored in the lower categories for application, with seven percent for proficient and basic and zero and four percent for below and far below basic. While more students scored at advanced in analysis (rising from 4% to 15%), the proficient category dropped from thirty-three to eleven percent. More Group 1 students scored at basic on the analysis level on the post-test, rising from twenty-six to thirty percent, and fewer students scored at below basic (from 15% to 11%). Eleven percent additional students scored at the far below basic category (from 22% to 33%). Fewer students in Group 1 achieved a high score for the synthesis level of questioning in the advanced and proficient categories, dropping dramatically from thirty to eleven percent for advanced, and from forty-four to seven percent for proficient. The remaining eighty-two percent of the students were fairly evenly distributed along the basic, below basic, and far below basic categories for synthesis (30%, 26% and 26% respectively). While the final level of Bloom's, evaluation, showed a gain in the percentage of students achieving advanced (from 7% to 15%), seventy-four percent of the students scored basic, below basic, and far below basic.

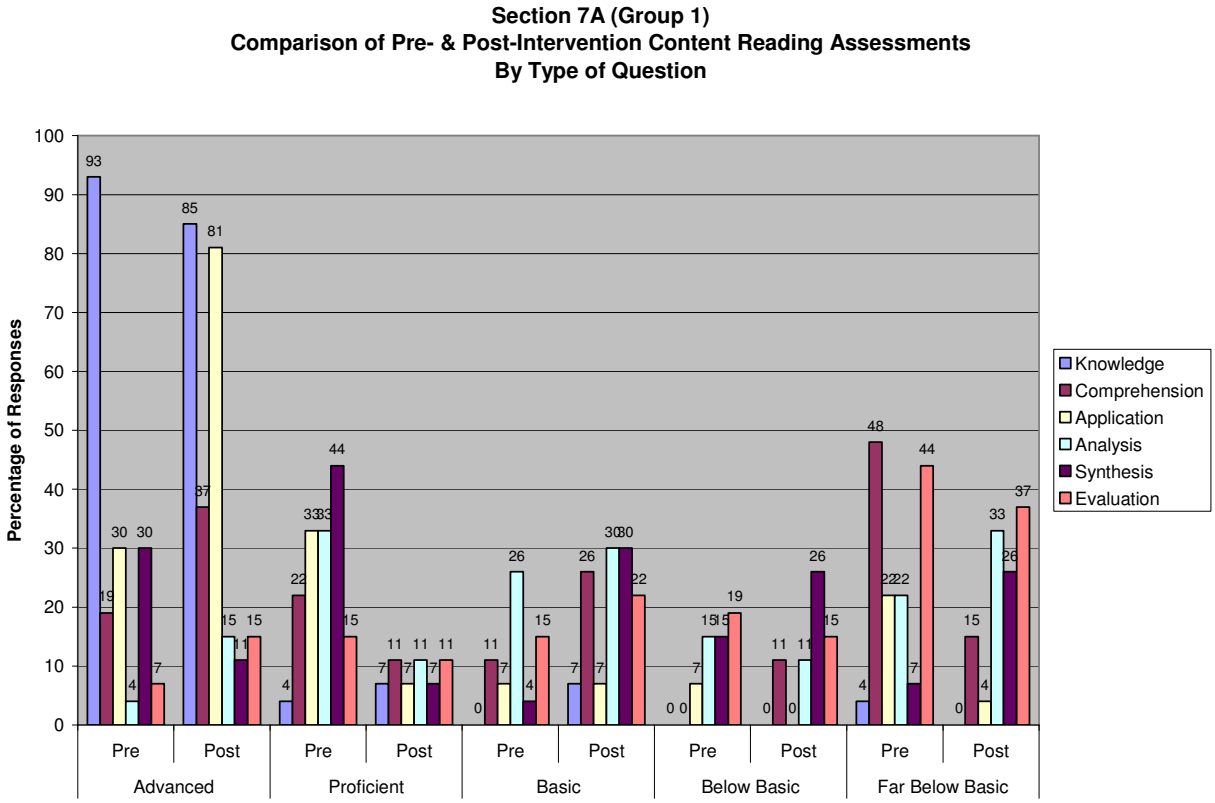


Figure 24. Group 1 Content Reading Pre- & Post-Test Results by Bloom's Taxonomy (April 2007 & June 2007)

Figure 24 offers a side-by-side comparison of Group 1's pre- and post-test results by Bloom's levels of questioning. Group 1 students performed better on the content reading post-test; however, achievement along the levels was inconsistent.

One explanation for Group 1 students' inconsistent growth was that lessons in the intervention were not specifically focused on instructing along Bloom's, but rather along the lines of introducing and building-upon reading strategies. Students had more experiences with "talking to the text" through use of the *Think Aloud* bookmarks (WestEd, 2002), which accounted for tremendous growth at the comprehension level (more students shifted from far below and below basic towards basic and advanced). Insufficient opportunities to synthesize content material during the intervention (e.g. having students construct acquired knowledge from

reading non-fiction texts in a different way) explained the dramatic decrease at the synthesis level, and had this study focused more squarely upon instruction along Bloom's Taxonomy (1956), this key area most likely would have shown greater gains. A longer intervention period might also have increased growth in students' ability to synthesize text. Despite inconsistent progress along Bloom's, in conclusion, Group 1 students showed improvement in understanding non-fiction texts.

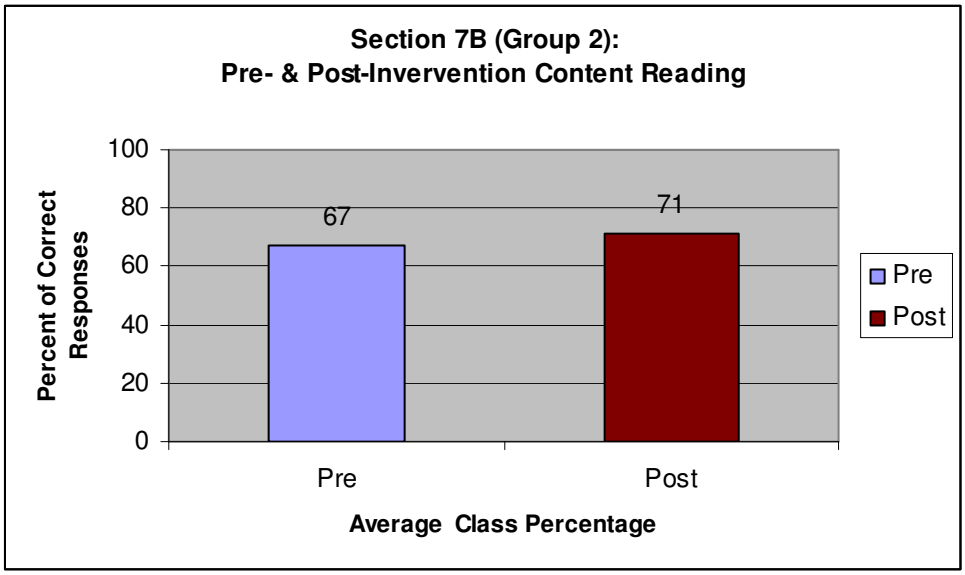


Figure 25. Group 2 Overall Class Average on Pre- and Post-Content Reading Assessments (April 2007 & June 2007)

The content reading pre-test class average for Group 2 was sixty-seven percent and the post-test class average was seventy-one percent, showing a four percent growth, from pre- to post-assessment (see Figure 25).

Figure 26 displays Group 2 individual student scores for the content reading pre-test. Using the target proficiency of seventy-five percent, eighteen Group 2 students scored below proficiency, and nine students scored above.

Group 2 individual student scores for the content reading post-test revealed that sixteen students scored below proficiency, and eleven students scored above the study's target proficiency of seventy-five percent (see Figure 27).

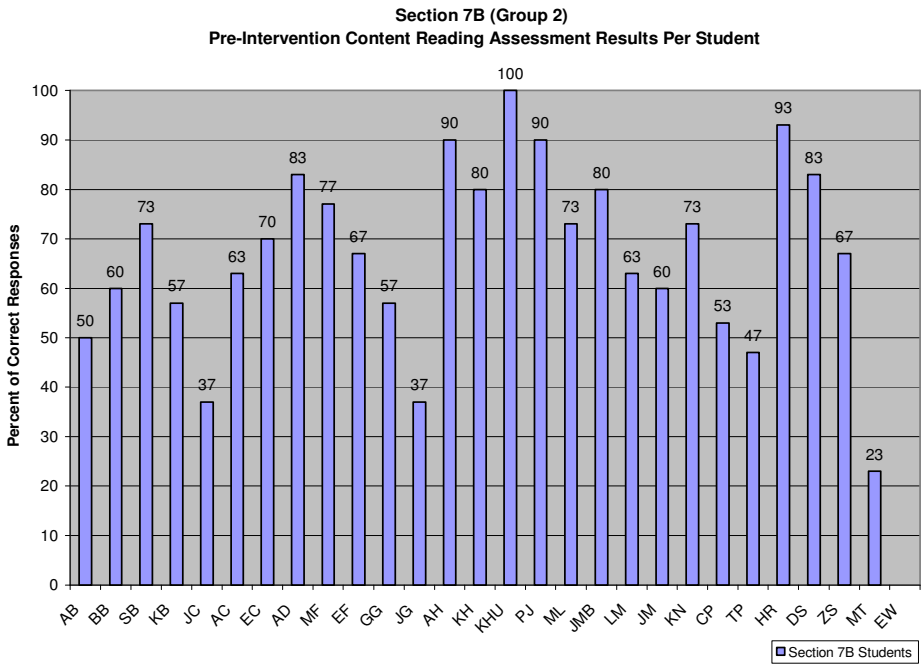


Figure 26. Group 2 Content Reading Pre-Test Results per Student (April 2007)

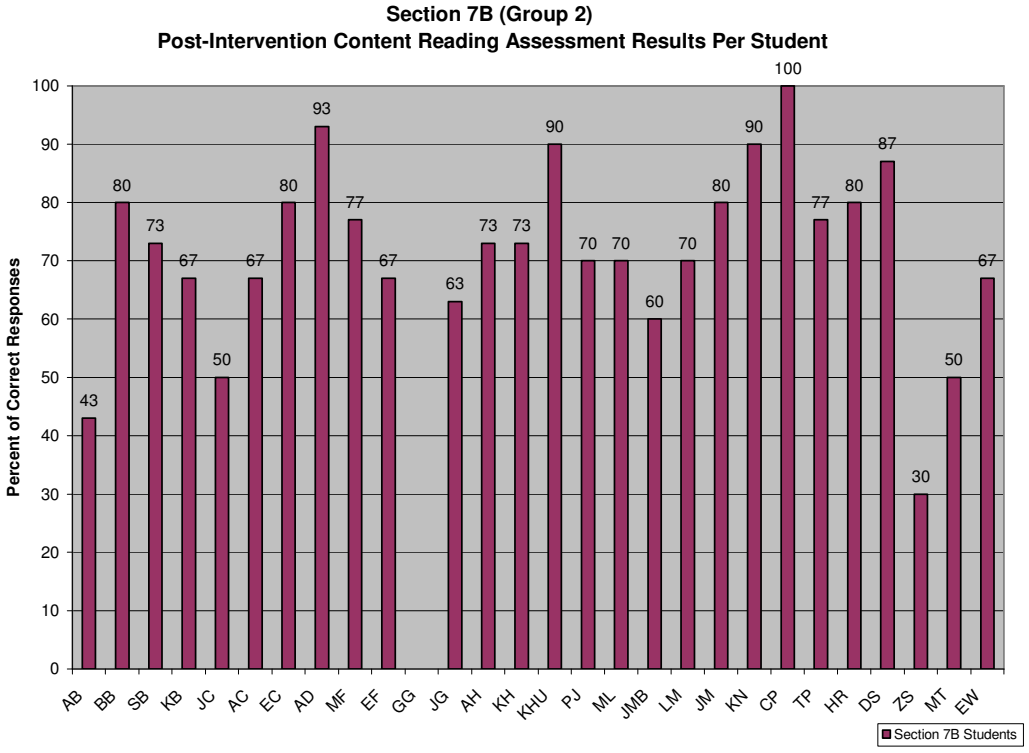


Figure 27. Group 2 Content Reading Post-Test Results per Student (June 2007)

Between the pre- and post-content reading assessments, there was an eleven percent decrease in students scoring below proficiency. The data for Group 2 students scoring above proficiency rose from thirty-three to forty-one percent.

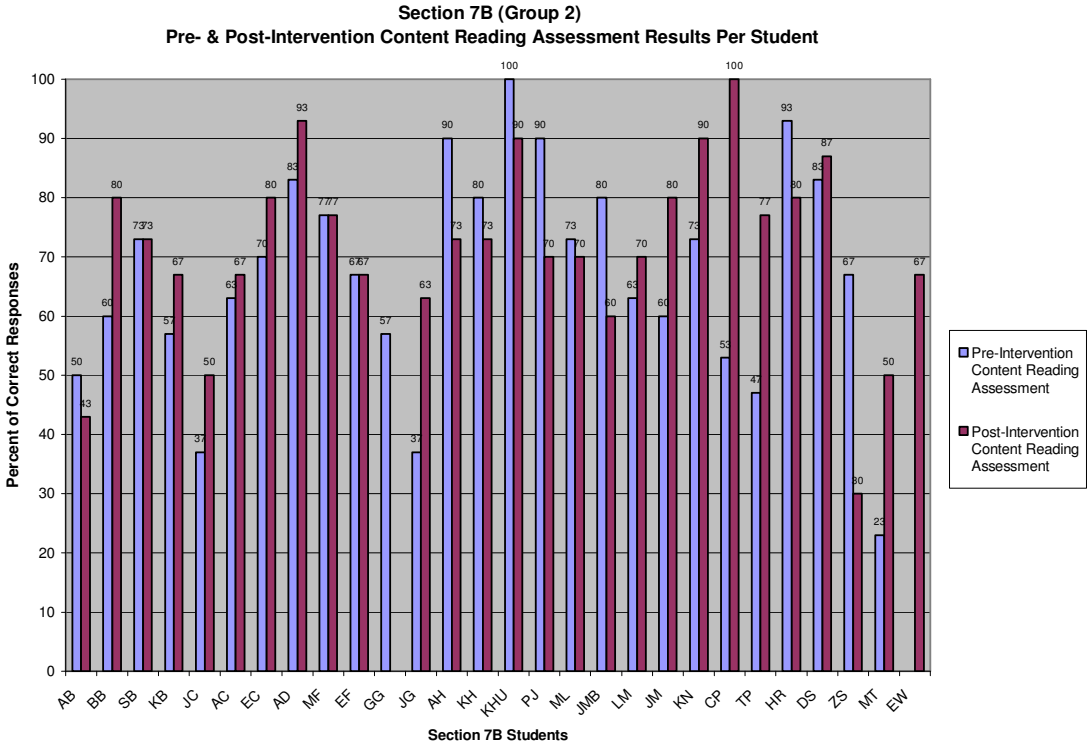


Figure 28. Group 1 Content Reading Post-Test Results per Student (April 2007 & June 2007)

Figure 28 displays a comparison of Group 2 pre- and post-content reading assessment scores. When comparing pre- and post-test results, nine (35%) students' scores dropped from the first to the second test, three (12%) students' scores remained the same, and fourteen (54%) students' scores increased. It is important to note that of the three students who achieved the same results on both the pre- and post-content reading assessments, two placed above the target proficiency of seventy-five percent, and one placed below.

Like Group 1, the content reading assessment results verified that Group 2 student comprehension of non-fiction texts increased from April 2007 to June 2007. A closer analysis of student results along Bloom's Taxonomy (1956) presented further specific evidence about which areas of thinking and reasoning grew for Group 2 students.

Figure 29 shows the percentage of Group 2 students who achieved advanced (100%), proficient (80%), basic (60%), below basic (40%), and far below basic (0-20%) for each level of Bloom's on the content reading pre-test.

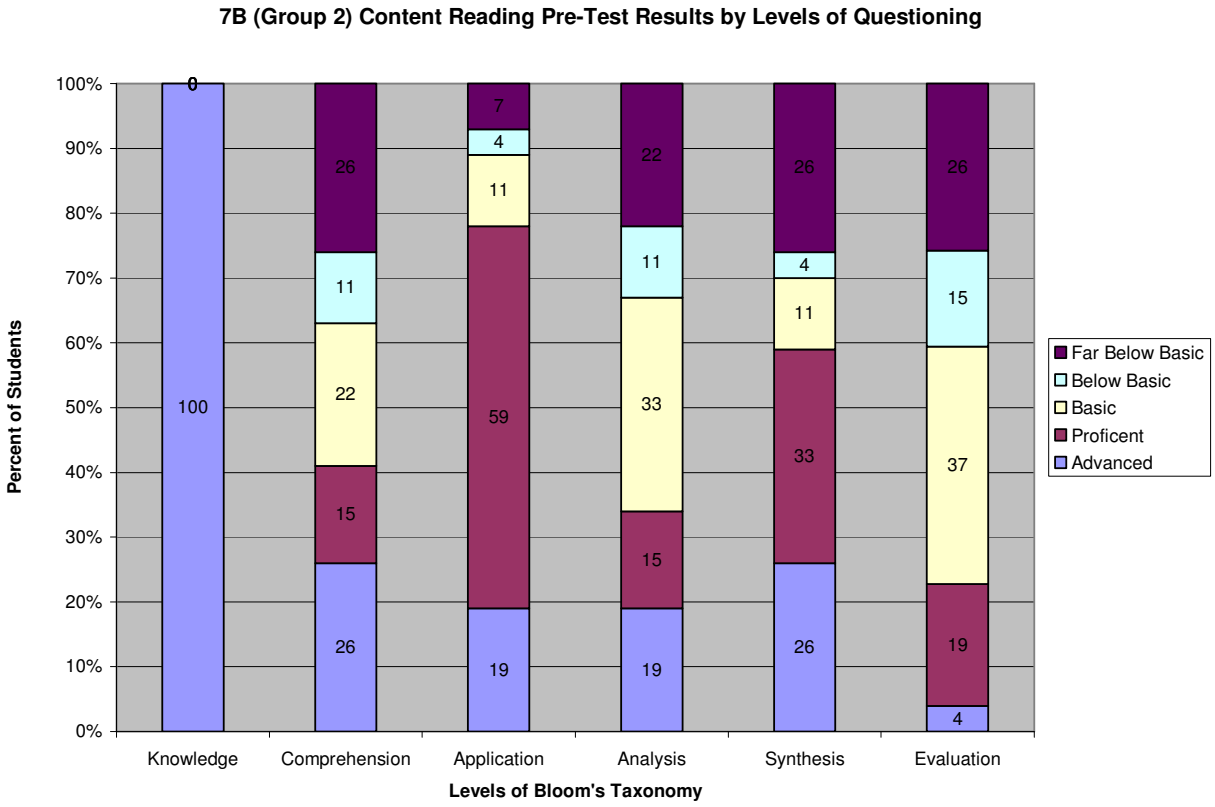


Figure 29. Group 2 Content Reading Pre-Test Results by Bloom's Taxonomy (April 2007)

On the content-reading pre-test, one hundred percent Group 2 students scored advanced on the knowledge level of Bloom's taxonomy. For comprehension, an equal percentage of Group 2 students scored advanced and far below basic (26%), with fifteen percent proficient, twenty-two percent basic, and eleven percent below basic. On the third level, application, over half of the Group 2 students scored at proficient (59%), with nineteen percent at advanced (33%). Eleven percent students scored basic, four percent scored below basic, and seven percent far below basic at the application level. For analysis, a fairly equal distribution of students

scored along the top, middle, and lower categories: nineteen percent advanced, fifteen percent proficient, thirty-three percent basic, eleven percent below basic, and twenty-two percent far below basic. Over half of Group 2 students scored either advanced (26%) or proficient (33%) at the synthesis level of questioning, with eleven percent scoring basic, four percent at below basic, and twenty-six percent scoring far below basic. For the highest level of Bloom's, evaluation, the largest percentage of Group 2 students scored at basic (37%), with four percent advanced, nineteen percent proficient, fifteen percent below basic, and twenty-six percent far below basic.

The results of the content reading pre-test for Group 2 students mirrored a trend that was consistent with the increasing difficulty of Bloom's levels of questioning. In essence, the lower the level of questioning, the greater percentage of Group 2 students placed at advanced or proficient. Like Group 1, Group 2 students placed lower in comprehension on the pre-test than in some of the higher levels of questioning. As the researcher surmised earlier, it was possible that Group 2 students did not have enough exposure to or experience with comprehension questions prior to the start of the intervention.

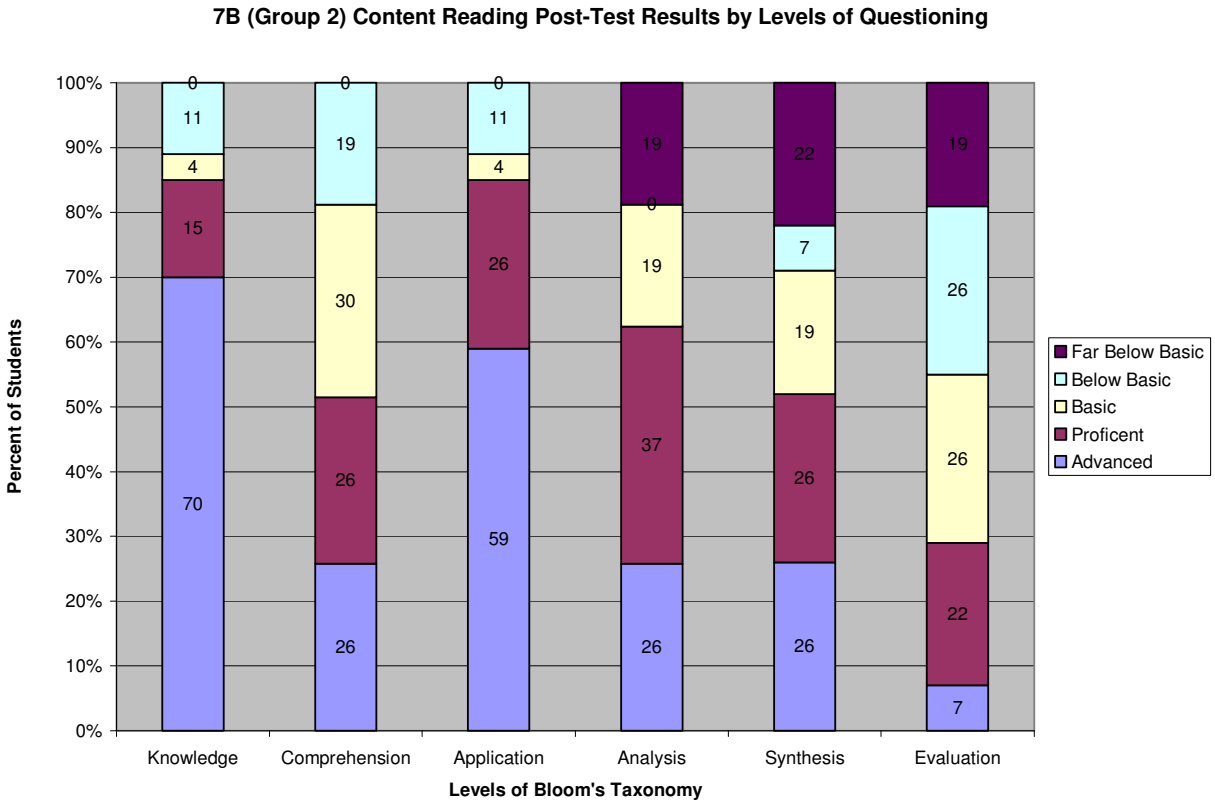


Figure 30. Group 2 Content Reading Post-Test Results by Bloom's Taxonomy (June 2007)

On the content reading post-test, Group 2 students showed gains in four levels of Bloom's taxonomy (comprehension, application, analysis, and evaluation). They showed a drop at the knowledge level, and scored about the same at the synthesis level (see Figure 30). Group 2 students dropped thirty percent in the knowledge level on the post-test, with fifteen percent scoring proficient, four percent scoring basic, eleven percent scoring below basic, and zero students scoring in the far below basic category. Eleven percent more Group 2 students achieved a proficient score in comprehension, and no students scored in the far below basic scoring category. As with the pre-test, twenty-six percent Group 2 students scored advanced at the comprehension level of questioning, with twenty-six at proficient, thirty percent at basic, and nineteen percent at below basic. Students also performed a great deal higher on application, with

fifty-nine percent of the students achieving advanced on this Bloom's level. Twenty-six percent Group 2 students scored proficient at the application level, four percent scored basic, eleven percent scored below basic, and as with the two previous levels of questioning, no Group 2 students scored at far below basic. Twenty-nine percent more students scored in the advanced and proficient categories in analysis, with nineteen percent scoring basic, no students scoring below basic, and nineteen students scoring far below basic. For synthesis, Group 2 student post-test results were fairly similar to the pre-test: twenty-six percent scored advanced, twenty-six percent scored proficient, nineteen percent scored basic, seven percent scored below basic, and twenty-two percent scored at far below basic. The final level of Bloom's, evaluation, showed a steady trend of improvement in scores for Group 2 students: seven percent for advanced, twenty-two percent proficient, twenty-six percent basic, twenty-six percent below basic, and nineteen percent for far below basic.

Figure 31 offers a side-by-side comparison of Group 2 pre- and post-test results by Bloom's levels of questioning. With the exception of one level of questioning (knowledge), overall, Group 2 students showed growth along Bloom's Taxonomy on the post-intervention content reading assessment.

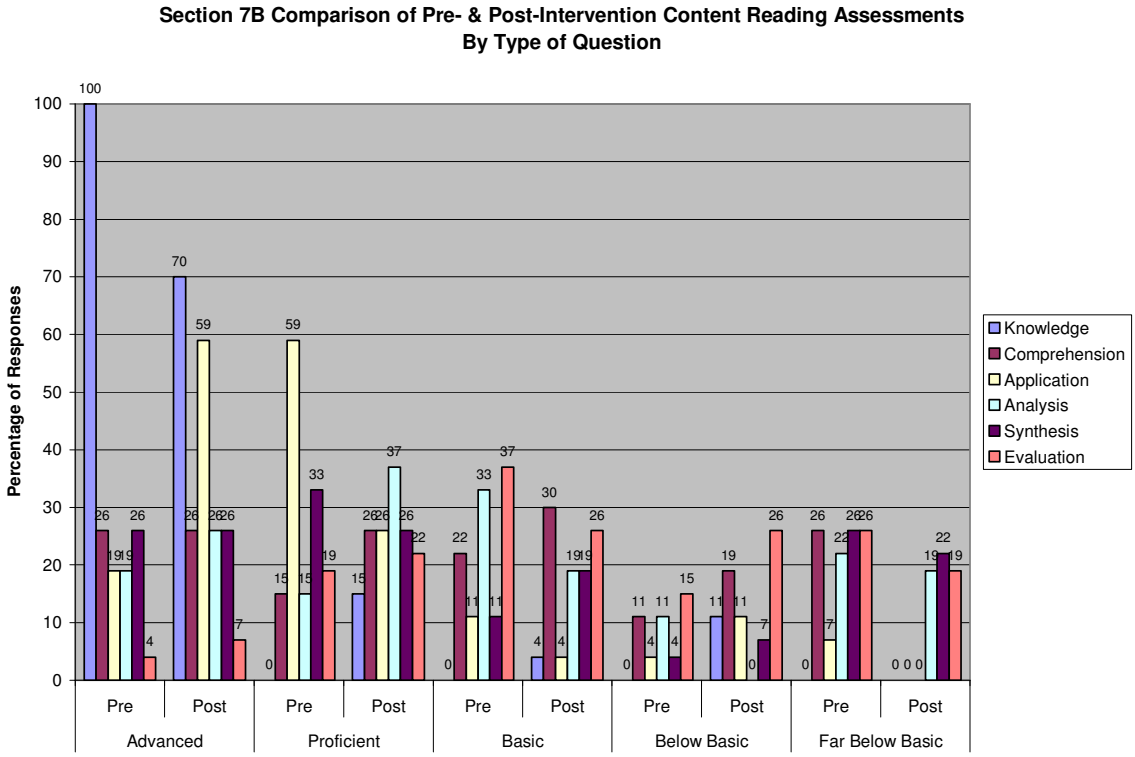


Figure 31. Group 2 Content Reading Pre- & Post-Test Results by Bloom's Taxonomy (April & June 2007)

Upward progress along the levels of Bloom's suggested that more Group 2 students were capable of applying reading strategies to the post-assessment than were students in Group 1. Due to steady use of *Think Aloud* bookmarks (WestEd, 2002) with non-fiction reading assignments, growth resulted on Bloom's comprehension level for Group 2 students. The decrease in performance at the knowledge level on the post-assessment was puzzling, especially since there was rather steady growth along four out of the five remaining levels of questioning. Given that Group 1 students also dropped in this level, it is possible that the test question for knowledge was not well written. Another possible answer for the lack of growth could have been that because of greater emphasis during the intervention upon digging beneath the surface of texts, students missed the intent of the "knowledge" question. This latter supposition provides

sufficient reason to spend adequate instructional time upon lower levels of thinking and questioning, as they only serve to inform higher level cognition.

Unlike Group 1, the loss at the synthesis level for Group 2 was minimal, but might have been due to the lack of enough opportunities to synthesize content material during the study window. As suggested earlier, it was possible that with a longer intervention period, this key area of thinking might have shown improvement. Despite the dips at the knowledge and synthesis levels of questioning, Group 2 overarching progress on Bloom's levels of questioning supported earlier evidence that students grew in their understanding of non-fiction texts during the short intervention window.

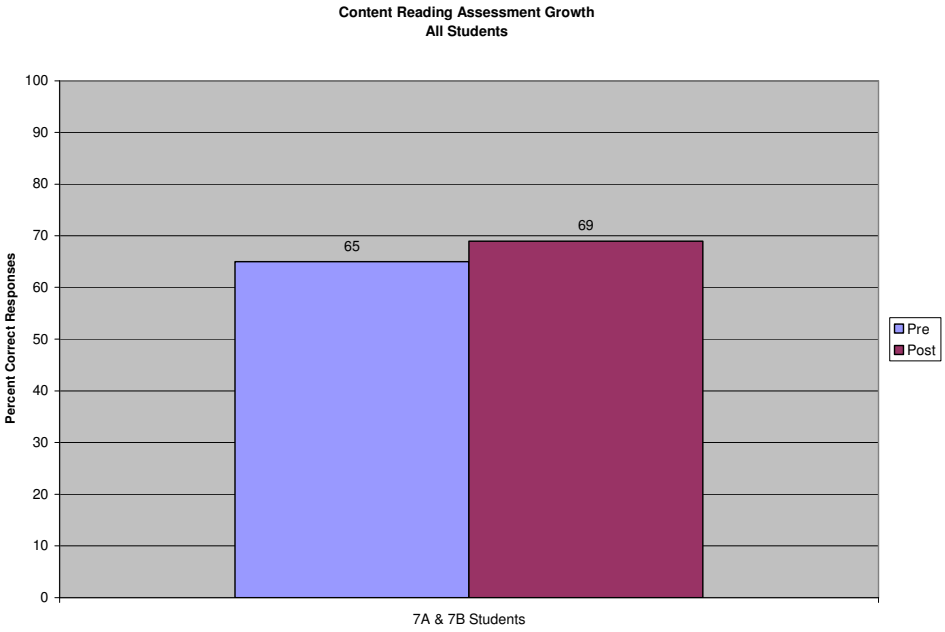


Figure 32. Group 1 & 2 Content Reading Pre- & Post-Test Combined Growth (April 2007 to June 2007)

Combining the performance of Group 1 and Group 2 students, the collective growth was four percent between the pre- and post- content reading assessments which is consistent with each individual section's class average growth (Figure 32).

Will more experience with reading and responding to informational materials boost student understanding of non-fiction materials? Indeed, students in both Group 1 and Group 2 demonstrated growth in their understanding of non-fiction texts as corroborated by the above results of the content-reading post-assessments. Student growth in comprehension was attributed to learning before-, during-, and after-reading strategies, with regular opportunities to apply these skills.

The intervention phase was broken down into two stages: Phase One and Phase Two. During Phase One, lessons and procedures were taught, providing a foundation for students to select and read non-fiction books. Phase Two included lessons that built before- during- and after-reading strategies.

Student Reading Log Tally

Independent Reading and Silent Sustained Reading were procedures already well-established by the start of the intervention, with students reading fiction novels seven days a week at home, as well as three to four days a week during English classes. During the ten-week intervention, Group 1 and Group 2 pupils were required to exclusively read non-fiction materials. At the conclusion of the intervention, which was also the close of the 2006/2007 school year, students conducted a tally of the number of items they read, including total number of pages (see Appendix K). Students also noted how many non-fiction items, including page numbers, were read. It should be noted that the tallied numbers were derived by the students, who gathered all of their past reading logs and conducted a self-study of their reading for the school year. In Group 1, twenty-four out of twenty-seven students completed a tally, and in Group 2, nineteen out of twenty-eight students completed a tally. Because not every student

followed through with this assignment, it is highly probable that the total numbers for both groups of students was actually higher. Figures 33, 34, 35, and 36 display the total number of items read by each group (Sections 7A and 7B).

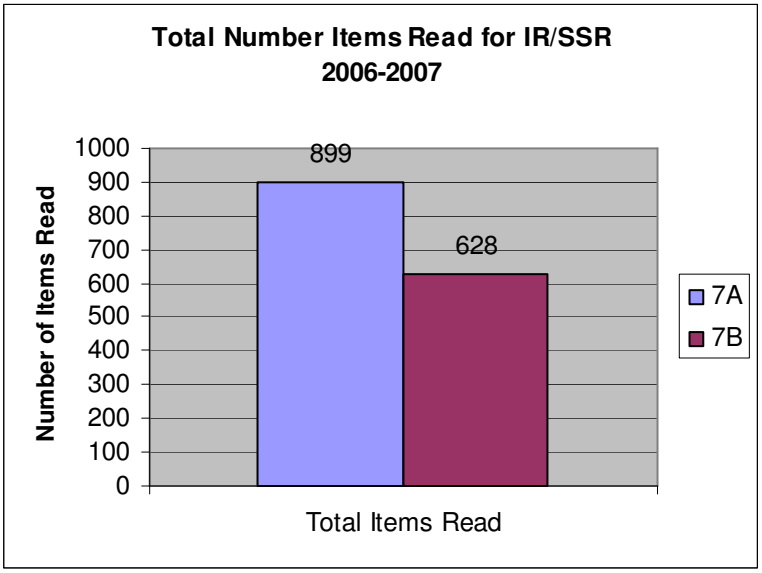


Figure 33. Group 1 & Group 2 Individual Total Items Read 2006-2007 (Fiction & Non-Fiction)

Group 1 (7A) students read 899 total items and Group 2 (7B) read 628 total items for the 2006-2007 school year. Group 1 read forty-three percent more items than Group 2 (see Figure 33).

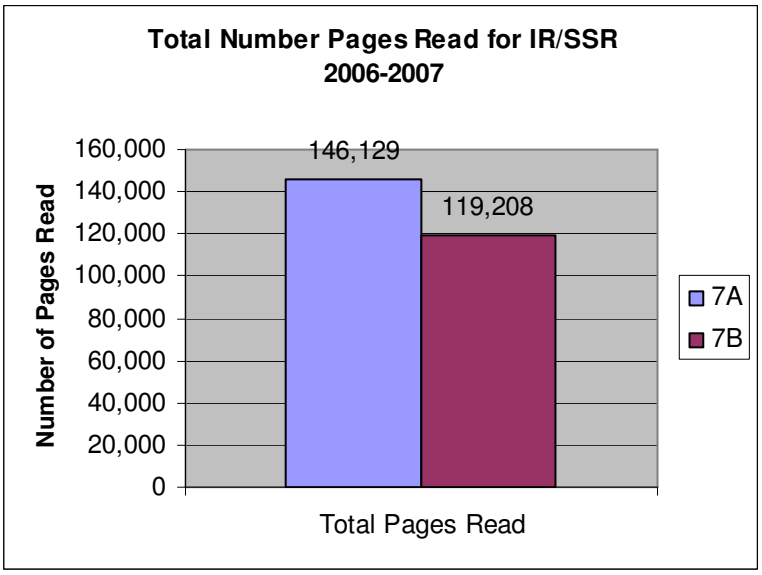


Figure 34. Group 1 & Group 2 Individual Total Pages Read 2006-2007 (Fiction & Non-Fiction)

Group 1 (7A) students read 146,129 pages and Group 2 (7B) read a total of 119,208 pages for the 2006-2007 school year. Group 1 read twenty-three percent more pages than Group 2 (see Figure 34).

The data from the first two charts clearly demonstrated that Group 1 students read a great deal more than Group 2 students for the duration of the 2006-2007 school year. These results were incongruent with Group 1 post-survey results in that, unlike the post-survey which indicated that Group 1 students disliked reading non-fiction materials, these same students read a plethora of pages from non-fiction texts. The reading tally data affirmed that Group 1 students were motivated to read, fueling the researcher's speculation that the post-survey data was not a true reflection of the students' attitude towards informational materials.

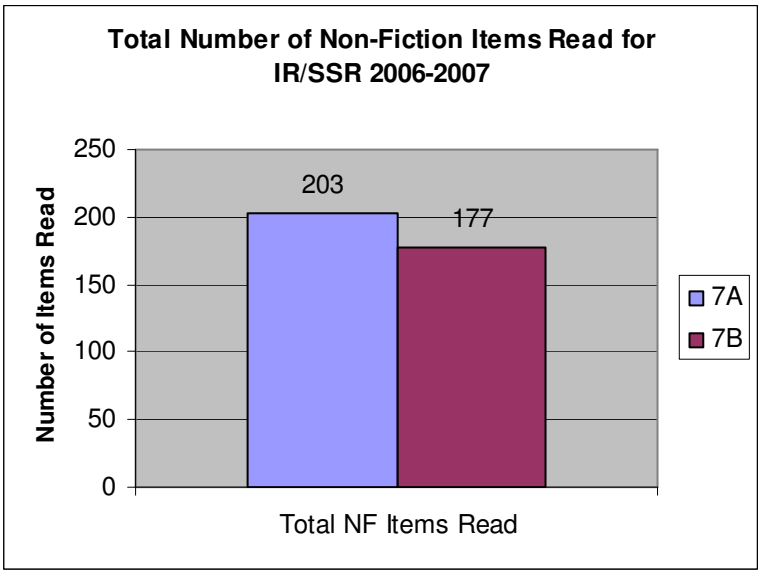


Figure 35. Group 1 & Group 2 Individual Total Non-Fiction Items Read 2006-2007

While IR and SSR focused on fiction for the first seven months of the school year, students were also often assigned non-fiction readings prior to the start of the intervention window. Group 1 (7A) students read 203 non-fiction items and Group 2 (7B) read 177 non-fiction items during the 2006-2007 school year. Group 1 students read fifteen percent more non-fiction items than Group 2 (see Figure 35).

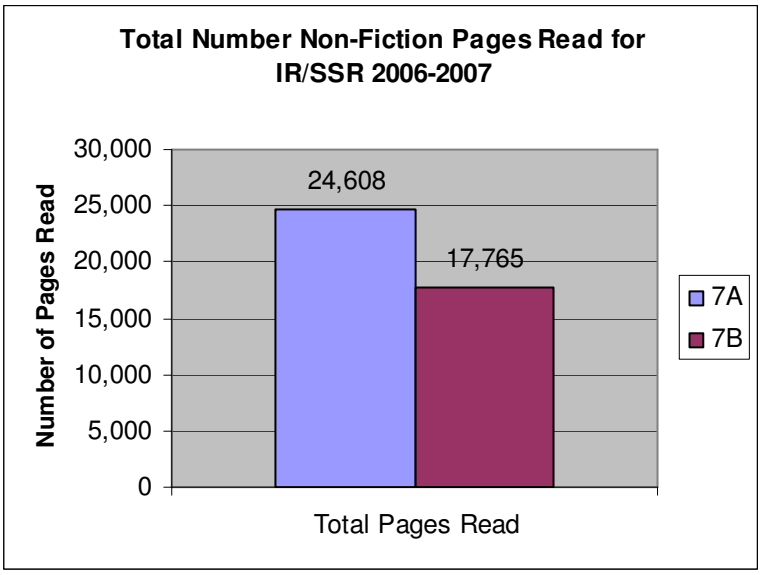


Figure 36. Group 1 & Group 2 Individual Total Non-Fiction Pages Read 2006-2007

Group 1 students read 24,608 pages and Group 2 read 17,765 pages from non-fiction sources for the 2006-2007 school year. Group 1 read thirty-nine percent more pages from non-fiction items than Group 2 (see Figure 36).

The results of the data shown in figures 35 and 36 further substantiate that Group 1 students enjoyed reading informational materials more than Group 2 students. At the same time, however, Group 2 student attitude towards non-fiction and fiction did rally by the end of the intervention (see Figures 3 and 8).

Figures 37 and 38 show the combined reading results for students who submitted tallies of their reading for the 2006-2007 school year.

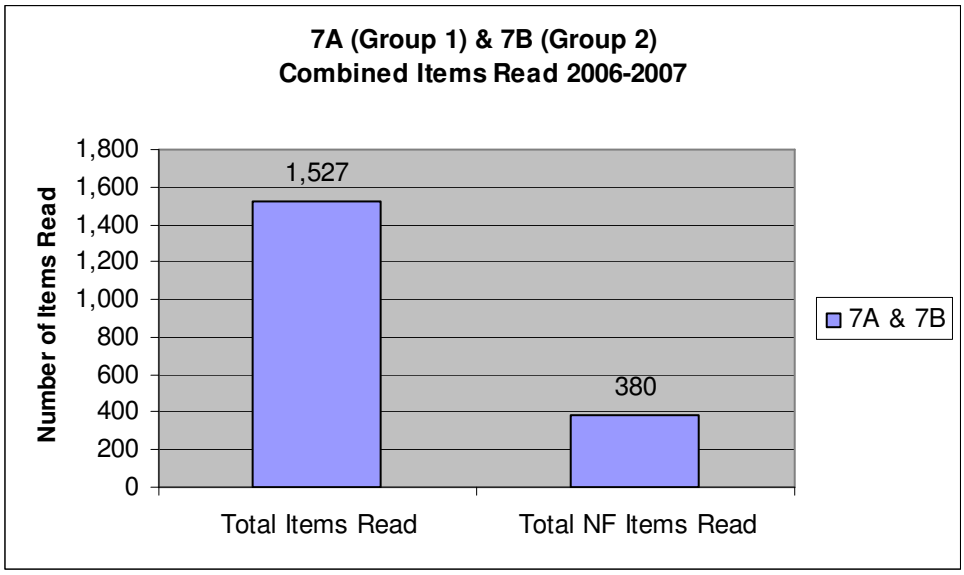


Figure 37. Combined Totals of Items Read in 2006-2007

Figure 37 reveals that the combined total number of items read by Group 1 and Group 2 students for the 2006-2007 school year was 1,527. Of that number, 380 items read were non-fiction; students read seventy-five percent fiction and twenty-five percent non-fiction items.

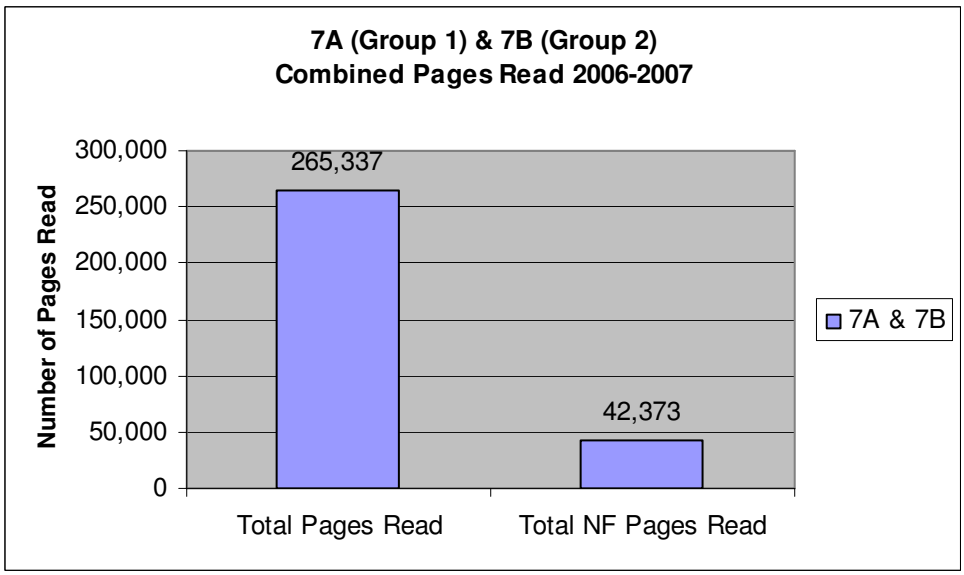


Figure 38. Combined Total Pages of Items Read in 2006-2007

The total number of pages read by Group 1 and Group 2 students was 265,337 for the 2006-2007 school year (see Figure 38). Of that number, 42,373 pages were from non-fiction

sources. Out of the total number of pages read by the students, just sixteen percent were from informational materials, with eighty-four percent of the pages derived from fiction sources.

The student survey, detailed earlier in this report, revealed that Group 1 student interest towards non-fiction materials was low by the end of the intervention (see Figure 6). On the contrary, the reading tally results for Group 1 showed that students were much more willing to read non-fiction materials by the end of the intervention. It is highly likely that the survey results for this group of students were skewed due to the timing of its administration, on the afternoon of the last day of the school year.

One of the questions in this study asked: Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts? Results from the reading tallies confirmed that providing students with regular opportunities to read informational materials was an important first step towards boosting student understanding. Another significant source of evidence for determining student growth in reading comprehension was reading journals, which revealed whether or not the students were capable of inferring and thus "making meaning" of non-fiction texts, another key focus in this research study.

Student Reading Journal Analysis

One way student engagement with text was assessed was by evaluating use of reading strategies through examining student writing (see Appendix L). Figures 39 and 40 show Group 1 and Group 2 student use of reading strategies on two occasions during the intervention: once in April and again in June 2007. Since students were guided as a class through their first journal writing piece, their second and final entries were used for this analysis.

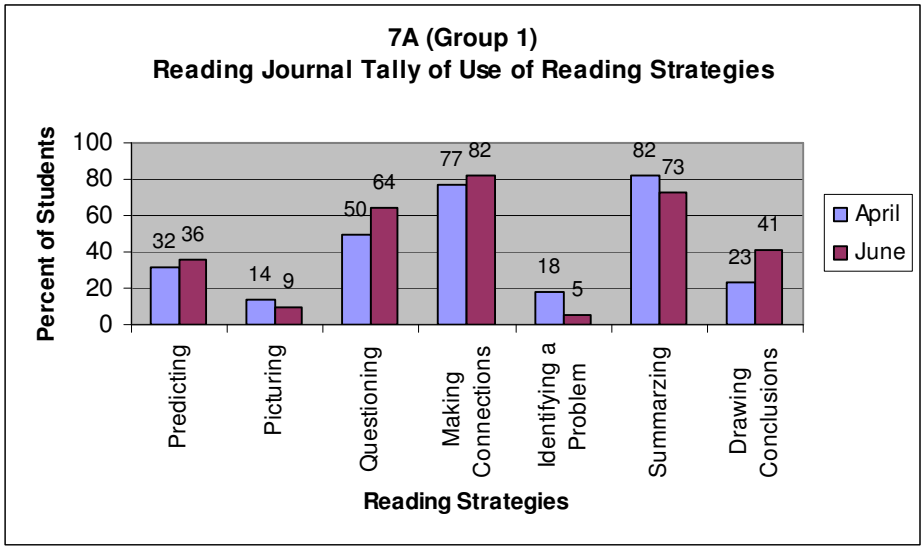


Figure 39. Group 1 Reading Journal Tally of Occurrence of Reading Strategies (April 2007 & June 2007)

In April 2007, shortly after mini-lessons on the structural features of informational materials, and methods of choosing non-fiction texts, students were guided through the process of responding to text through a double-entry journal. As Figure 39 illustrates, the most popular reading strategy in April 2007 was summarizing, with eighty-two percent of Group 1 students showing evidence of summary in their second journal entry. The second most-used strategy in April was making connections, at seventy-seven percent. Questioning ranked third at fifty percent, with predicting at thirty-two percent, drawing conclusions/inference at twenty-three percent, identifying a problem at eighteen percent, and picturing (visualization) at fourteen percent.

These results proved interesting when compared to the student survey, on which Group 1 students indicated they rarely summarized after reading. In contrast, after initial mini-lessons, this same section of students exhibited substantial use of summarizing in their reading journals. The researcher has found that students tend to gravitate towards writing summaries of what they have read, as opposed to taking time to dig more deeply into the meaning of texts. This

observation helped to explain in part why the majority of Group 1 students gravitated towards summary writing early on, as revealed through their second journal entries. Above all, Group 1 students showed they were comfortable with using a variety of reading strategies early on in the intervention.

In June 2007, more Group 1 students shifted towards using the strategy of making connections (82%), with summarizing (73%), questioning (64%), drawing conclusions/inferences (41%), predicting (36%), picturing (9%) and with identifying a problem (5%) . These results indicated that Group 1 students grew in use of reading strategies, which was most likely due to frequent opportunities to practice these strategies throughout the intervention. In particular, more Group 1 students used higher level reading strategies, for example, moving beyond a high use of summary writing to increased use of questioning (pre-reading), making connections (during-reading) and drawing conclusions (inference). Increased use of reading strategies by Group 1 students served to boost student comprehension of non-fiction texts.

There were sixty-five incidences of reading strategies being used by Group 1 students in the second reading journal entries, written in April 2007; in June 2007, there were sixty-eight incidences, showing a slightly elevated use of strategies.

Because Group 1 students manifested a tendency in the past for copying directly from the text in place of writing a personal response to what they had read, the number of incidences of direct copying of text was also counted. In the June student reading journal entries used for this analysis, a low number of Group 1 students (18%) directly copied from the text in lieu of using one of the seven reading strategies noted above. The low incidence of direct copying from text in June indicated that Group 1 students were more willing to engage with text using one or more of the seven reading strategies. With rising confidence in reading non-fiction texts, students

likewise became more confident with actually making use of reading strategies as they responded in their journals to what they read.

Figure 40 shows Group 2 student use of reading strategies in their journal writing. As with Group 1, the majority of Group 2 students (79%) used the strategy of summarization in their

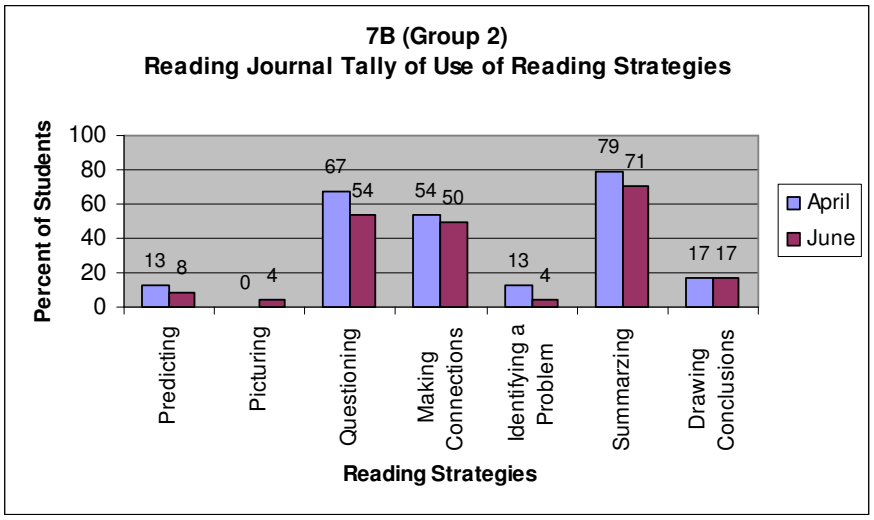


Figure 40. Group 2 Reading Journal Tally of Occurrence of Reading Strategies

second journal entry in April 2007. The second most used strategy was questioning (67%), with making connections (54%), drawing conclusions/inferences (21%), predicting (13%) and identifying a problem (13%) following in suit. Picturing, or visualization, was not used by any Group 2 student in their April 2007 entry.

Like Group 1, Group 2 students indicated on the pre-survey that they rarely summarized after reading; yet, after initial mini-lessons, this same section of students exhibited great use of summarizing in their April journal entries. As with Group 1 students, this trend may likewise be explained by the common use of summary writing by students in general. Unlike Group 1, however, more Group 2 students made use of questioning as a before-reading strategy early in

the intervention, which is consistent with survey results for their perception of use of reading strategies (see Figure 5). Like Group 1, these Group 2 students most likely had prior experience in making connections with texts, accounting for their high use of this strategy *early in the intervention*. In brief, Group 2 students showed they were comfortable with using a variety of reading strategies early on in the study.

Unlike Group 1, there was a reduction in the use of reading strategies in Group 2's final journal response in June 2007. Summarizing ranked high as the most used strategy in the last entry, at seventy-one percent. Questioning followed at fifty-four percent, with fifty percent of Group 2 students making connections. Seventeen percent of the students used drawing conclusions/inferences, which is the same number of students as in April. Eight percent of Group 2 students used predicting, and four percent of the students used picturing and identifying a problem in their June 2007 reading journal entry.

There were fifty-eight incidences of reading strategies being used by Group 2 students in their second reading journal entry, written in April 2007; in their last entry, in June 2007, there were fifty incidences. Fewer Group 2 students copied directly from the text in their April journal entry (21%) than in their final journal writing piece in June (38%). The increased incidences of direct copying from the text indicated that Group 2 students were less willing to engage with the material at the end of the school year, than they were in April.

Why did these students drop in their use of reading strategies by the end of the intervention? The researcher observed that journal entries revealed that more students rushed through writing their responses in the June than at the beginning of the intervention; it appeared there was greater attention to detail at the start of the intervention (and in subsequent journal entries), and an increased rush to finish by the conclusion of the study. These results did not

coincide with post-survey results for Group 2, which showed that student perception of use of reading strategies was higher in June. Another explanation could have been the timing of the last journal entry, which was written during the last week of the school year. Given that the rate of summary writing was elevated in June entries, it was possible that Group 2 students fell into old, familiar habits of writing summaries, rather than using newly acquired strategies. If the timing of the intervention was changed to take place much earlier in the school year, the journal results would have most likely been different.

Reading Benchmark Pre- & Post-Intervention Assessments

In the post-intervention period, along with the content-reading post-test and the post-questionnaire, students also retook a portion of the Aspire Spring Reading Benchmark test; this assessment consisted of California Standards Test released questions. Because of the focus on reading comprehension in this action research study, the only questions that students answered were those associated with the seventh grade reading comprehension standards, for a total of twelve questions. Pre- and post-benchmark results were analyzed three ways: by group average, by student, and by reading comprehension standard.

Figure 41 shows Group 1 pre- and post-reading benchmark results for reading comprehension questions.

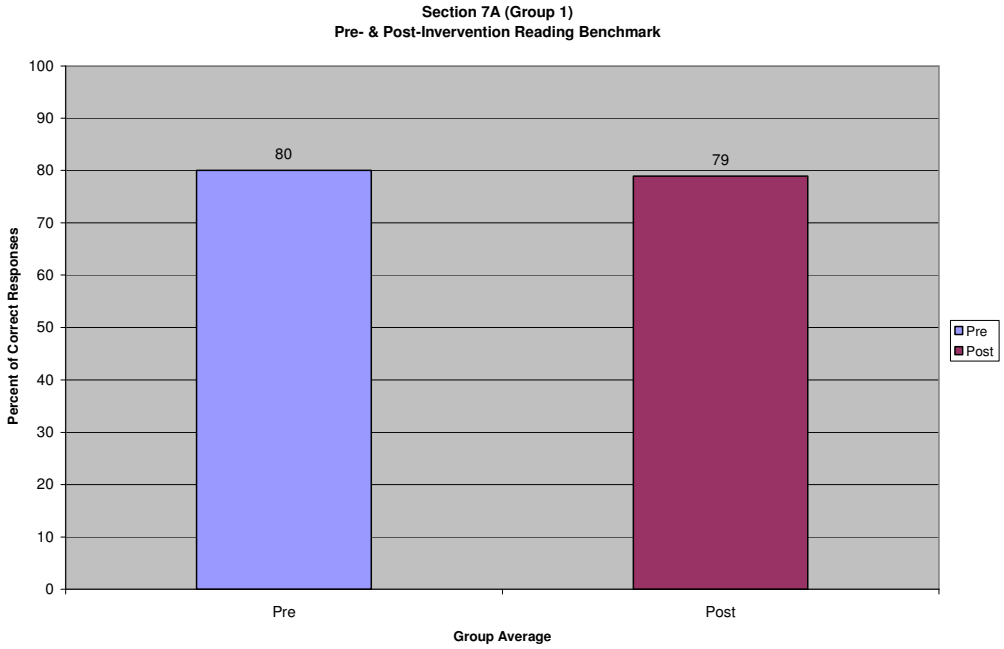


Figure 41. Group 1 Pre- & Post-Reading Benchmark Group Average (March 2007 & June 2007)

On the post-test, Group 1 students scored slightly lower than on the pre-test, dropping from eighty to seventy-nine percent; however the researcher noted that twenty-seven students took the pre-test, but twenty-six students took the post-test. Because one less student took the post-test, in all likelihood, the overall results were flat, remaining similar to pre-test results.

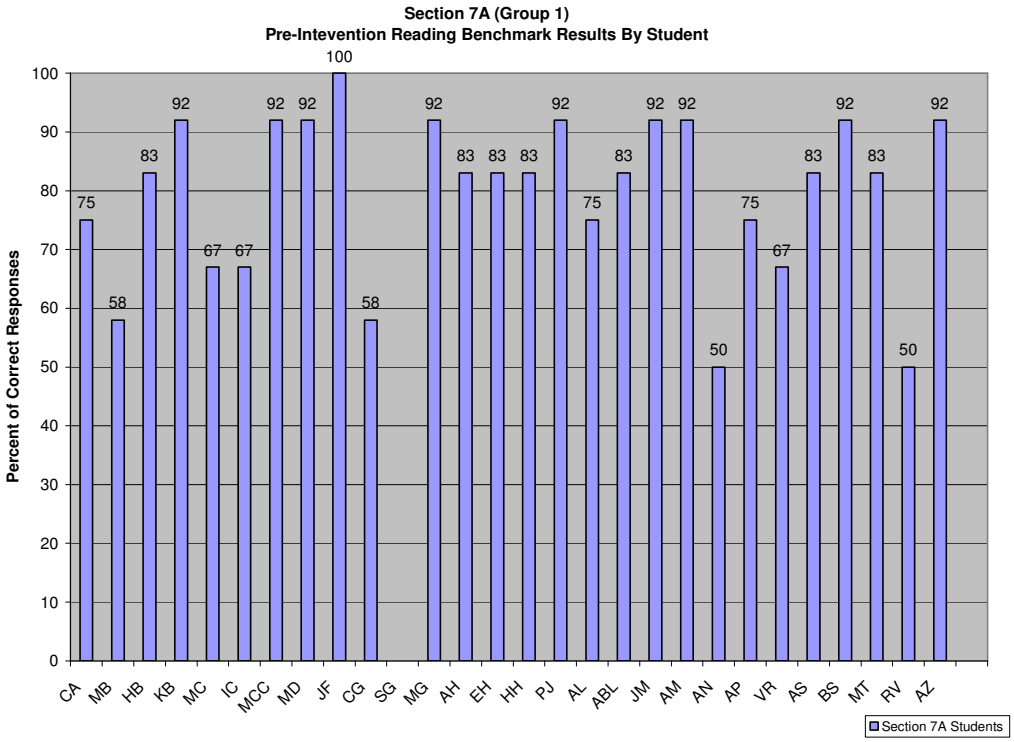


Figure 42. Group 1 Pre-Reading Benchmark Results by Student (March 2007)

A closer examination of individual student data revealed that of the twenty-seven Group 1 students who took the pre-benchmark test, twenty scored at seventy-five percent or above, and seven students scored below the action research study's target proficiency of seventy-five percent (see Figure 42).

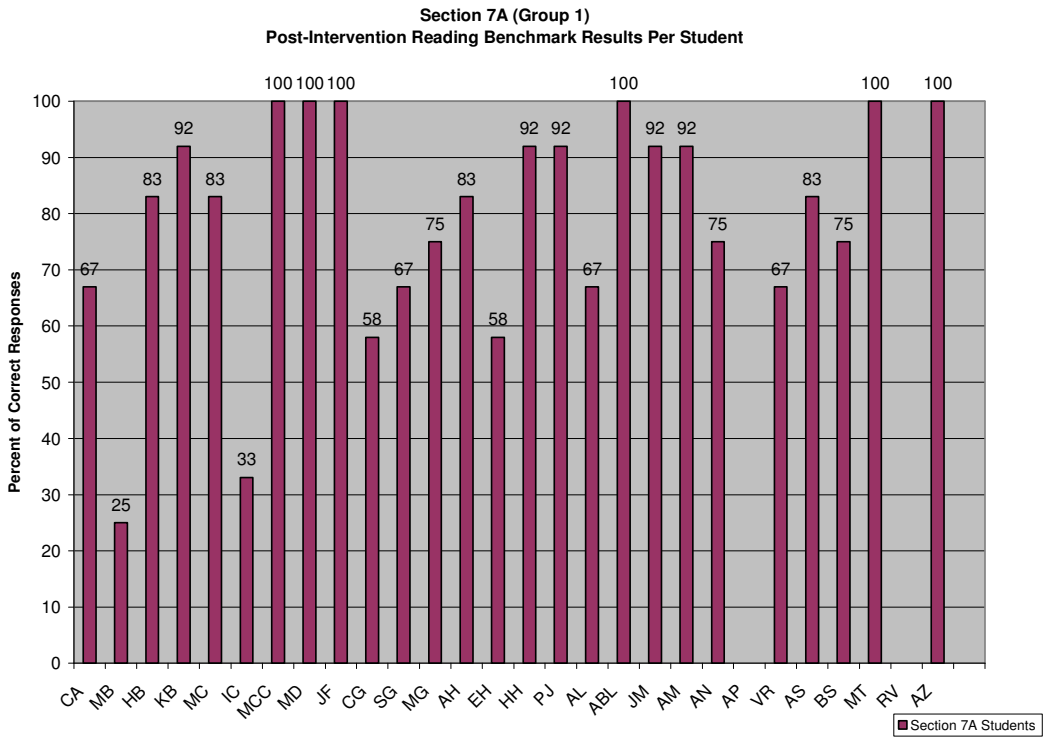


Figure 43. Group 1 Post-Reading Benchmark Results by Student (June 2007)

On the post-benchmark test, of the twenty-six Group 1 students who took this exam, eighteen scored at seventy-five percent or above, with eight scoring below seventy-five percent (see Figure 43).

Why did Group 1 post-test scores remain relatively flat between the pre- and post-benchmark assessments? There were two possible reasons. The researcher noted that this particular benchmark test has proven to be a more difficult exam for students, and it was typical for scores to be lower in most English language arts strands than on earlier benchmarks given in the fall and winter.

Another factor to consider with Group 1 was the timing of the administration of the post-test, which was taken on the last day of the school year (the same day they answered the post-

intervention questionnaire). It is highly conceivable that the students did not give their complete effort on the post-benchmark assessment because of the timing of its administration, which is what the researcher postulated about Group 1 post-survey results. Even though the overall post-benchmark score indicated that there was no growth for Group 1 students in terms of achieving a seventy-five percent proficiency level, a closer look at individual results revealed that some students did show improvement between the pre- and post-tests.

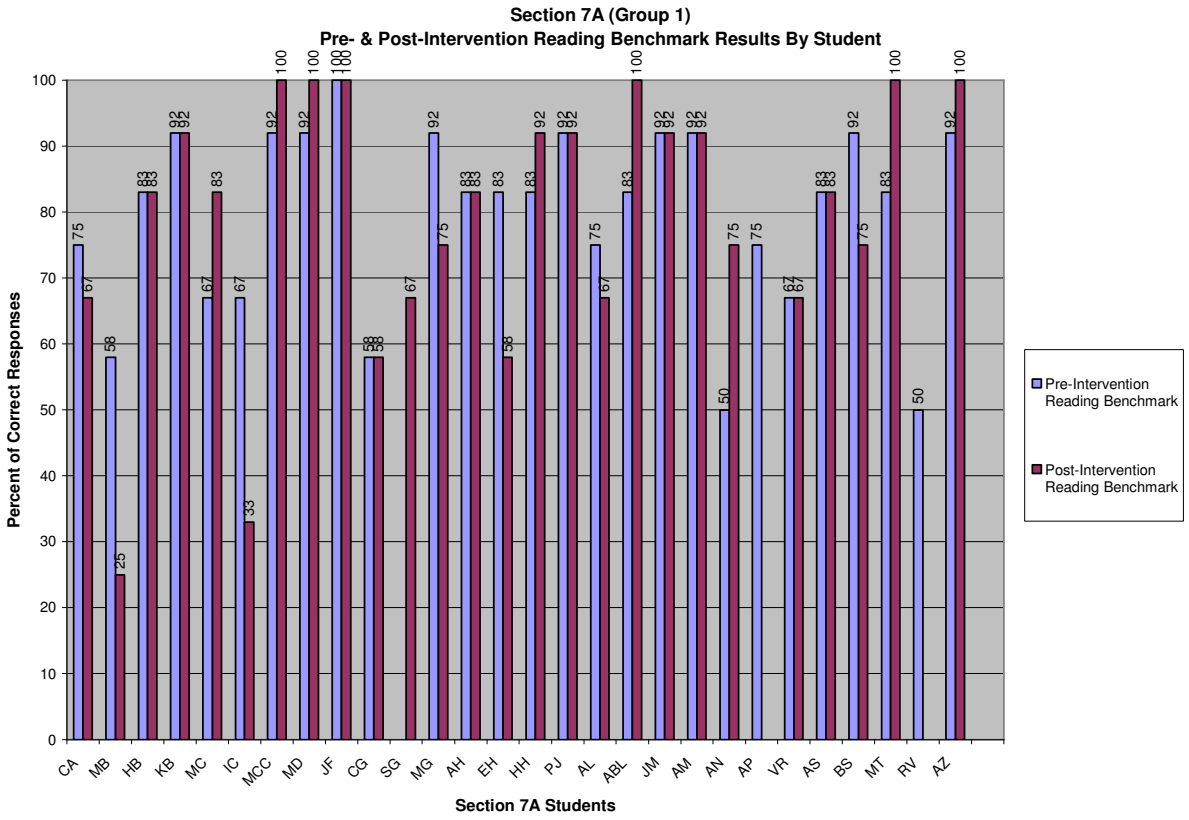


Figure 44. Group 1 Pre- and Post-Reading Benchmark Results by Student (March 2007 & June 2007)

Figure 44 shows the pre- and post-reading benchmark results for Group 1. Of the twenty-five pairs of results, seven (28%) Group 1 students' scores dropped from pre- to post-benchmark, another ten (40%) students scored the same, and eight (32%) students' scores rose. Of the ten

students who earned the same score on the pre- and post-benchmark tests, two scored below and eight scored above the study's proficiency target of seventy-five percent. This view of the data suggested that a portion of the students did indeed improve in reading comprehension between the pre- and post-benchmark assessments; nevertheless, these results also showed that some students did not perform as well on the post-test, and it was therefore difficult to pinpoint the exact cause.

A third form of analysis examined student performance by standard. Figure 45 illustrates that Group 1 student scores improved for two of the six seventh grade state standards for reading comprehension: Structural Features/Purpose of Informational Texts (RC 7.2.1) and Expository Critique (RC 7.2.6). For standard 7.2.1, student scores rose from eighty to eighty-five percent, and for standard 7.2.6, Group 1 student scores rose from sixty-nine to seventy-five percent. The remaining four tested standards showed slight decreases: state standard RC 7.2.2 (Locate Information) dipped from eighty-three on the pre- to seventy-nine percent on the post-benchmark; RC 7.2.3 (Analysis of Cause/Effect in Texts) slipped from eighty to seventy-nine percent, RC 2.4 (Author's Argument/Perspective) dropped from eighty to seventy-five percent, and RC 2.5 (Comprehending Technical Directions) moved from eighty-five to eighty-three percent. The researcher noted that despite Group 1 students dropping in overall performance in four out of the six reading comprehension standards, *all* of the Group 1 post-benchmark group average scores were *at* or *above* the study's target proficiency of seventy-five percent.

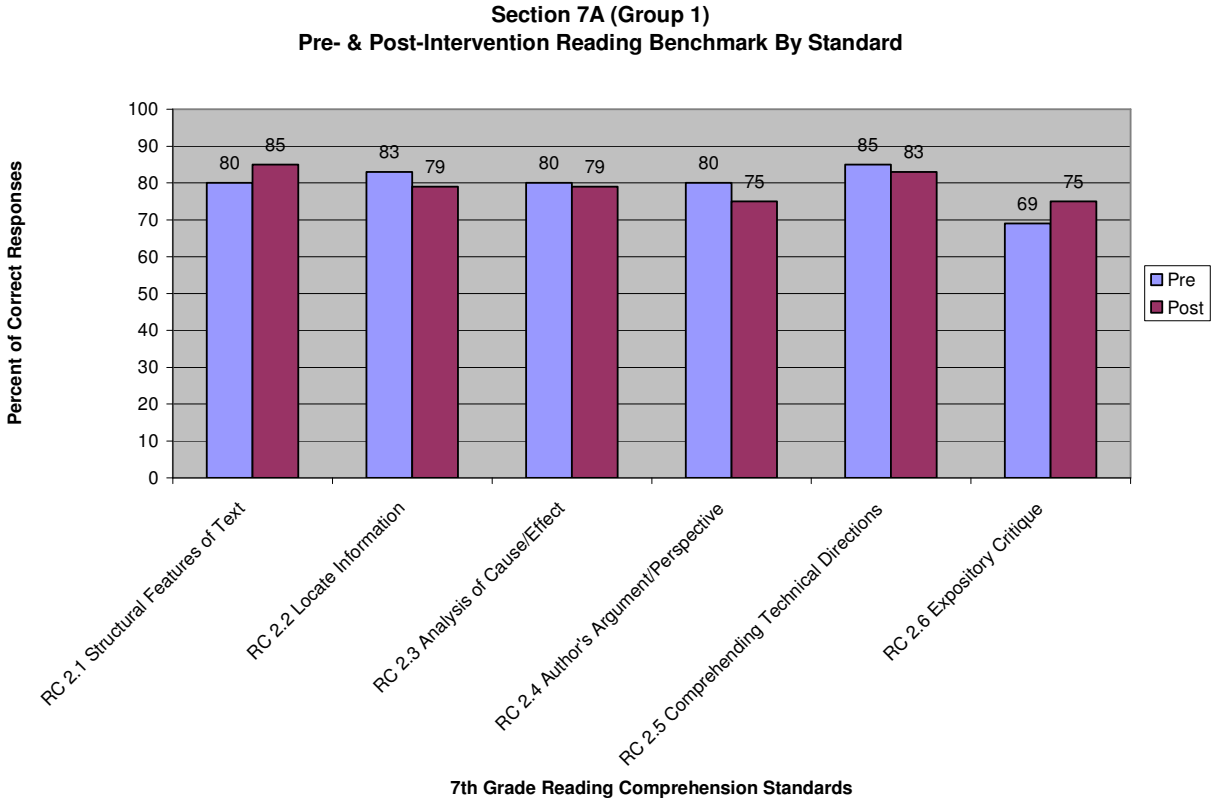


Figure 45. Group 1 Pre- & Post-Reading Benchmark Results by Standard (March 2007 & June 2007)

Of the two standards in which Group 1 students experienced growth, 7.2.1, Structural Features/Purpose of Informational Texts, was addressed through a mini-lesson at the start of the intervention window. Students were specifically encouraged to identify the structure of non-fiction texts they read throughout the intervention, an important before-reading strategy.

Unlike Group 1, Group 2 students raised their overall group average from the pre- to post-reading benchmark test from seventy-six to eighty percent (see Figure 46). Twenty-six Group 2 students took the pre-reading benchmark in March 2007, and twenty-seven students took the post-benchmark in June 2007.

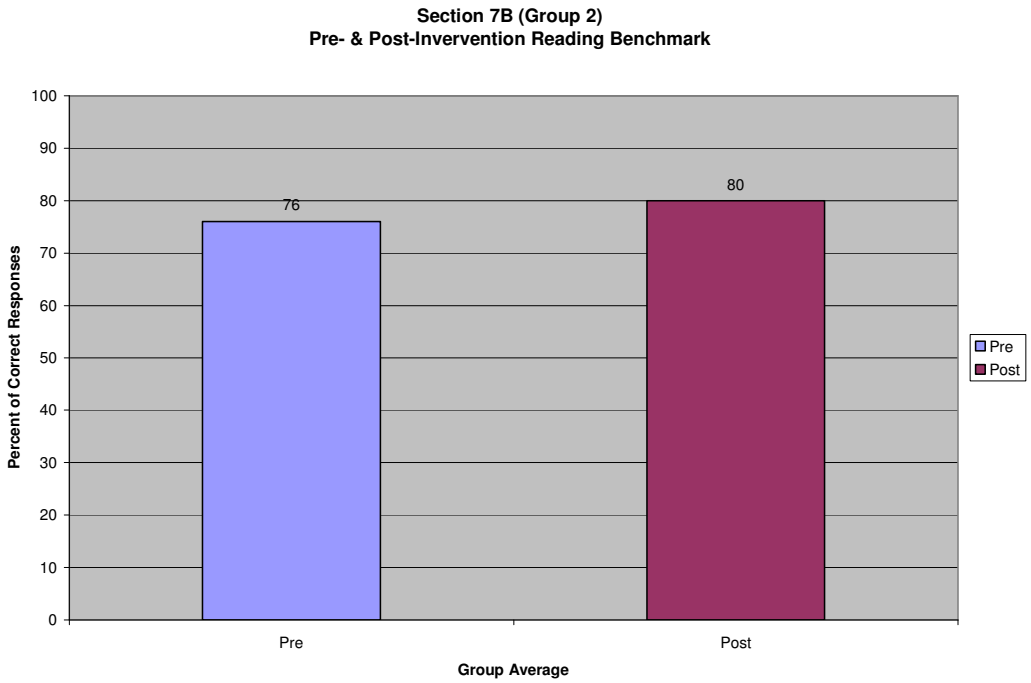


Figure 46. Group 2 Pre- & Post-Reading Benchmark Group Average (March 2007 & June 2007)

Compared with Group 1, in contrast, Group 2 students demonstrated growth on the benchmark post-assessment, which was consistent with other post-test results (see Figure 25).

Why the discrepancy in performance between these two groups? From an academic standpoint, the two classes of students were fairly evenly matched (see Figures 57 and 62), with an equal number of students enrolled in reading intervention classes. A quick analysis of their fall and spring semester final grades in English confirmed how similarly the classes performed academically (see Figure 47).

Two possible explanations stood out to the researcher for the differences in performance between Group 1 and Group 2. One was that Group 2 students were in the classroom at the beginning of the school day, hence they were better able to show their true performance not only on assessments, but also on the student survey (the post-benchmark assessment was administered to Group 2 students on the morning of the last day of school). A second possible explanation for

a distinct difference between the two classes of students rested on the researcher's past experiences with teaching these two groups. Group 1, which met in the afternoons, struggled with motivation for much of the school year. For example, their average rate of homework completion was much lower than that of Group 2 (59% versus 86% respectively). Conversely, the researcher noted that Group 2, who met in the morning, was a more motivated class, not only in completion of work, but also with participation. Although results of the reading journal tallies (see Figure 40) indicated that the majority of Group 2 students slacked off with journal entries by the conclusion of the survey, multiple testing data proved that they did indeed make progress in comprehending non-fiction texts. Consistent with earlier conjectures, it was highly likely that Group 1 results were more of a reflection of student motivation and attitude as opposed to actual student cognitive progress.

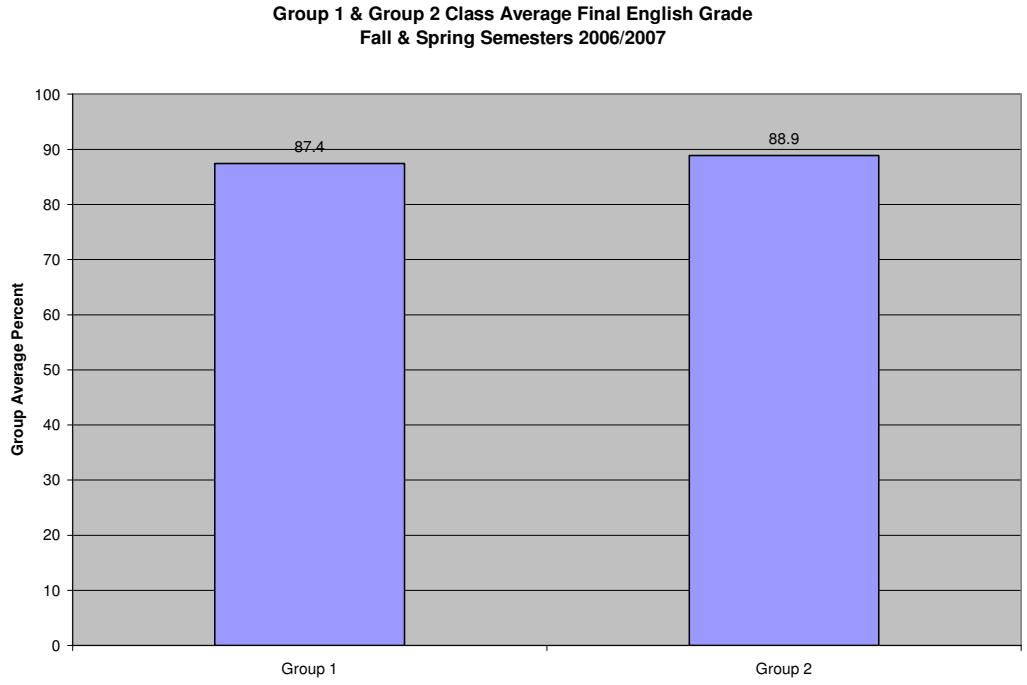


Figure 47. Group 1 & 2 Comparison of Final English Course Grades

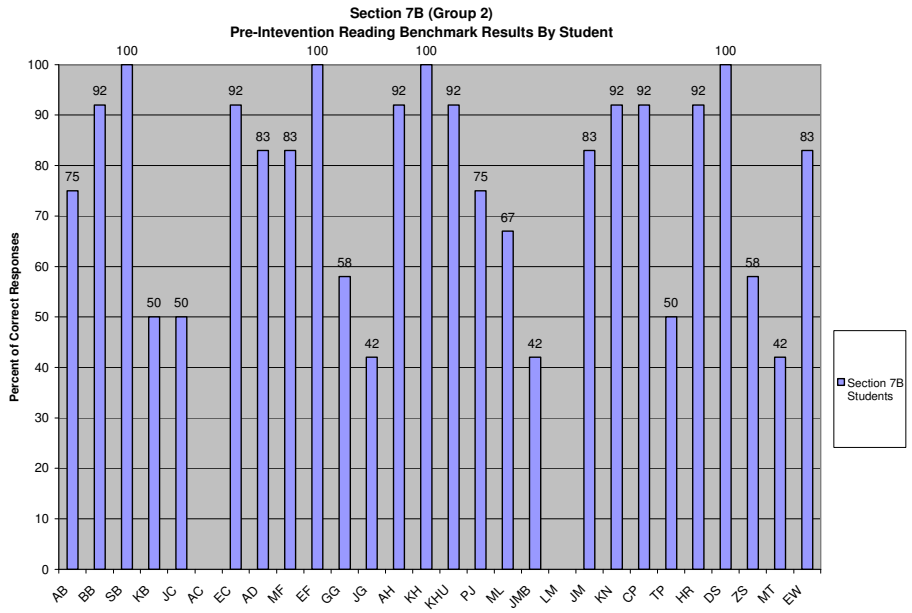


Figure 48. Group 2 Pre-Reading Benchmark Results by Student (March 2007)

Of the twenty-six Group 2 students who took the pre-reading benchmark test, seventeen scored at or above, and nine students scored below the study's target proficiency of seventy-five percent (see Figure 48).

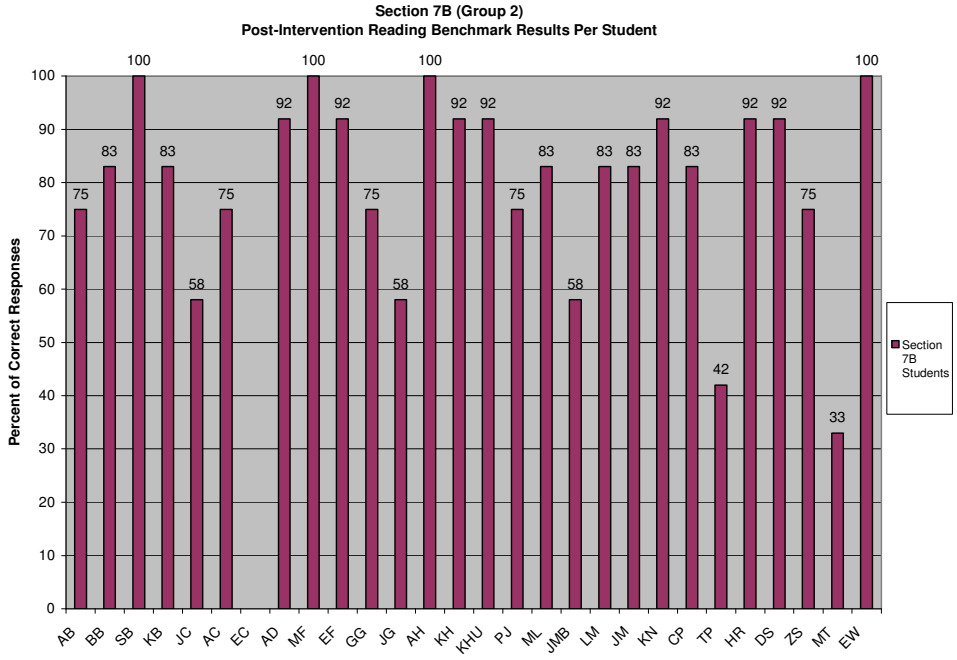


Figure 49. Group 2 Post-Reading Benchmark Results by Student (June 2007)

On the post-test, twenty-two Group 2 students scored at or above the target proficiency of seventy-five percent, and five students scored below (see Figure 49).

Why did Group 2 post-test scores improve between the pre- and post-benchmark assessments? There was consistent evidence, presented in this research study, which affirmed Group 2 student growth in reading comprehension over the course of the ten-week intervention. Academically, this particular group of students was evenly matched with Group 1; however, Group 2 interest in reading, as evidenced in the survey, rose significantly higher than did the other class of students. Although they collectively read fewer pages (see Figure 33), Group 2 students demonstrated consistent growth in pre- and post-intervention assessments. As stated earlier the researcher observed that this class was collectively more motivated, and met during the first part of the school day, both of which most likely contributed to increased student attitude and focus throughout the study.

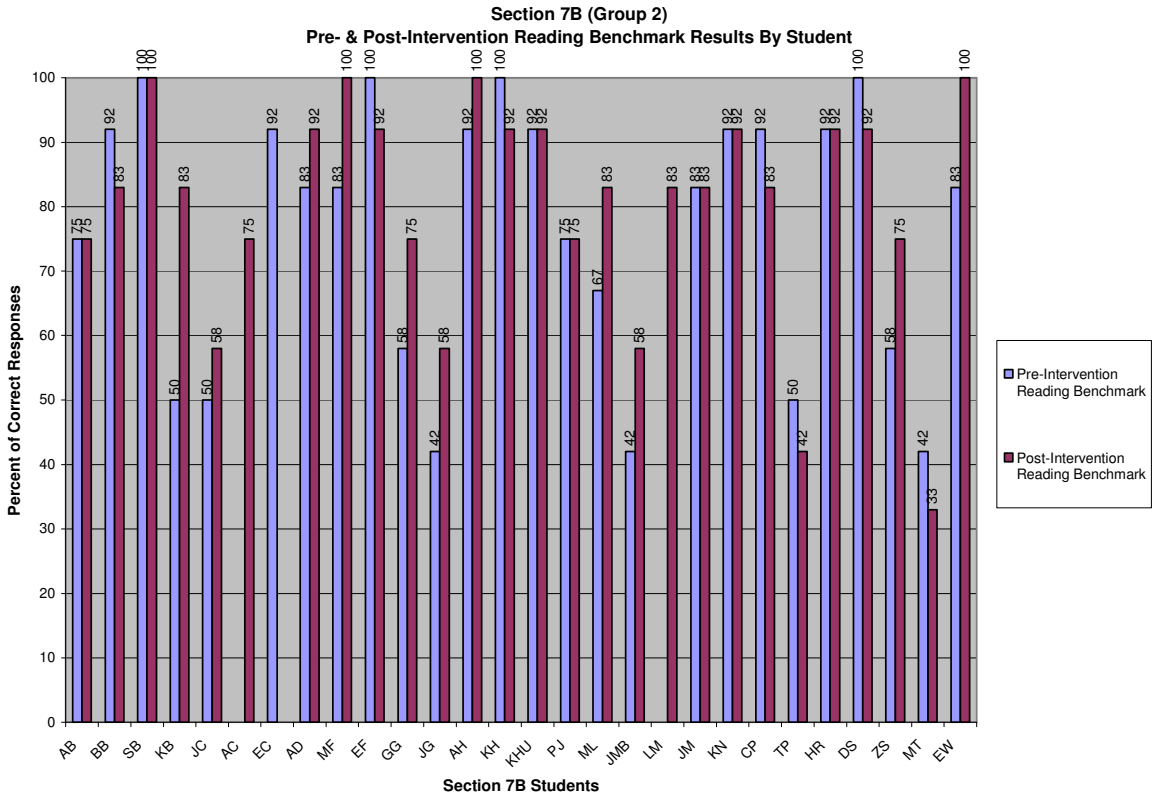


Figure 50. Group 2 Pre- and Post-Reading Benchmark Results by Student (March 2007 & June 2007)

Figure 50 shows a comparison of Group 2 student data from the pre- and post-reading benchmark tests. Of the twenty-five students who took both tests, seven (28%) slipped from pre- to post-benchmark, another seven (28%) students' scores remained the same, and eleven (44%) students' scores improved. All seven Group 2 students who earned the same percentage on both the pre- and post-benchmark tests scored at or above the study target proficiency of seventy-five percent. This data highlighted the growth made by Group 2 students between the pre- and post-assessments, and while a small number of students slipped, seventy-two percent of the students' scores either remained the same (and at proficiency) or improved from the first administration of the assessment.

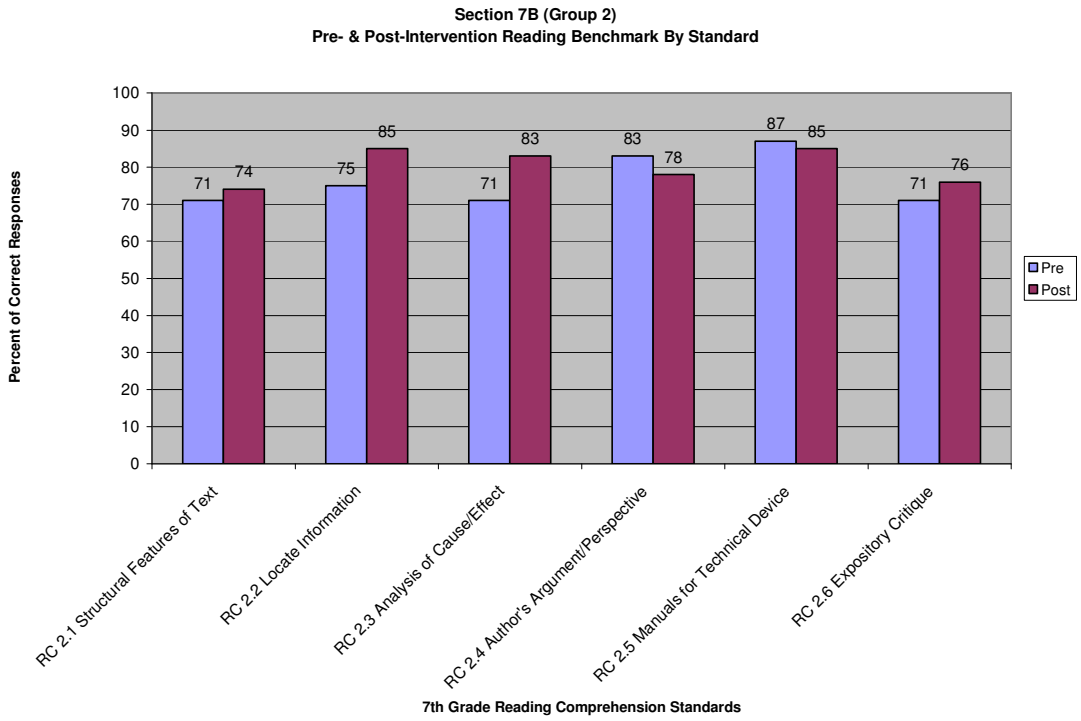


Figure 51. Group 2 Pre- & Post-Reading Benchmark Results by Standard (March 2007 & June 2007)

Figure 51 shows that Group 2 student scores improved on four of the six reading comprehension state standards for seventh grade students: Structural Features/Purpose of Informational Texts (RC 7.2.1), Locate Information (RC 7.2.2), Analysis of Cause/Effect in Texts (RC 7.2.3), and Expository Critique (RC 7.2.6). For standard 7.2.1, Group 2 student scores rose from seventy-one to seventy-four percent. For standard 7.2.2, scores improved from seventy-five to eighty-five percent. Student scores for standard 7.2.3 climbed from seventy-one to eighty-three percent, and for standard 7.2.6, scores rose from seventy-one to seventy-six percent. The remaining two tested reading comprehension standards showed decreases: RC 7.2.4 (Author's Argument/Perspective) dropped from eighty-three on the pre- to seventy-eight on the post-benchmark and RC 7.2.5 (Manuals for Technical Devices) slipped from eighty-seven to eighty-five percent, RC 2.4.

Across-the-board, Group 2 students exhibited growth between the pre- and post-reading benchmark assessments. While three of the six tested standards on the pre-test showed a group average score below seventy-five percent proficiency, on the post-test, five out of the six tested standards reflected a group average score *above* the study's target proficiency of seventy-five percent.

Reading comprehension standard 7.2.1 was explicitly taught at the start of the intervention, and similar to Group 1, Group 2 students showed growth in their ability to identify structure of non-fiction texts. This important before-reading strategy was not only observed by the researcher as students began new non-fiction reading selections, but in some cases, was also observed in student journal writings (see Appendix J).

Consistent with other intervention assessments, Group 2 students manifested growth across the majority of the tested standards in the post-assessment. Of the standards tested, several were reinforced by frequent practice of talking to the text via *Think Aloud* bookmarks (WestEd, 2002), for example, with standard 7.2.3, where students were required to analyze cause and effect patterns in texts.

The researcher noted there were some surprises. Despite a unit earlier in the school year on reading technical manuals, Group 2 students declined slightly in this standard. This slip (from 87% to 85%) was not as great a concern, however, since Group 2 had scored above seventy-five percent proficiency. Another surprise was that despite a "dropping off" in attention given to detail in their last reading journal entries (see Figure 40), Group 2 students did prove they were capable of understanding informational materials on the benchmark post-assessment.

Between the two groups of students, Group 2 outperformed Group 1, and demonstrated growth in their ability to comprehend non-fiction texts. As noted earlier, this was a consistent trend for Group 2 throughout the majority of the intervention. It was possible that had Group 1

been given the post-assessment earlier in the day, they might also have shown greater progress, but of course, this was purely speculation on the researcher's part.

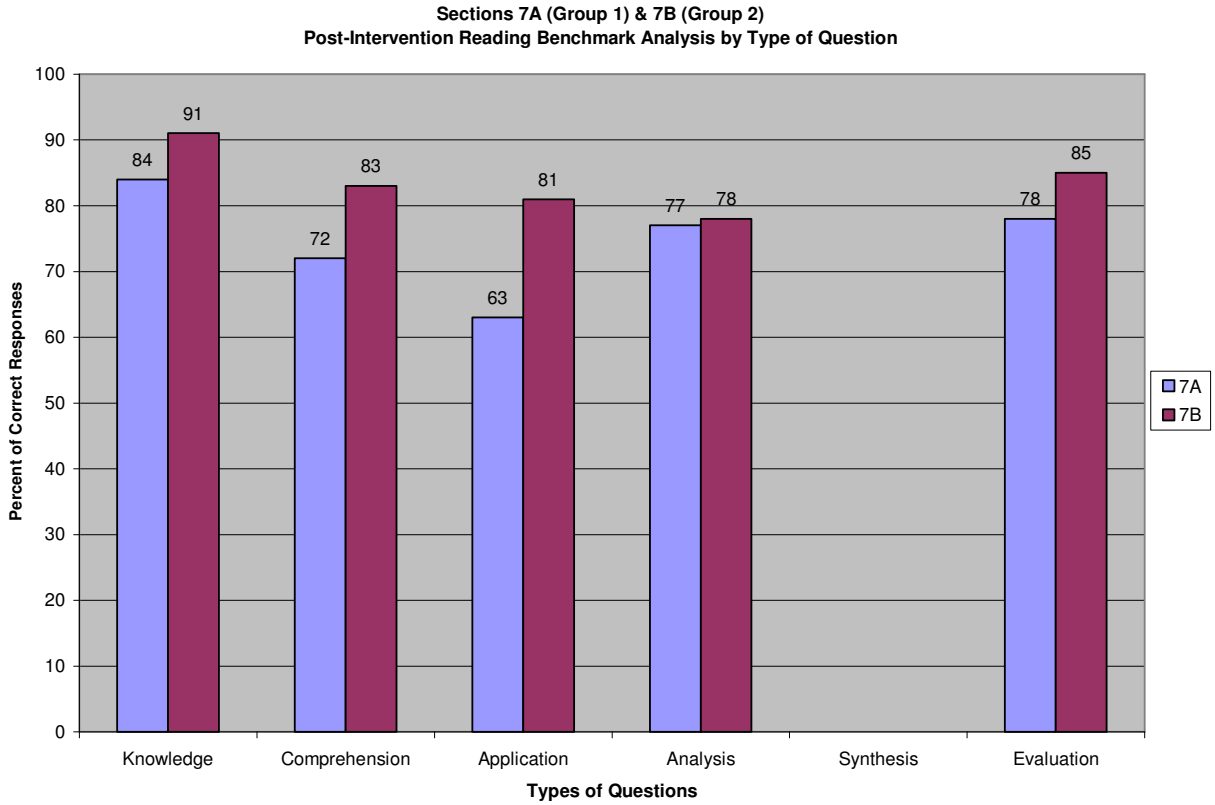


Figure 52. Group1 & Group 2 Group Average Scores by Type of Question (Bloom's)

Figure 52 provides a view of the types of questions asked of students on the post-intervention reading benchmark assessment using Bloom's Taxonomy and comparing post-benchmark group average scores for Group 1 and Group 2.

Group 1 students scored highest on the knowledge level of questioning, at eighty-four percent. Group 2 students also scored highest in knowledge, at ninety-one percent. This is consistent with progress made on the content-reading post-assessment for both groups (see Figures 24 and 31).

The level of questioning that proved to be most challenging for Group 1 students was application (63%), which was inconsistent with their results for the content-reading post-assessment (they scored higher; see Figure 24). It was difficult for the researcher to pinpoint the cause of the discrepancy between the two test results for Group 2 students; however, given that the benchmark post-assessment was administered on the afternoon of the last day of school, and this group in general had fluctuated in academic motivation, student attitude *may* have played a role in the inconsistent results for this questioning category.

For Group 2 students, the most challenging level of questioning was analysis (78%); however, the researcher noted that when compared with the same questioning category on the post-study reading content test (see Figure 31), they performed better on the "analysis" questioning level on this second intervention assessment. The two post-assessments were administered days apart from each other, so a possible explanation for greater progress on the benchmark test might be that the question for "analysis" on the post-content reading exam was more difficult than the corresponding question on the post-benchmark. Although this was the lowest performing area for Group 2, given that they performed above the study's target proficiency of seventy-five percent, the results were not of critical concern to the researcher. The researcher found Group 2 student outcome on the post-benchmark assessment to be very positive because in every questioning category they showed impressive growth, highlighting the consistent progress made by this class of students. Lastly, the researcher noted that no questions on the pre- and post-benchmark assessments were aligned with Bloom's synthesis level of questioning.

Overall, Group 2 students outperformed Group 1 students on the post-reading benchmark assessment, demonstrating growth in reading comprehension from the beginning to the conclusion of the intervention window. Nevertheless, as the individual student and standard

analyses demonstrated, a number of Group 1 students made gains on reading comprehension standards, from the pre- to post-intervention reading benchmark assessments.

Comparison of 2006 & 2007 California Standards Test Results

A final important piece of data analyzed at the conclusion of this study were the results of the California Standards Test, comparing student scores in the reading comprehension strand for the 2005/2006 and 2006/2007 school years. The findings were examined through two lenses: overall group and individual student results for each section of students in this study.

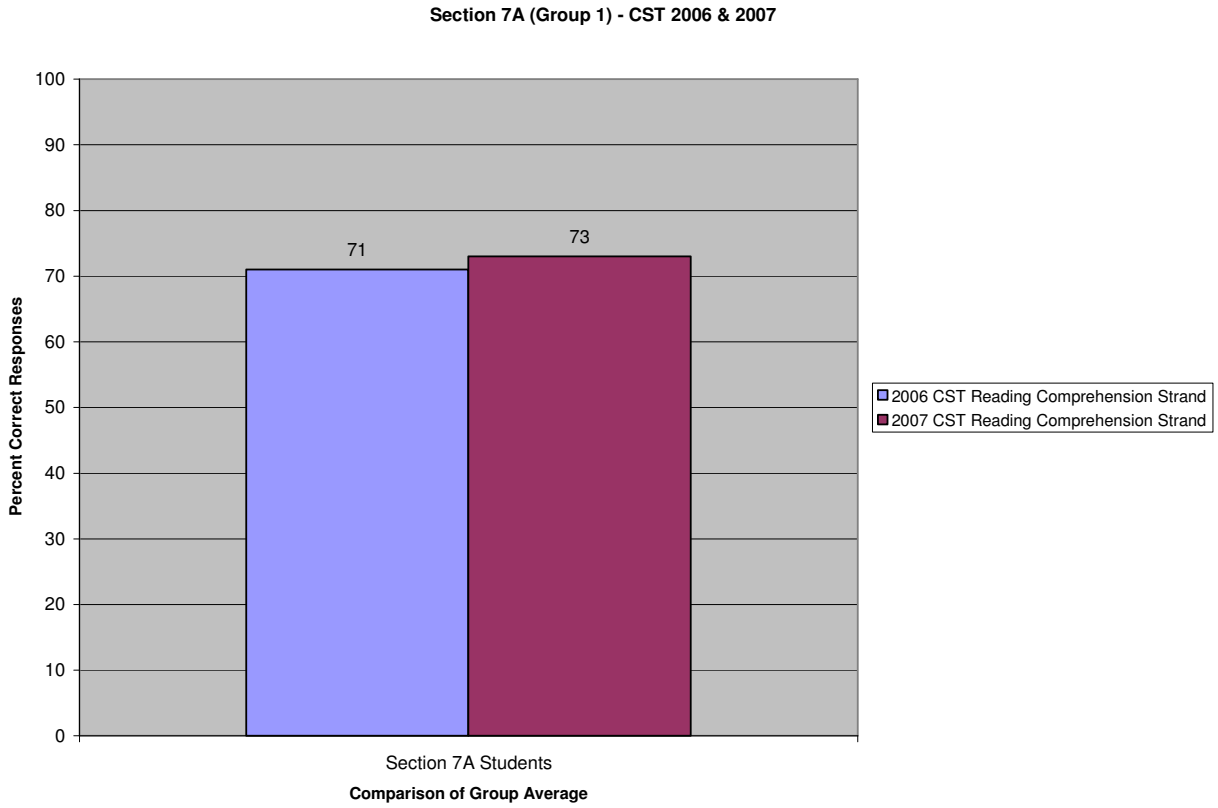


Figure 53. Group 1 2006 & 2007 Reading Comprehension Strand Results

Figure 53 presents a comparison of the percent of correct responses for the reading comprehension strand on the 2006 and 2007 California Standards Test for Group 1. On the 2006

California Standards Test, the Group 1 average of correct responses on the reading comprehension strand was seventy-one percent. One year later, on the 2007 California Standards Test, Group 1's average of correct responses in reading comprehension rose to seventy-three percent, for a growth of two percent.

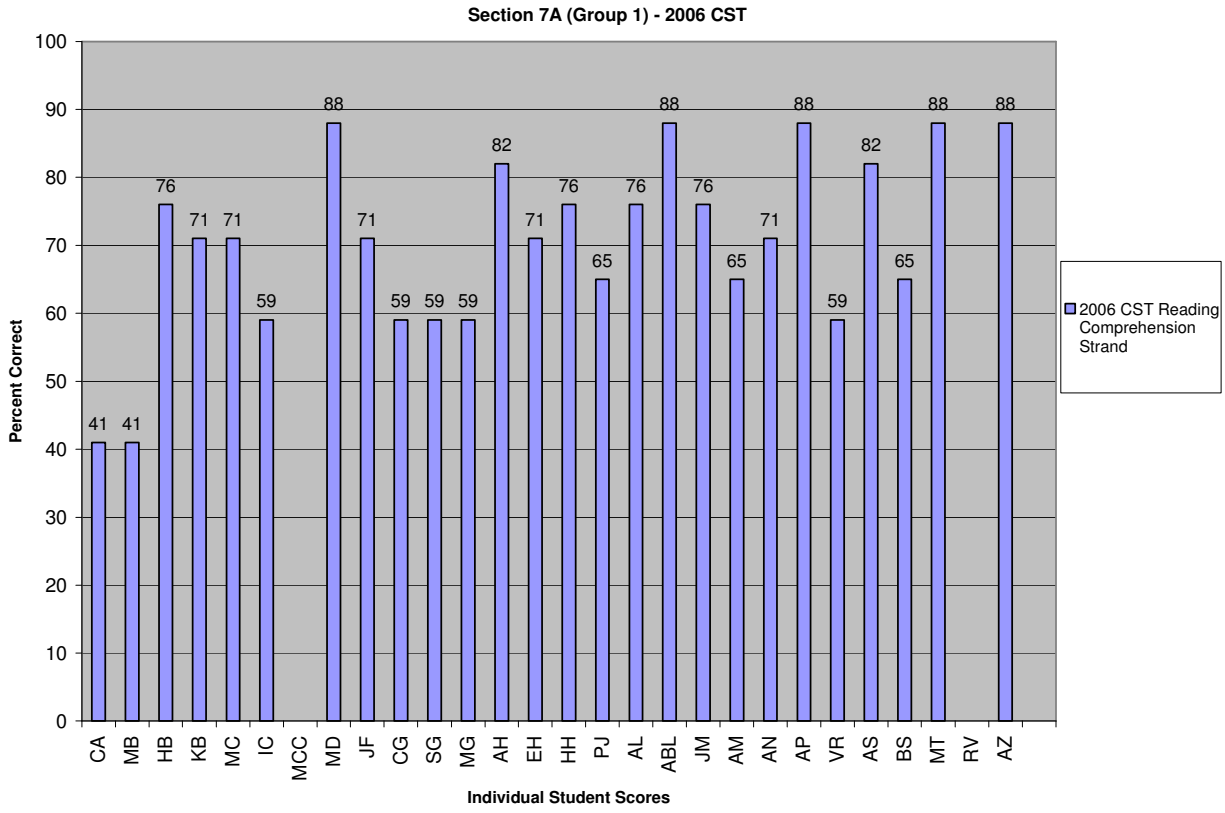


Figure 54. Group 1 Reading Comprehension Strand Results (2006)

Individual Group 1 student results on the 2006 California Standards Test reading comprehension strand revealed that out of the twenty-eight tested students, fifteen scored below seventy-five percent and eleven students scored at or above the study's target proficiency of seventy-five percent. It should be noted that 2006 California Standards Test results were not available for two of the students (see Figure 54).

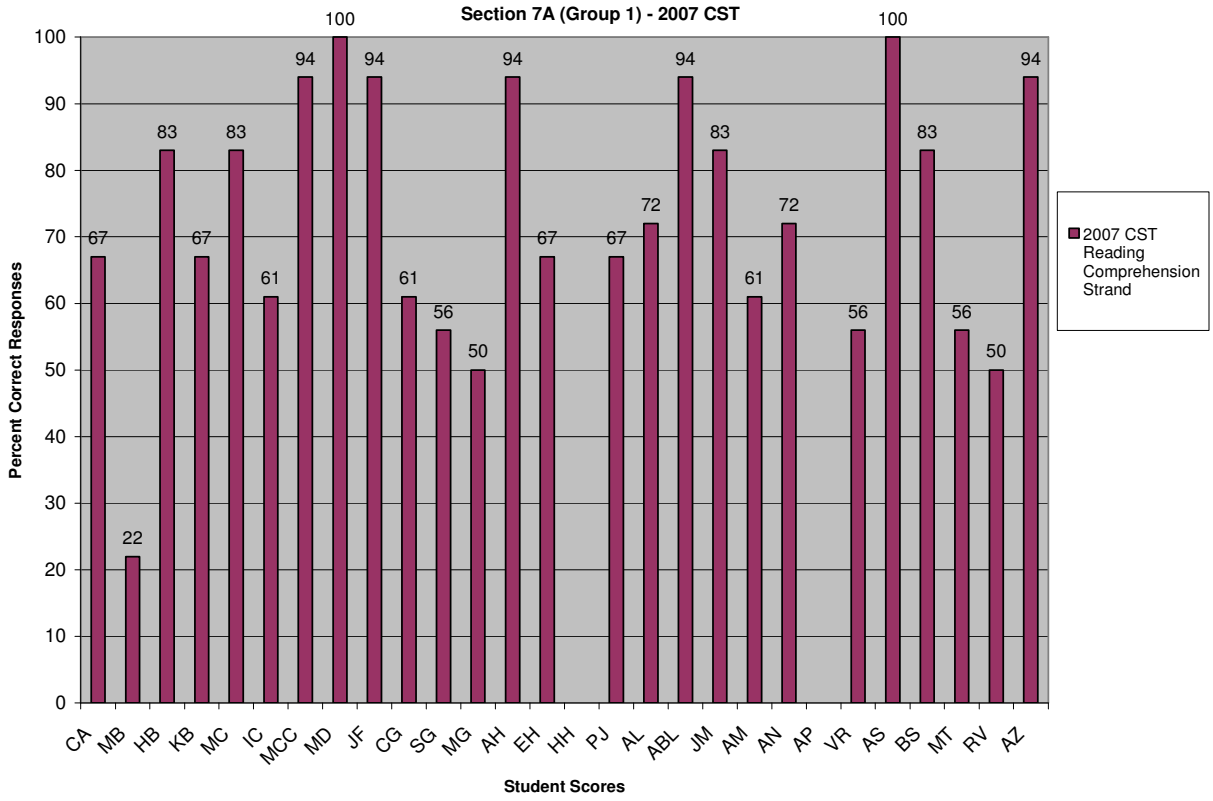


Figure 55. Group 1 Reading Comprehension Strand Results (2007)

The individual student results on the 2007 California Standards Test reading comprehension strand demonstrated that the same number of students scored below (15) and at or above (11) seventy-five percent as on the 2006 California Standards Test; 2007 California Standards Test results were not available for two of the students (see Figure 55).

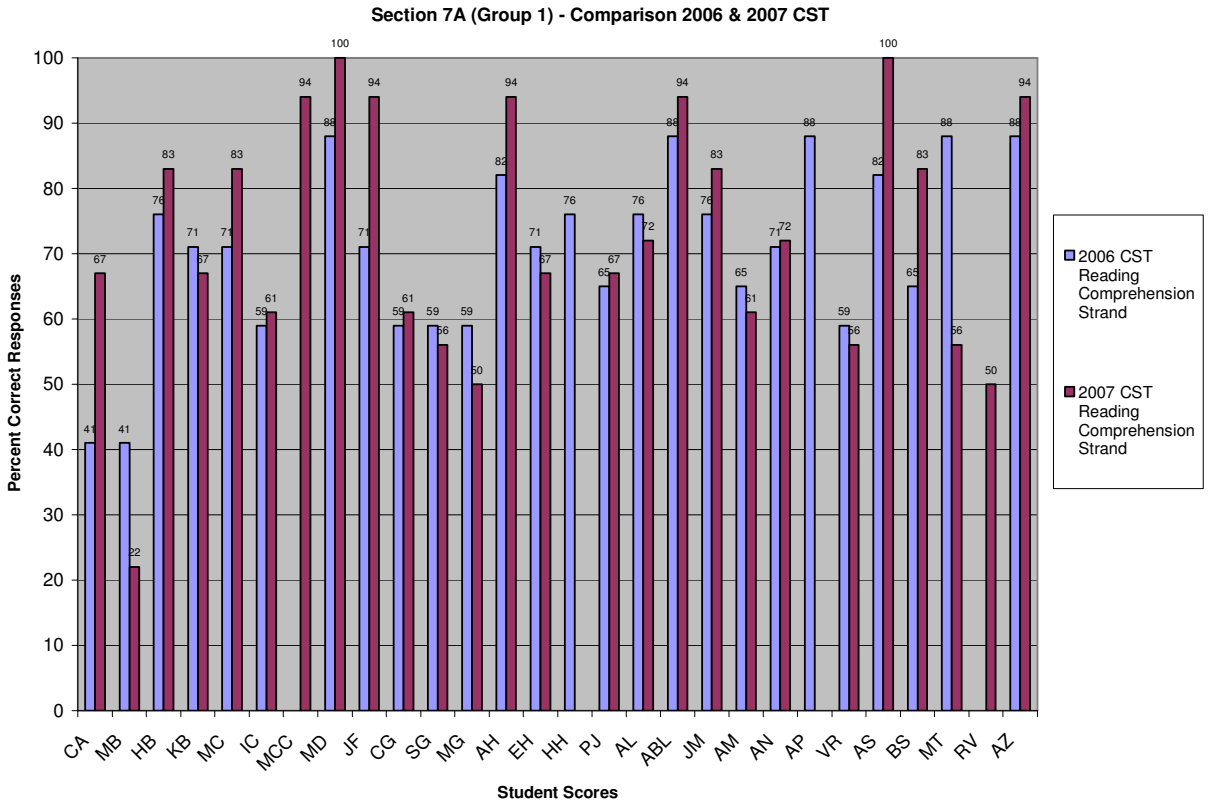


Figure 56. Group 12006 & 2007 Individual Student Reading Comprehension Results

Figure 56 shows a comparison of Group 1 individual student results on the 2006 and 2007 California Standards Test for the reading comprehension strand. A closer examination of individual data for Group 1 students revealed that nine students (38%) dropped and fifteen students (63%) improved on reading comprehension strand questions from the 2006 to the 2007 California Standards Test. It should be noted that because of unavailable data for Group 1 students who were either new to the school in the fall of 2006 or who withdrew during or at the conclusion of the 2006-2007 school year, these last results were based upon a complete set of data for a total of twenty-four students.

Group 1 overall performance on the 2007 California Standards Test reading comprehension strand questions marked improvement from the previous year. Because the same

number of students scored at the study target proficiency of seventy-five percent from the 2006 to the 2007 California Standards Test for the reading comprehension strand, the researcher did not assume that individual students did not grow in comprehension. A look at overall student growth presented a clearer picture of student progress.

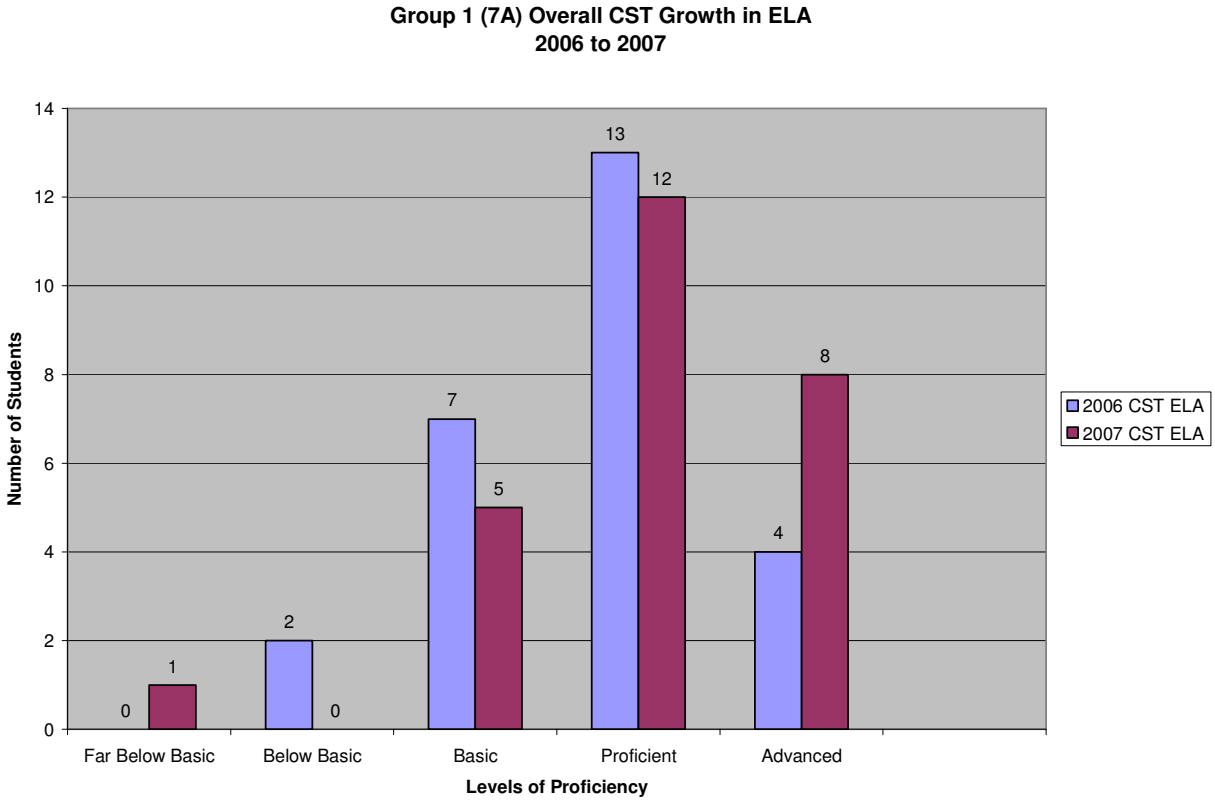


Figure 57. Group 1 CST 2006 & 2007 CST Growth in English Language Arts

Figure 57 displays a comparison of Group 1 overall growth on California Standards Test English language arts strands. With the exception of one student who shifted down to far below basic, there was a trend of upward growth for Group 1 students from the 2006 to the 2007 test for English language arts strands. An important comparison is the number of students who shifted or remained at proficient and advanced levels, from a combined sixty-five percent on the 2006 California Standards Test to a combined seventy-seven percent on the 2007 assessment.

While overall Group 1 student growth on the 2007 California Standards Test reading comprehension strands was minimal when compared to the study proficiency target of seventy-five percent, the group of students showed remarkable growth in *overall* English language arts strands. Minimal growth in reading comprehension strands aside, this group of students showed improvement in reading comprehension, which may have been a direct result of their participation in the intervention.

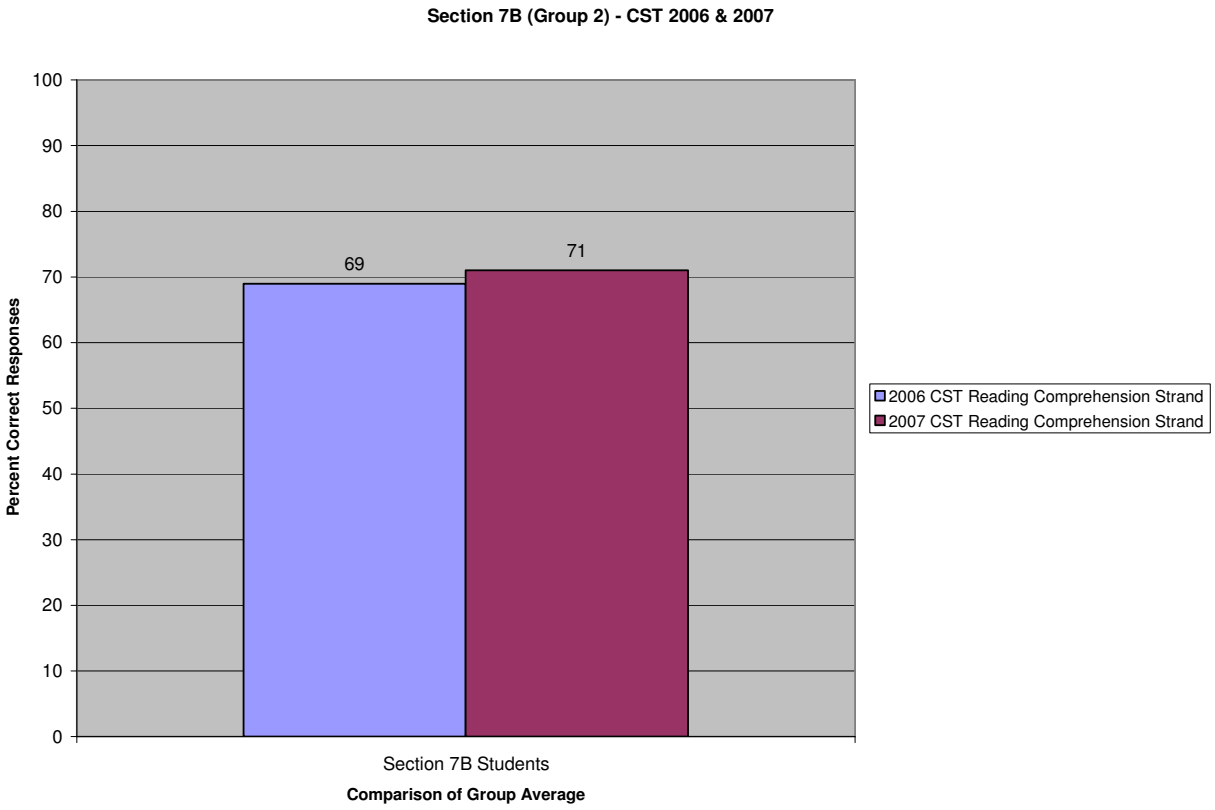


Figure 58. Group 2 2006 & 2007 Reading Comprehension Strand Results

Figure 58 displays a comparison of the percent of Group 2 correct responses for the reading comprehension strand on the 2006 and 2007 California Standards Test.

On the 2006 assessment, the Group 2 average of correct responses on the reading comprehension strand was sixty-nine percent. One year later, on the 2007 California Standards

Test, Group 2's average of correct responses in reading comprehension rose to seventy-one percent, for a growth of two percent.

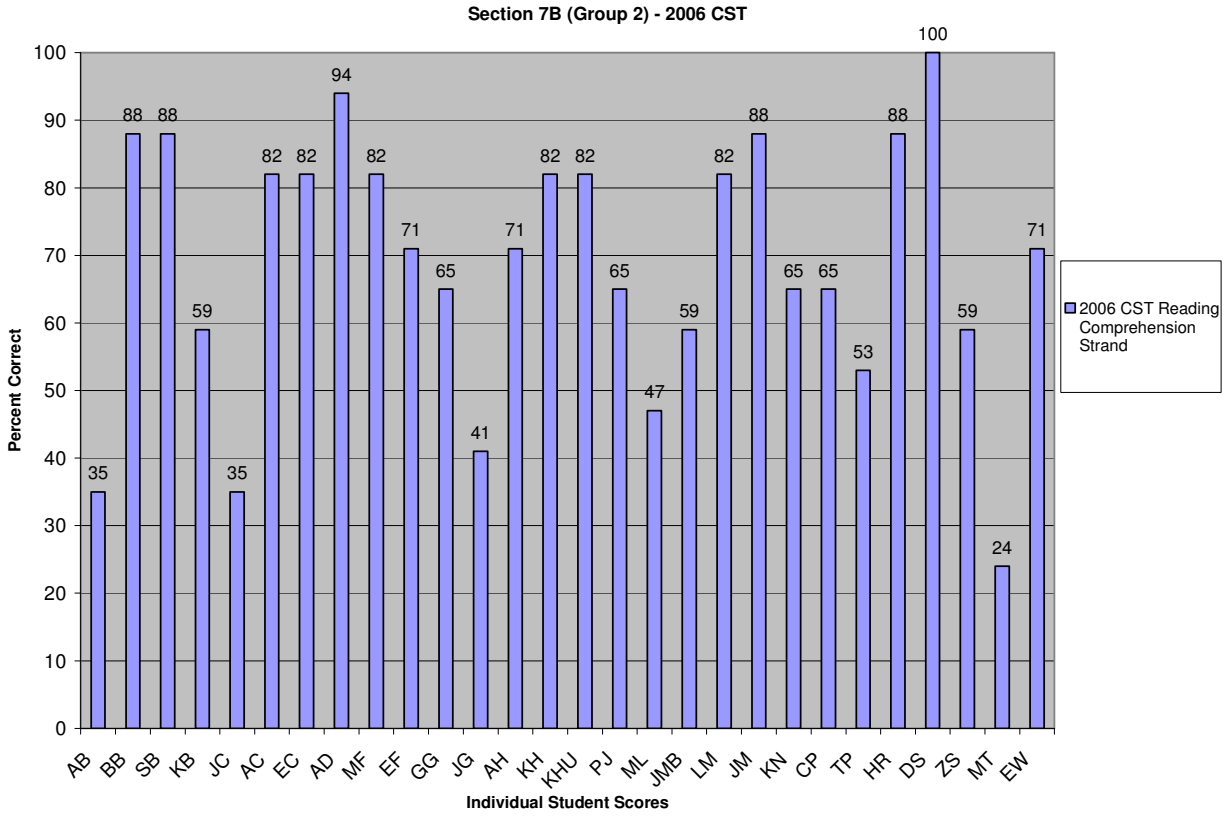


Figure 59. Group 2 Reading Comprehension Strand Results (2006)

Individual student results on the 2006 California Standards Test reading comprehension strand revealed that out of the twenty-eight tested students in Group 2, sixteen scored below seventy-five percent and twelve students scored at or above the study's target proficiency of seventy-five percent (see Figure 59).

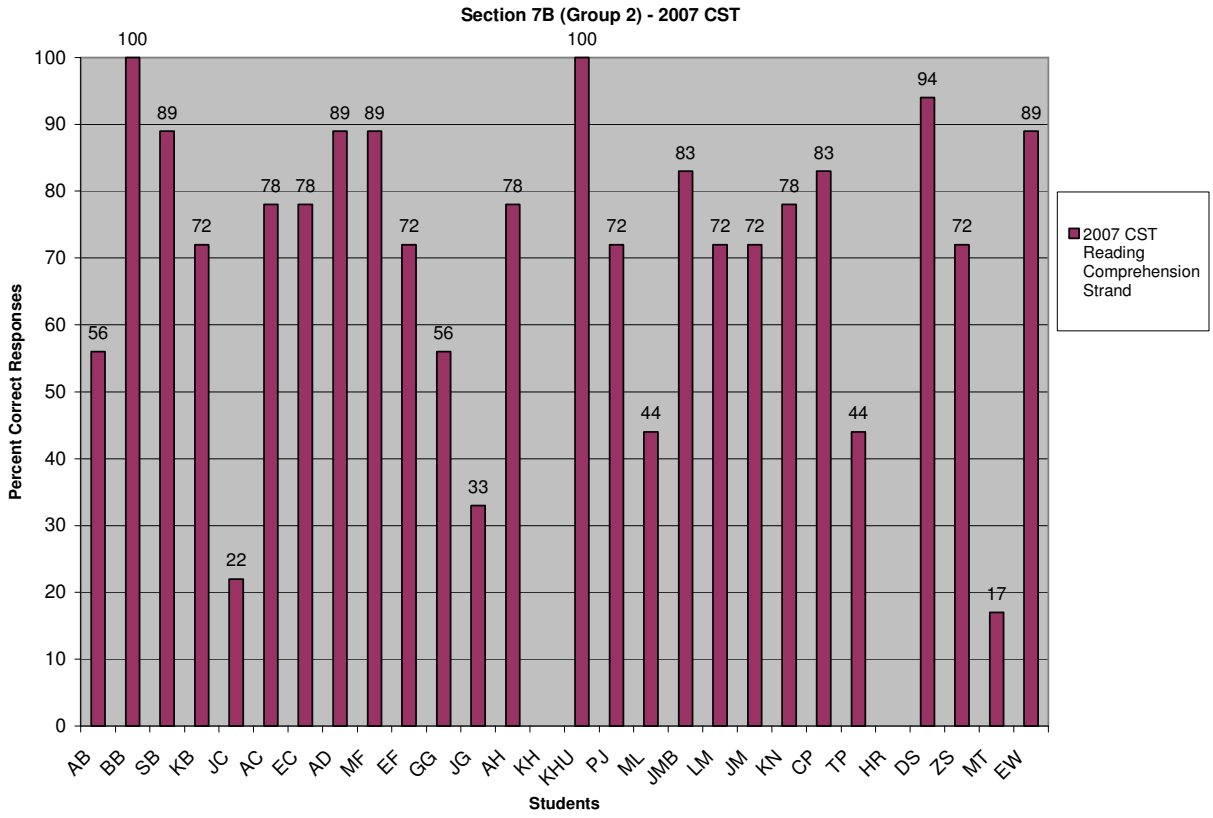


Figure 60. Group 2 Reading Comprehension Strand Results (2007)

Individual Group 2 student results on the 2007 California Standards Test reading comprehension strand showed that thirteen students scored below and thirteen students scored above the study's target proficiency of seventy-five percent. These results demonstrated a nineteen percent decrease in those scoring below and an eight percent increase in those scoring above the study target proficiency (see Figure 60). 2007 California Standards Test results were not available for two of the students in Group 2.

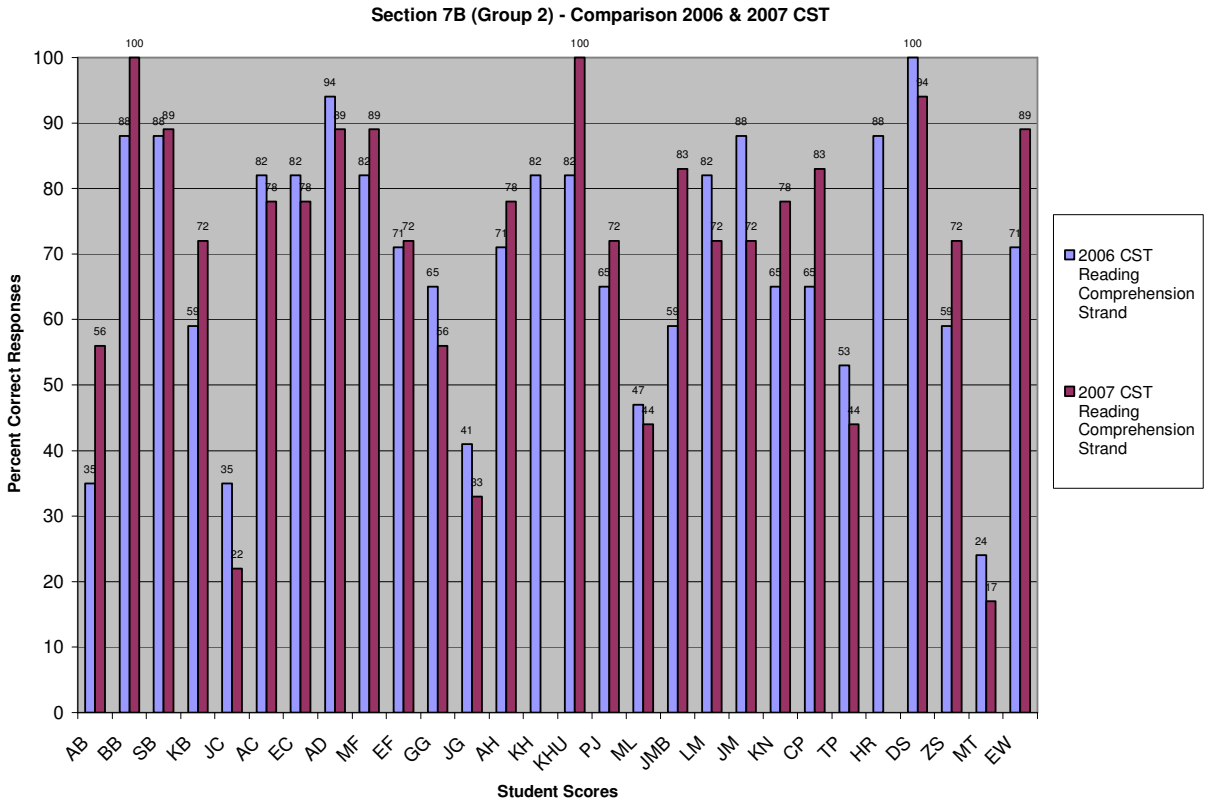


Figure 61. Group 2 2006 & 2007 Individual Student Reading Comprehension Results

Figure 61 displays a comparison of Group 2 individual student results on the 2006 and 2007 California Standards Test for just the reading comprehension strand questions. A closer examination of individual results for Group 2 students revealed that twelve students (48%) dropped and fourteen students (56%) improved on reading comprehension strand questions from the 2006 to the 2007 California Standards Test. It should be noted that because of unavailable data for Group 2 students who were either new to the school in the fall of 2006 or who withdrew during or at the conclusion of the 2006-2007 school year, these last results were based upon a complete set of data for a total of twenty-five students.

Group 2 overall student performance on the 2007 California Standards Test reading comprehension strand questions marked improvement from the previous assessment. As proven

several times in this report, Group 2 student growth was steady and consistent from pre- to post-data, and the 2007 California Standards Test results highlighted this trend of upward progress, confirming that students in this class were better able to comprehend non-fiction texts by the end of the intervention window. A look at overall student growth in English language arts strands presented a more detailed picture of Group 2 student progress.

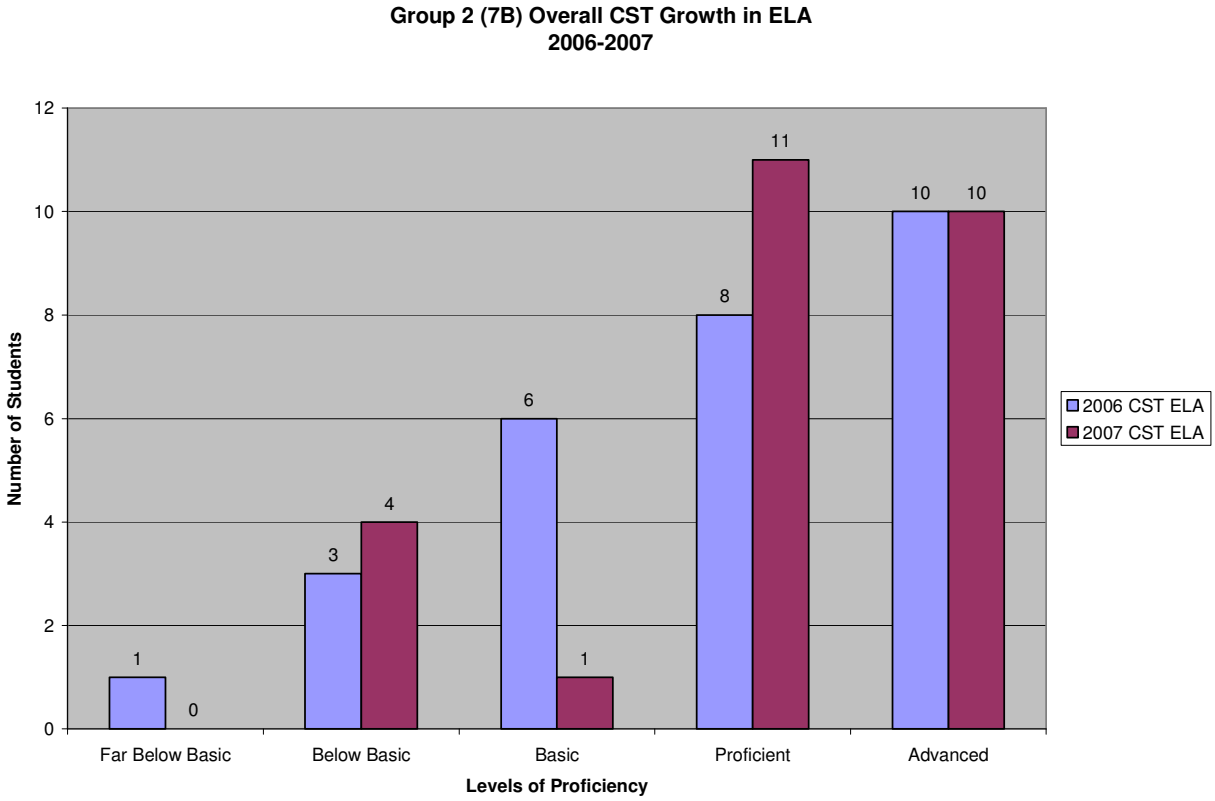


Figure 62. Group 2 CST 2006 & 2007 CST Growth in ELA

Figure 62 displays a comparison of Group 2 overall growth on California Standards Test English language arts strands. As with Group 1, for Group 2 students there was a trend of upward growth from the 2006 to the 2007 California Standards Test for English language arts strands. A dramatic comparison were the number of students who shifted or remained at proficient and advanced levels, from a combined sixty-five percent on the 2006 California

Standards Test to a combined eighty percent on the 2007 assessment. Consistent with most other points of data throughout this study, Group 2 students outperformed Group 1 even on the numbers of students who shifted from below to above proficiency in English language arts strands on the 2007 California Standards Test. The researcher also noted that no Group 2 students dropped downward to far below basic, but rather, the lone far below basis student rose up to the below basic proficiency level.

In conclusion, both classes of students showed growth on the 2007 California Standards Test reading comprehension strand as a collective group; individually, about half of the students in each group scored at or above the study target proficiency of seventy-five percent. The researcher noted that these findings added yet another important point of data in the assessment of student progress in reading comprehension.

Summary of Research Findings

Tables 5 and 6 summarize the quantitative findings from Group 1 and Group 2 pre- and post-intervention assessment results.

Table 5

Summary of Group 1 Results from Pre- & Post-Intervention Assessments

Group 1 (Section 7A)	2006 CST Reading Comprehension Strand (Pre-)	2007 CST Reading Comprehension Strand (Post-)	Content Reading Pre-Test (April)	Content Reading Post-Test (June)	Aspire Reading Benchmark – Reading Comprehension Standards (March)	Aspire Reading Benchmark – Reading Comprehension Standards (June)
Total Number Tested Students	26	26	27	27	27	26
Group % Correct Responses	71%	73%	62%	67%	80%	79%
Number of Students Who Improved From Pre- to Post-Assessment (showed gain from pre- to post-test)		15		15		8
Number of Students Who Were At/Above 75% Target Proficiency	11 (42%)	11 (42%)	6 (22%)	10 (37%)	20 (74%)	18 (69%)

Table 6

Summary of Group 2 Results from Pre- & Post-Intervention Assessments

Group 2 (Section 7B)	2006 CST Reading Comprehension Strand (Pre-)	2007 CST Reading Comprehension Strand (Post-)	Content Reading Pre-Test (April)	Content Reading Post-Test (June)	Aspire Reading Benchmark – Reading Comprehension Standards (March)	Aspire Reading Benchmark – Reading Comprehension Standards (June)
Total Number Tested Students	28	26	27	27	26	27
Group % Correct Responses	69%	71%	67%	71%	76%	80%
Number of Students Who Improved From Pre- to Post-Assessment (showed gain from pre- to post-test)		14		14		11
Number of Students Who Were At/Above 75% Target Proficiency	12 (43%)	13 (50%)	9 (33%)	11 (41%)	17 (65%)	22 (81%)

Between the two experimental groups, the students in Group 2 showed more consistent growth across-the-board than did Group 1 students (see Tables 5 and 6). The numerical data for Group 1 and Group 2 students, however, reflected individual student growth in both classes.

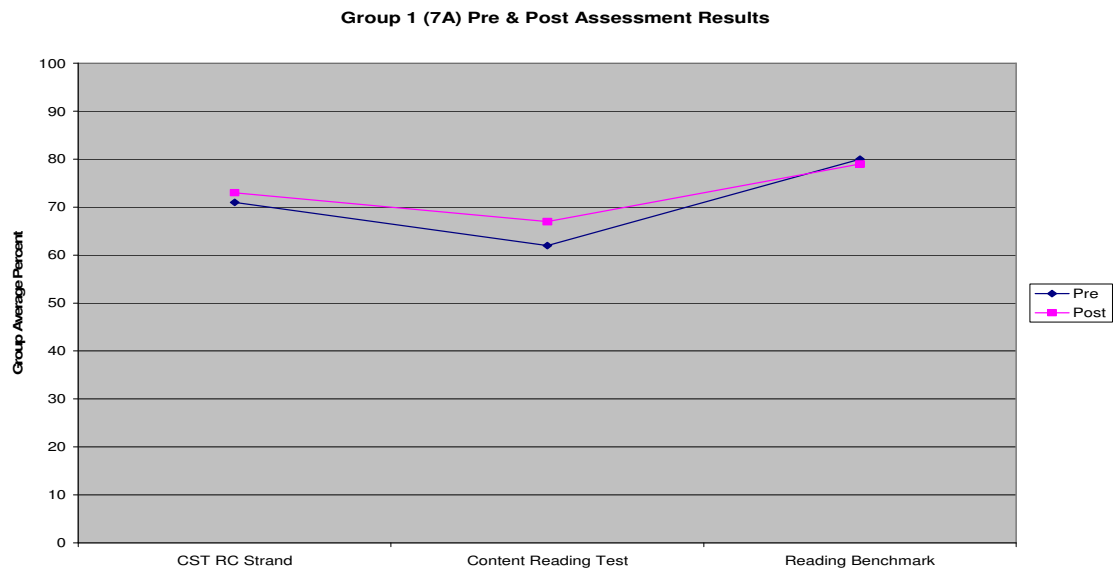


Figure 63. Group 1 Comparison Pre & Post Assessment Results

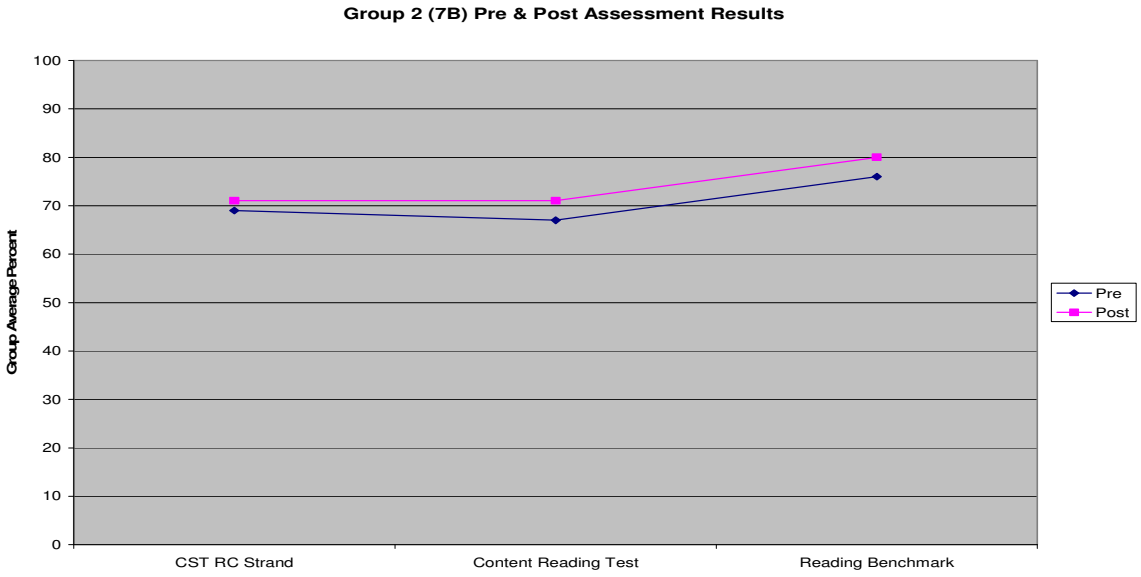


Figure 64. Group 2 Comparison Pre & Post Assessment Results

The study's qualitative data, partly derived from the reading log tally and student use of reading strategies in journal writing, demonstrated an interesting trend to the researcher.

Students in Group 1 read more non-fiction items and more total pages than did Group 2 students (see Figures 33 and 34). In addition, the June reading journal entries from Group 1 students revealed an increased use of reading strategies and a reduction in copying directly from the text when reflecting upon what they read (see Figure 39). Yet, Group 2 students scored higher than Group 1 students on the study's post-assessments (see Table 6 and Figure 64).

One explanation for the lack of fluidity between evidence in reading journals, reading tallies and performance on post-assessments for Group 1, was that despite being fairly matched academically (see Figures 47, 53, and 58), based upon the researcher's experiences with instructing them, the group as a whole was not as motivated as Group 2. In addition, as a class, Group 1 typically scored lower than Group 2 on assessments throughout the year, including those outside of the intervention time period. While on paper the two groups appeared to be relatively matched (2006 CST results), overall Group 1 performance throughout the 2006-2007 school year was below that of Group 2. The researcher noted that Group 2 as a whole possessed a greater enthusiasm for learning, which may also have played a role in the discrepancy of results between the two classes of students. By the end of the intervention window, Group 1 students demonstrated understanding of how to use reading strategies, but this did not translate into consistent performance as a group on intervention post-assessments. It is essential to note that an average of thirteen students in Group 1 raised their scores from pre- to post-tests, and with a longer study period, Group 1 might have shown an increased average percent of correct responses.

Another source of qualitative data, the student questionnaire, revealed inconsistent perceptions and attitudes towards reading strategies and non-fiction texts by Group 1 students (see Figures 4 and 6). Overall, Group 2 student perceptions of their use of reading strategies and attitudes towards non-fiction informational materials *dramatically increased* between April and

June 2007 (see Figures 5 and 8). This was not the case, however, for students in Group 1. Their overall attitude towards reading either fiction or non-fiction was in some cases completely diminished according to their responses on the post-survey. A probable explanation for the drop in Group 1 student attitude was the timing of the post-intervention questionnaire, which students completed on the afternoon of the last day of school. The researcher hypothesized that the timing of the June survey may have reflected more of an urgency to complete the student questionnaire before the ringing of the last bell of the school year, than actual student perception about their use of reading strategies.

Two questions helped guide the focus of this action research study:

- Did students know how to infer and make meaning from non-fiction texts?
- Would more experience with reading and responding to informational materials boost student understanding of non-fiction texts?

Evidence from the study's assessments and qualitative data suggested that because of participating in the intervention, many students in both groups learned how to infer and make meaning from informational materials. While in some cases, the evidence from student reading journals indicated that some students rushed through writing reflections, an increased number of student entries revealed a growing trend in reading strategies being used and applied.

Would students who were scoring below proficiency in comprehending non-fiction subject-area texts be able to increase their understanding of informational materials after participating in ten weeks of content-reading intervention instruction? The quantitative and qualitative data from this action research study suggested that many students in Group 1 and Group 2 increased their understanding of non-fiction texts from April 2007 to June 2007.

Conclusions

The intervention data suggested that when students were provided with frequent opportunities to learn, practice, and apply reading strategies, their ability to comprehend and understand non-fiction texts improved. Post-assessments and journal entries further demonstrated that students learned to infer and make meaning through using reading strategies such as predicting, questioning, making connections, and tracking their own thinking while reading informational materials. In addition, research results established that student interest in reading non-fiction texts improved because of three variables: students were exposed to a wide variety of non-fiction materials, were afforded regular opportunities to read these texts in a quiet setting (silent sustained reading at school and independent reading at home), and were frequently extended the choice of what informational texts they wished to read. Opportunity, time, and choice were key factors to success with boosting student comprehension of informational materials in this intervention.

As a result of conducting this intervention, the researcher recommends that teachers incorporate all of the instructional approaches taken in this action research study within a framework of providing students with the *opportunity* and *time* to not only learn and practice reading strategies, but, whenever possible, to also afford students with *choice* in what types of non-fiction materials they read. It is vital that teachers cultivate and nurture student interest in non-fiction texts at the same level as is typically done for fictional materials. Creating opportunities for students to build regular reading routines in-class and at-home is important, along with building classroom libraries so that wide choices of informational materials are available to choose from. In addition to the approaches outlined in the intervention, it is further recommended that teachers provide students with a foundational knowledge and understanding of Bloom's Taxonomy. Teachers should not only build lessons and activities with Bloom's in

mind, but should also develop assessments along the levels of questioning, paying close attention to where their students' collective and individual strengths lie with regards to textual understanding. In other words, to not only spend time building students' ability to understand the surface of text (knowledge and comprehension), but to also provide frequent opportunities for students to navigate along higher levels of thinking (e.g. apply, analyze, synthesize and evaluate non-fiction texts). Another approach beyond the intervention that the researcher recommends teachers develop in their students is the practice of annotated notation. In annotated notation, students "talk to the text" by writing down their thoughts on small post-it notes as they read. The post-its are placed next to the text that prompts their thinking (e.g. questions, connections, and inferences that are made while reading). Students later read through their thinking (post-its), enabling them to not only think about their thinking (strengthening metacognition), but to also engender a deeper under-the-surface understanding of the texts. It is recommended that teachers frequently assess student perception and attitude towards their use of reading strategies, using questionnaires similar to those used in this study. The archaic practice of assigning readings out of books without teaching students how to access texts must be replaced with *frequent* cycles of instruction wherein all subject-area teachers model reading strategies, students apply reading strategies, and assessment of student use and application of reading strategies takes place.

Future research on boosting student comprehension of non-fiction texts should focus beyond a single classroom of students, and be conducted on a broader scale to include a wide array of subject-area classes. Exploration into how other single-subject teachers incorporate the use of reading strategies in their classes would provide insight into the value and importance of reading skills by all secondary instructors at the site. The on-site and Aspire-wide teacher survey conducted in this action research project revealed that many secondary teachers do not think

about how their students access text, nor do they necessarily perceive themselves as responsible for instructing or modeling reading strategies. Understanding non-fiction texts is paramount to success in higher education, and because secondary institutions are the gateway to higher learning, the importance of conducting action research on reading skills in secondary settings is critical. Educators must move beyond the assumption that students will figure out how to get around unfamiliar terms and text structures, and instead make the acquisition of understanding assigned texts an on-going and active objective supported in all subject-area courses by all subject-area teachers.

Recommendations

The data from this study suggested that through implementing a cyclical, strategic framework that provides students with the opportunity and time to learn, practice, and apply reading strategies, student comprehension of informational texts can be boosted. While this study focused upon increasing student reading comprehension within the context of an English language arts classroom, the following recommendations can be implemented in any subject-area course where students interact with non-fiction, informational texts.

Classroom Teachers

Teachers must outfit students with a strategic toolkit of approaches to reading that enables them to "unpack" text and dig below the surface of the printed page. These approaches should never be instructed in a vacuum, but rather, must be cycled throughout the school year in a simple sequence of instruction: modeling, practice, application, and evaluation (see Figure 65).

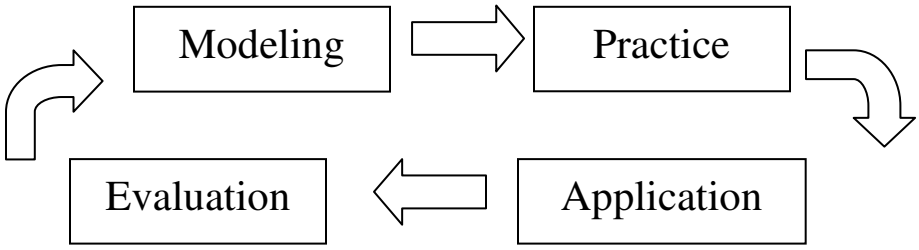


Figure 65. Sequence of Instruction

No matter the subject area, it is important at the start of a school year to provide students with an opportunity to analyze the organizational structure of course textbooks (see Appendix M). Students must come to realize that text is more than the printed word alone, and facts and ideas are presented in particular ways to help enhance learning, for example, through charts,

graphs, maps, and legends. These "structures of text" are keys to understanding further what is being presented in the informational material. An engaging activity that helps to quickly introduce students to a book's organizational structure is to create a textbook scavenger hunt, where students work either individually, in pairs, or small groups to locate a prepared list of items. Students search the book to find these items, for example, looking in the table of contents, index, glossary, maps, graphs, as well as the main body of the textbook. Activities like a textbook scavenger hunt aid in quickly building an awareness of how the book is structured and organized. Listing on chart paper the features that students find in various textbooks and materials and posting these in the classroom provide an easy reference for pupils to refer to as needed (see Appendix G).

A schoolwide daily independent reading requirement for students is strongly recommended (in-school: silent sustained reading; at-home: independent reading). English language arts teachers should determine an appropriate number of pages that students are to read daily in informational texts of their own choosing. This is separate from assigned readings (e.g. from literature), and will help to nurture and build student interest in informational texts. Teachers must ensure that students have access to a wide variety of informational texts within the classroom so as to help nurture student interest in reading non-fiction materials.

An essential way for students to make meaning is through writing in response to what they have read, using reading strategies as a means to relate the inner conversations they have when interacting with texts. Journal writing assignments are given as one avenue for students to respond to what they read. These writings provide teachers invaluable access into student understanding of non-fiction texts and, along with more formal, structured writing pieces based upon assigned readings, instructors are better able to assess the ways their students "unpack" non-fiction texts (see Appendix F).

All single-subject teachers at a school site should require similar journal assignments to those written for English language arts, using the texts students read as a part of their coursework (see Appendix F). It is strongly recommended that a rubric be created for the assessment of student journal writing, a rubric with common essential requirements that can be used across the departments so as to build a cohesive fluidity in teacher expectations of journal writing (reading response) assignments (see Appendix M).

Another key aspect of building student comprehension of informational materials is setting aside time to meet individually with students to talk about their reading. English language arts teachers can meet with students individually on a rotating basis during the classroom Silent Sustained Reading time period. Having students read excerpts from their journals to their teacher followed by discussion about what students notice in texts and about their use of reading strategies establishes an on-going conversation between student and instructor. Conferences further serve to provide information to the teacher about how students understand non-fiction texts. These conversations also help to validate to students the importance of sharing how they respond to what they read. Students can have similar sharing experiences with a peer partner or small discussion group, where the same text or related texts have been read by all group members.

The backbone of boosting student understanding of non-fiction materials is the teaching of reading strategies on a cyclical, rotating basis, commencing at the start of the school year. After students list out strategies they are already familiar with, teachers add missing skills to the list and these become the basis for cycled mini-lessons and for opportunities to practice the strategies. Materials, such as WestEd's (2002) *Reading Aloud* bookmark, can be incorporated as a tool for use by students to guide their thinking before-, during-, and after-reading (see Appendix H). When subject-area teachers not only value reading strategies, but also model their

own thinking-through text, they will impart to students the importance of building metacognition when reading.

The researcher further recommends that teachers instruct their students about Bloom's (1956) levels of questioning in order to provide them with a means to understanding how to transition from the surface of pages towards deeper levels of constructing knowledge from texts. Teachers should build assessments from assigned readings using Bloom's hierarchy of questioning, in similar fashion to the pre- and post-content reading assessments in this action research study. These assessments serve as a means to track their students' growth on all levels of Bloom's Taxonomy.

Student interest in non-fiction texts along with their use of reading strategies can be monitored through the administration of questionnaires similar to the one used in this study (see Appendix B). It is recommended that teachers survey students at the beginning, middle and end of the school year so as to track student attitude towards texts and to pinpoint areas that need more instruction or attention. For example, the data in this study revealed that the students preferred to read books and magazines over other genre of non-fiction texts. If this study had concluded earlier in the school year, the researcher would have focused on assigning future readings from other types of informational materials so as to build student interest in additional genres of non-fiction texts. Student surveys are an invaluable tool for tracking student growth in reading comprehension.

It is further recommended that teachers use available student data in order to trace growth in comprehension skills, starting at the outset of the school year to establish a baseline, and again whenever an in-house or district benchmark assessment is administered. Lastly, teachers should track the growth of their students by viewing end-of-the year state testing data to conduct a final cycle of inquiry of their students' achievements in reading comprehension.

Opportunity, time, and choice encompass the recommended steps teachers should take to boost their students' comprehension of informational materials. Key to the success of these steps is cycling the instruction, modeling, practice, and use of comprehension skills; repetition will provide a more consistent platform for successful student acquisition and application of reading strategies (see Figures 66 and 67).

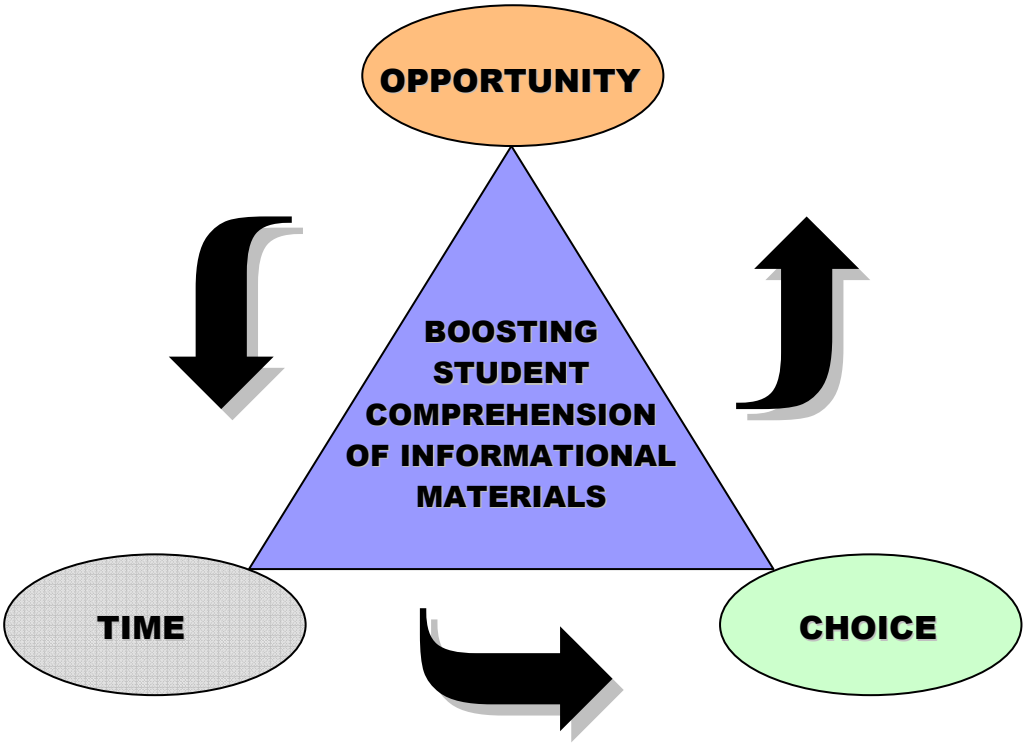


Figure 66. A Cycled Approach to Increasing Reading Comprehension

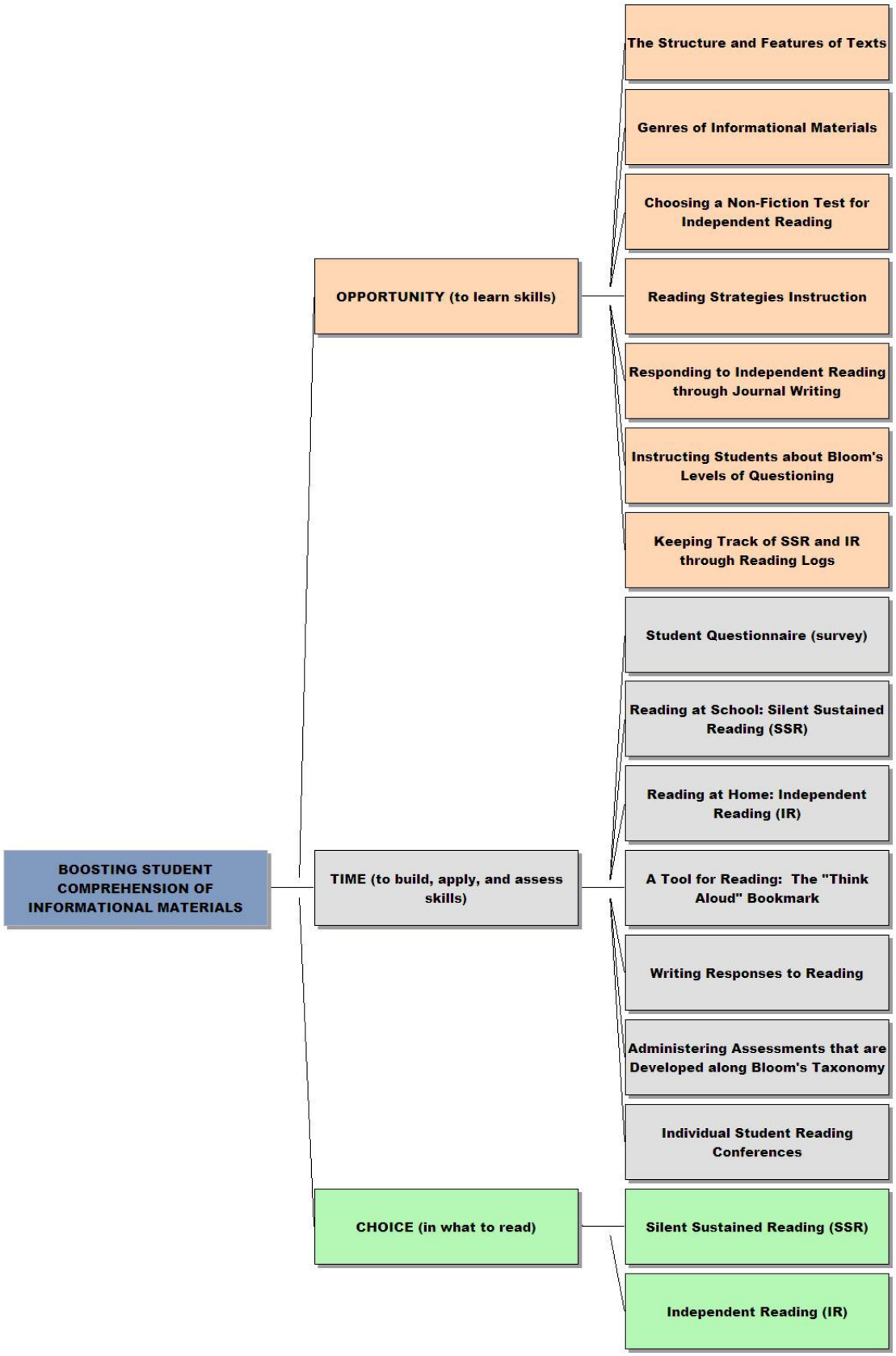


Figure. 67. Overview of Approach to Increasing Reading Comprehension of Non-Fiction Texts Administrators

As the key instructional leader at a school site, principals play an important role in ensuring that students increase their competence in comprehending non-fiction texts. The researcher recommends that site administrators work with department leaders to create a collaborative list of goals with regards to improving reading comprehension schoolwide, with the expectation that these objectives will be utilized, followed-through, and assessed in every subject area, not just English language arts courses. When all teachers value student use of reading strategies, so will the students; therefore, *all* teachers share an important role in the development and practice of comprehension skills when students are assigned readings in their subject-area classes.

Administrators should use observational tools that are designed to track the ways and means that teachers are providing students with occasions to interact with and dig deeply into informational texts. Principals can also support their educators by ensuring that classrooms are equipped with an ample supply of non-fiction texts so that students are afforded "choice" in what they read for SSR, IR, and other related assignments where students are to pick what they wish to read. In this way, administrators may indirectly positively influence student interest in informational materials.

A vital way for principals to determine teacher perception and valuing of student use of reading strategies is to conduct a survey of their teaching staff. One of the steps taken in this intervention was the administration of a site-based teacher survey for the purpose of gauging how the instructors perceived their students using reading strategies in their classes. The researcher later sent out the same questionnaire to subject-area secondary teachers throughout Aspire Public Schools, so as to obtain a broader picture of teacher usage and perception of their students' use of reading strategies (see Appendix C). Because the results of these surveys had no bearing on or relationship to the overarching research question and sub-questions in this study,

the educator survey data was not included with the research findings section of this report. What follows is a detailed accounting of the results of our school site plus Aspire-wide teacher questionnaires.

Ben Holt Academy Teacher Questionnaire

A step taken in the pre-intervention phase of this action research project was to survey the Ben Holt Academy teaching staff in order to gain a sense of the school's overall perception of how students engaged with reading, very much along the same lines as the student questionnaire. Twelve of twenty-four Ben Holt teachers returned a completed survey (anonymously submitted). Figures 68 and 69 detail the evidence drawn from the Ben Holt Academy teacher questionnaire. Figure 68 shows that more Ben Holt teachers felt confident in their students' ability to use after-reading strategies, such as summarization. Slightly less than half of the teachers who completed the survey felt their students always (11%) or usually (33%) used before-reading strategies in their classes; however, just about the same percentage of Holt teachers felt their students would be less likely to use these skills (sometimes – 31%; hardly ever – 14%). Just thirty-eight percent of the teaching staff indicated that their students used strategies during reading with their subject area texts (always – 5%; usually – 33%), and another fifty-eight percent did not believe that their students would use during-reading strategies (sometimes – 35%; hardly ever – 23%). Of the twelve teachers who responded to the survey, eleven percent indicated they did not feel that pre-reading strategies would be applicable to their subject-area. Three percent of Holt teachers revealed that during-reading strategies would also not be applicable to their subject area. It is important to note, however, that all of the Ben Holt Academy teachers who completed the survey indicated that after-reading strategies, such as summarization, were relevant in their courses.

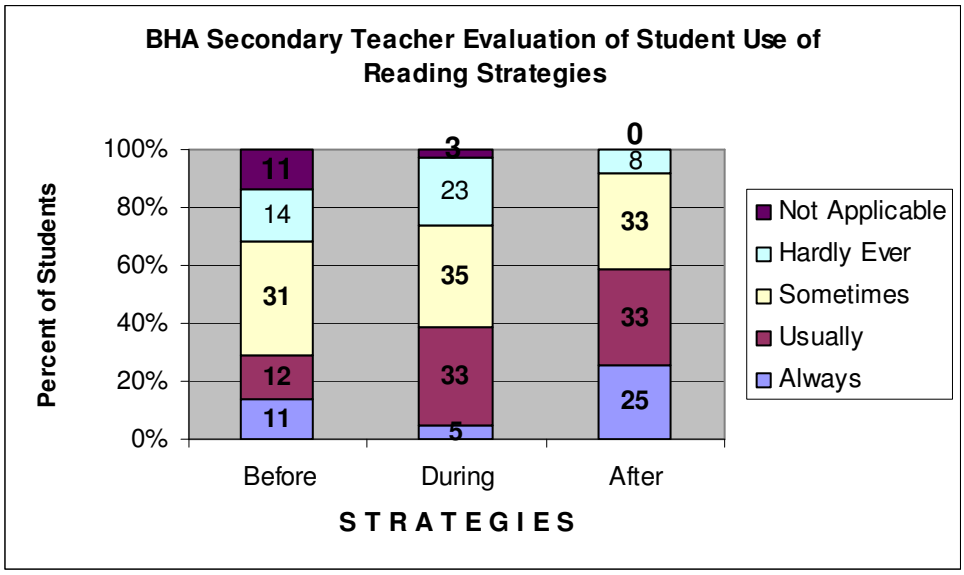


Figure 68. Ben Holt Academy Teacher Evaluation of Student Use of Reading Strategies

Teachers were asked to note which of the reading strategies they delivered direct instruction on in their subject-area courses. Figure 69 reveals that most of the surveyed Ben Holt teachers did not instruct students on content reading skills (58-67%). Of the three categories of skills, more Holt teachers indicated they taught before- and during-reading strategies in their classes, and even fewer gave instruction on the skills related to post-reading (42% versus 33%).

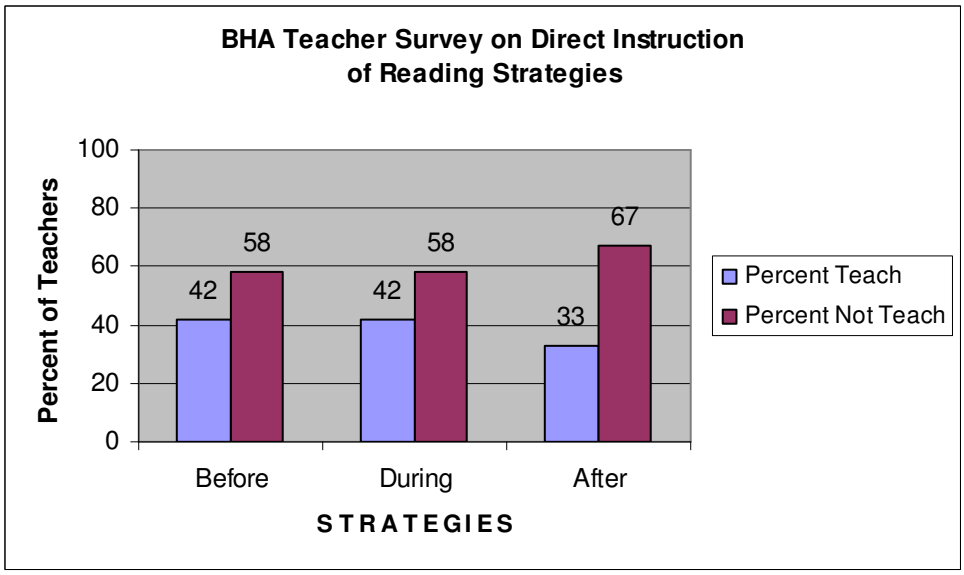


Figure 69. Ben Holt Academy Survey on Direct Instruction of Reading Strategies

The Ben Holt Academy teacher questionnaire revealed that most educators did not necessarily believe their students used strategies when reading texts in their classes. All teachers believed that after-reading skills, such as summarization, were applicable to their subject areas; however, many did not see their classes as a place for direct instruction of reading strategies.

The teacher survey results suggested that most Ben Holt Academy secondary teachers, outside of English language arts instructors, did not view themselves as having responsibility for instructing and/or tracking how their students accessed the texts read as a part of their courses. The larger numbers of teachers who valued after-reading strategies most likely did so because it was the outcome (of reading assignments) that they primarily focused upon when determining success in their courses. However, it is the researcher's assertion that if all subject-area teachers took time to assess and instruct students in ways to understand the structure and form of the texts assigned in their courses, student understanding and overall academic achievement would rise in their classes.

Aspire Secondary Teacher Survey

Midway through Phase Two of the intervention period, the same teacher questionnaire that Ben Holt Academy instructors completed at the start of the study was sent out to Aspire secondary teachers at seven schools (Langston Hughes Academy, Capitol Heights Academy, Summit Charter Academy, East Palo Alto Charter Secondary, Lionel Wilson Prep Academy, California College Preparatory Academy, and Millsmont Secondary). The purpose of the survey was to learn of other Aspire secondary educators' overall perception of how their students engaged with reading. Five out of seven schools returned eighteen completed surveys. Figures 70 and 71 detail data drawn from the Aspire secondary teacher questionnaire results. It should be noted that Ben Holt Academy survey data was also included (for a total of thirty teachers).

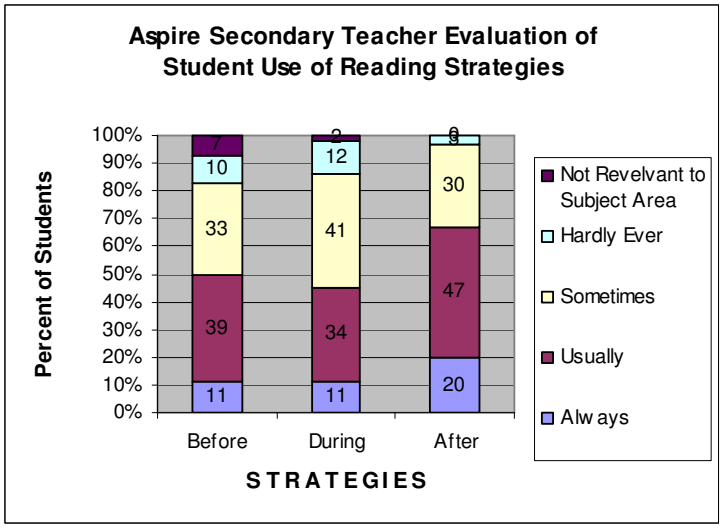


Figure 70. Aspire Secondary Teacher Evaluation of Student Use of Reading Strategies

Figure 70 shows that most Aspire secondary teachers felt confident in their students' ability to use after-reading strategies, such as summarization. Twenty percent of the thirty teachers felt their students always summarized after reading non-fiction texts, and nearly half of the teachers felt their students usually summarized. Thirty percent felt their students sometimes summarized, and just three percent perceived their students hardly ever summarized after reading informational materials. None of the secondary teachers indicated that the skill of summarization was irrelevant to their subject area.

Exactly fifty percent of the secondary teachers surveyed felt their students were most likely to use before-reading strategies, with eleven percent indicating always, and thirty-nine percent indicating usually. Thirty-three percent of the teachers felt their students sometimes used before-reading strategies and ten percent felt their students hardly ever used strategies before reading non-fiction materials. Seven percent of the teachers indicated that before-reading strategies were not relevant to their subject-area.

Slightly less than half of the thirty secondary teachers felt their students used during-reading strategies: eleven percent indicated always, and thirty-four percent indicated usually. Forty percent of the teachers felt their students sometimes used strategies during reading, with twelve percent teachers indicating their students hardly ever used strategies while reading non-fiction texts in their classes. Two percent of the teachers noted that during-reading strategies were not relevant to their classes.

Of the six schools surveyed, only two sites returned questionnaires with one hundred percent of their secondary teachers indicating that before-, during-, and after-reading strategies were relevant to their courses.

Teachers were also asked to note which of the reading strategies they delivered direct instruction on in their subject-area courses. Figure 71 reveals that the majority of the thirty secondary teachers did not instruct content reading skills in their courses (64-68% of those who completed the survey). Thirty-six percent of the teachers indicated they taught during-reading strategies in their classes. Slightly fewer instructors noted they delivered instruction in skills related to before- (32%) and after-reading (33%).

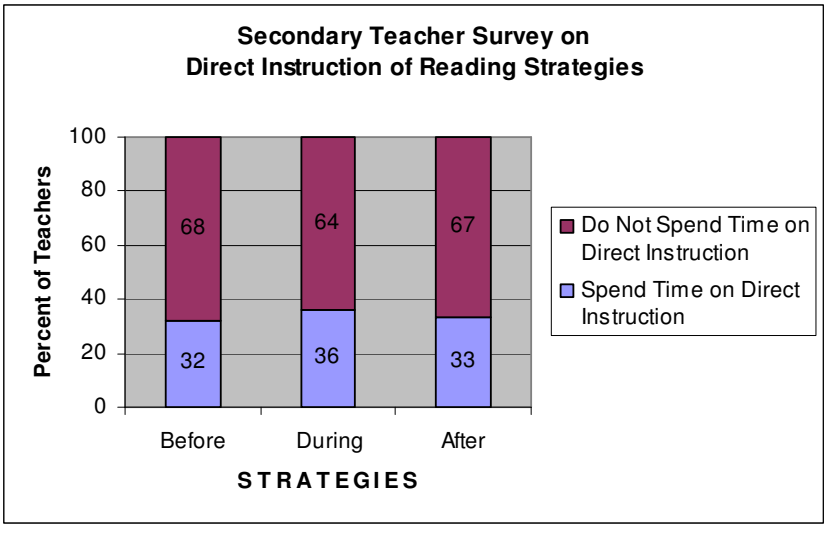


Figure 71. Aspire Secondary Teacher Survey on Direct Instruction of Reading Strategies

Some of the secondary teachers who indicated they delivered instruction in before-, during- or after-reading strategies in their single-subject classes, listed the skills they taught: talking to the text; note-taking; visualization; clarifying the text; making connections with text; paraphrasing; identifying important details; how to reference citations; analytic reading; using context clues to define words; labeling paragraphs; reading titles, bolded, and italicized words; word works; how to read diagrams; how to read maps, use legends, and keys; and questioning the text.

The Aspire secondary teacher questionnaire revealed that about half of those surveyed felt their students used strategies when reading non-fiction texts in their classes. All of the secondary teachers believed that after-reading skills, such as summarization, were applicable to their subject areas; however a small percentage did not see their courses as a place for direct instruction of the strategies associated with understanding non-fiction materials.

The trend in the Aspire-wide teacher survey was slightly better in terms of the number of secondary educators who took responsibility for ensuring that their students were capable of accessing the texts associated with their courses. Interestingly, and not to be overlooked, are the two school sites where 100% of the secondary teachers who returned the questionnaire demonstrated active involvement in instructing students in before-, during- and after-reading strategies. Specific CST data for the sites was not accessible at the time of this analysis; however, it would have been interesting to track student growth in reading comprehension in order to determine what kind of impact this comprehensive commitment by all secondary teachers at the two sites might have made on state test results.

Overall, the Aspire-wide survey data served to underscore the significant role that all subject-area teachers at school sites play in ensuring that the students are growing in their acquisition and use of reading strategies. Secondary instruction is the gateway to higher

learning, and if instructors idly stand by while young people are moved on towards college without strong comprehension skills in reading non-fiction texts, then educators must be held responsible if students are not capable of successfully understanding college level readings. As an organization with the motto "college for certain," and with an Early College Model on its secondary campuses, focus upon reading instruction at the secondary levels, from sixth through twelfth is therefore *paramount*.

The recommendations contained within this report are certainly a step in the right direction. It is recommended that future studies focus in on secondary teachers' perception of their role in student ability to access informational texts, and on further development of and research into additional means to improving student reading comprehension.

Teachers and administrators share an important role in helping to ensure that the students at their site are provided with the opportunity and time to learn, practice, and apply reading strategies when accessing non-fiction texts. They also share in the collective responsibility of tracking and assessing student growth in attitude and interest as well as in comprehension skills. I researcher highly recommends that teachers and administrators work in concert with each other and place high priority on and assume collective responsibility for increasing students' abilities in understanding informational materials.

Evaluation of this Process

As a result of conducting an action research study, the researcher's own teaching practices with regards to building reading comprehension skills has changed to include all of the recommended practices noted in the previous section, including the addition of some new activities. Having an organized approach to the teaching of reading strategies has provided the researcher with a more specific way to better track student progress with comprehending a variety of texts, whether fiction or non-fiction, on a wide array of genres within each.

A new practice introduced this year is annotated notation, explained earlier in the previous section. Through this method of "talking to the text," students have used their post-its to assist them with writing reading response journal entries. In addition, the researcher has noticed that when students take other assessments, including the state writing test, they are underlining phrases and circling key words, demonstrating they are *transferring* the skill of annotating text to other situations. This kind of transfer is what Mayer (2002) was referring to when writing about how students solve problems by applying knowledge from previous learning experiences to new ones.

Another change made this year took place in the researcher's classroom library, where a number of additional non-fiction informational texts were added, including some educational magazines. Unlike the intervention, where students only read non-fiction for silent sustained reading and independent reading for the duration of the study window, this year students have alternated their reading of fiction and non-fiction texts, switching from one to the other as they finish. This has enabled students to gain far greater access and opportunity to read informational materials for their independent (free choice) reading at school and at home.

As one of the school site's humanities lead teachers, the researcher plans to share the results of this study with her administrator and other content-area leads because of the critical

value of monitoring student progress with reading informational texts across the subject areas. The researcher further plans to recommend to the leadership team that this conversation be continued on a broader scale to the teaching staff and together collaborate on the establishment of schoolwide expectations when it comes to how students make meaning with non-fiction, informational texts.

If the researcher could start this research project again, there are a few changes she would make in terms of timing and breadth. The intervention window spanned ten weeks, from April to June 2007, right up to the last day of the school year. Survey results (and potentially assessment results) for one section of students who participated in the study suggested that student attitude towards reading non-fiction texts had dropped significantly by the end of the school year. The researcher asserts, however, that these results would have been different had the timing of the study taken place earlier in the school year. The study window would be lengthened to span six to ten months. It is the researcher's belief that had this intervention started at the beginning of the school year, student growth in comprehension would have been on a much greater scale. Lastly, if this study were to be repeated, the researcher would have included a control group so as to better measure the quality and success of the activities and approaches contained within the invention. As it was, because a grade level colleague was conducting her own action research study around the same topic, both teachers were unable to establish a clear control group.

The researcher is interested in pursuing additional avenues of research surrounding reading comprehension of non-fiction informational materials at the secondary level. As noted earlier, it would be interesting to learn how single-subject secondary teachers perceive their role with regards to enabling students to access texts within their courses, and to locate further intervention approaches that are proving successful on campus and at other school sites. Specifically, the researcher would like to examine what single-subject educators do to prepare

their students with strategies and skills for comprehending texts read in their classes, and match instructor practices (or lack thereof) with a variety of assessment data, including the annual California Standards Test.

The researcher's involvement in conducting action research within the context of her own classroom has sparked greater understanding of and value for the importance of cycle of inquiry, not only for student learning, but especially for the researcher's own instructional practices. The researcher has thoroughly enjoyed the action research process; in particular, the ability to ferret out results from an array of data points, and to dig deeply into analysis of student results and her own personal teaching practices.

References

Ball, A. L. & Washburn, S. G. (2001, November/December). Teaching students to think: Practical applications of Bloom's taxonomy. *The Agricultural Education Magazine,* 74 (3), 16-17. Retrieved December 4, 2006, from Wilson Web database.

Barton, L. G. (1996). *Quick flip questions for critical thinking.* Retrieved January 15, 2007, from Longview Community College, Critical Thinking Across the Curriculum Project Web Site: http://mcckc.edu/longview/ctac/blooms.htm

Bauman, B. (2002). *Improving Student Comprehension in Social Science by Teaching Reading Strategies*. Chicago, IL: Saint Xavier University and SkyLight Professional Field-Based Master's Program. (ERIC Document Reproduction Service No. ED465991). Retrieved February 12, 2007, from ERIC database.

Bloom, B. S., Englehart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives, Handbook 1: The cognitive domain.* New York: McKay.

Brushaber, T. (2003). *Teaching comprehension through a comprehension strategy framework*. Wimberly, TX: Southwest Texas State University. (ERIC Document Reproduction Service No. ED477160). Retrieved December 17, 2006, from ERIC database.

Cross, G. & Wills, K. (2001). *Using Bloom to bridge the WAC/WID divide. framework*. Paper presented at the annual National Writing Across the Curriculum Conference, Bloomington, IN. (ERIC Document Reproduction Service No. ED464337). Retrieved December 17, 2006, from ERIC database.

Fordham, N. W. (2006, February). Crafting questions that address comprehension strategies in content reading. *Journal of Adolescent & Adult Literacy,* 49 (5), 380-388. Retrieved December 4, 2006, from Wilson Web database.

Frey, W. (2005). *History alive! The medieval world and beyond.* Palo Alto, CA: Teacher's Curriculum Institute.

Guskey, T. (2001, April). *Benjamin W. Bloom's Contributions to curriculum, instruction, and school learning*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA. (ERIC Document Reproduction Service No. ED457185). Retrieved December 17, 2006, from ERIC database.

Knipper, K. J. & Duggan, T. J. (2006, February). Writing to learn across the curriculum: Tools for comprehension in content area classes. *The Reading Teacher,* 59 (5), 462-470. Retrieved December 4, 2006, from Wilson Web database.

Manton, E., Turner, C., & English, D. (2004, Summer). Testing the level of student knowledge. *Education,* 124 (4), 682-687. Retrieved December 17, 2006, from Wilson Web database.

Mayer, R. E. (2002, Autumn). Rote versus meaningful learning. *Theory Into Practice*, 41 (4), 226-232. Retrieved December 4, 2006, from Wilson Web database.

Moss, B. (2005, September). Making a case and a place for effective content area literacy instruction in the elementary grades. *The Reading Teacher,* 59 (1), 46-55. Retrieved December 4, 2006, from Wilson Web database.

Myers, M.P. & Savage, T. (2005, January/February). Enhancing student comprehension of social studies material. *The Social Studies,* 96 (1), 18-23. Retrieved December 4, 2006, from Wilson Web database.

Strategic literacy initiative: Reading apprenticeship. (2002; 2005-2006, Bay Area Network Series). *Supporting Adolescent Readers in the Content Areas*. WestEd.

Appendices

Appendix A

Action Research Project Timeline

Action Research Project Timeline

	Intervention Activity	Objective	Materials	Time, Frequency, and Duration
Pre-Intervention	Administer Student Questionnaire [see Appendix B]	Students will answer survey about their behavior and approaches with reading informational (non-fiction) texts.	Student Questionnaire	Week of April 2, 2007 (administered after the pre-test was administered).
Pre-Intervention	Administer Content-Area Teacher Survey [see Appendix C]	Holt teachers will answer questions about their students' behavior and approaches with reading informational (non-fiction) texts. Teachers will also comment on their instruction of content reading skills.	Content-Area Teacher Survey	Week of April 2, 2007
Pre-Intervention	Administer Pre-Test [see Appendix D]	Students will read a selection from the history text and answer questions that are based upon Bloom's Taxonomy.	Pre-Test, Passage from history text.	Week of April 2, 2007
Intervention – Phase One	Structural Features of Informational Materials (Reading Comprehension Standard 2.1)	Students will understand and analyze the differences in structure and purpose between various categories of informational materials.	Various examples of non-fiction texts (textbook, manual, research paper, newsletter, internet news group, sign, encyclopedia, dictionary); Categories of Informational Materials Handout	Week of April 9, 2007
Intervention – Phase One	Silent Sustained Reading/Independent Reading [see Appendix E]	Students will read non-fiction, informational texts for SSR and IR.	Reading Logs	Beginning the week of April 9, 2007; continuously through the end of the intervention.

	Intervention Activity	Objective	Materials	Time, Frequency, and Duration
Intervention – Phase One	How to Choose a Non-Fiction Book (RC 2.1)	Students will review techniques for choosing a book (learned at the start of the school year), and will use at least two when selecting their first non-fiction SSR/IR text.	Collection of non-fiction, informational materials for students to select from. Chart paper	Week of April 9, 2007
Intervention – Phase Two	Reading Journal (non-fiction Independent Reading) [see Appendix F]	Students will keep a journal of their non-fiction reading for Independent Reading (IR) homework, using a double-entry journal technique, writing in their journal weekly, for a minimum of one full page of writing.	Reading Journal Spiral; handout on double-journal entry	Begin week of April 16, 2007 (continuous through the end of the intervention)
Intervention – Phase Two	Features of Narrative and Expository Texts [see Appendix G]	Students will discover how text features and patterns differ in narrative and expository texts.	Two sets of history-related texts – narrative and expository – containing three to four examples.	Week of April 16, 2007
Intervention – Phase Two	Individual Reading Conference Record	Students will meet with teacher and share excerpts from non-fiction reading journal.	Student reading journal (non-fiction); Individual Reading Conference Record	Beginning week of April 23, 2007, met with 16 students weekly (8 per section of students) through the end of the intervention.

	Intervention Activity	Objective	Materials	Time, Frequency, and Duration
Intervention – Phase Two	Reading Strategies	Students will list and explain seven key reading strategies.	Reading Strategies handout and poster.	Week of April 16, 2007
Intervention – Phase Two	Modeling and Practicing Thinking-Aloud with Text	Students will observe teacher modeling think-aloud strategies while she reads, and then will practice the same technique using a variety of history texts.	Passages of history text (from various reading levels), Think-Aloud Check-List and Bookmark, poster of Reading Strategies	Beginning week of April 23, on-going at least once weekly through the end of the intervention window.
Post-Intervention	Send out content-area teacher survey to all Aspire secondary content-area teachers [see Appendix C]	Secondary content-area teachers will answer questions about their students' behavior with reading informational (non-fiction) texts. Teachers will also comment on their instruction of content reading skills	Content-Area Teacher Survey	Week of April 16 (this was sent out after all schools completed their spring break.)
Post-Intervention	Administer Student Questionnaire [Appendix B]	Students will answer survey about their behavior and approaches with reading informational (non-fiction) texts.	Student Questionnaire	Week of June 4, 2007

	Intervention Activity	Objective	Materials	Time, Frequency, and Duration
Post-Intervention	Administer Intervention Post-Test [see Appendix I]	Students will read a selection from the history text and answer questions that are based upon Bloom's Taxonomy. This post-test will be similar to structure to pre-test.	Post-Test, Passage from history text.	Week of June 4, 2007
Post-Intervention	Administer Second Round of Spring Reading Benchmark	Students will retake the Spring Reading Benchmark (first given in March 2007) and results will be compared)	7th Grade Spring Reading Benchmark	Week of June 4, 2007

Appendix B

Study History Questionnaire

History Questionnaire

Please rate the following statements. Use the scale below.

1= always **2**= usually **3**= sometimes **4**= hardly

1) When reading the history textbooks, I feel confident.	1	2	3	4
2) Before reading, I skim the section.	1	2	3	4
3) I understand the way text is organized.	1	2	3	4
4) When reading, I look at and think about the pictures, map, charts, and other graphic organizers.	1	2	3	4
5) I read the captions of the pictures.	1	2	3	4
6) I find out the meaning of words that are unfamiliar in the text.	1	2	3	4
7) I predict what will happen or what I will learn before reading the text.	1	2	3	4
8) If I do not understand what I read, I reread the text.	1	2	3	4
9) While reading, I think of questions I want answered.	1	2	3	4
10) I create pictures in my mind that help me understand what I am reading.	1	2	3	4
11) I make connections to my own life when reading.	1	2	3	4
12) When I finish reading, I summarize what I read.	1	2	3	4

-OVER-

Please rate the following statements. Use the scale below.

1= always **2**= usually **3**= sometimes **4**= hardly

13) I read non-fiction books for pleasure.	1	2	3	4
14) I read fiction novels for pleasure.	1	2	3	4
15) I have read novels for pleasure in the past year.	1	2	3	4
16) I have read non-fiction material for pleasure in the past year.	1	2	3	4
17) If I read non-fiction for pleasure, I will usually read…				
Magazines	1	2	3	4
Internet News	1	2	3	4
Newspaper	1	2	3	4
Online Blogs	1	2	3	4
Books	1	2	3	4
Other (write in):	1	2	3	4
18) What would influence you to read more non-fiction texts…				
Recommendations from other students	1	2	3	4
Quiet and comfortable place to read	1	2	3	4
Choice in what topic you read	1	2	3	4
Learning reading strategies				

Student Survey adapted from Improving Student Comprehension in Social Science by Teaching Reading Strategies (Bauman, 2002).

Appendix C

Content-Area Teacher Survey

Content-Area Teacher Survey

Please rate your students on the following statements. Use the scale below.

1= always **2**= usually **3**= sometimes **4**= hardly **5**= not applicable

1) Before reading, my students skim the selection.	1	2	3	4	N/A
2) They understand the structure of the text.	1	2	3	4	N/A
3) When reading, my students look at and think about the pictures, maps, charts and other graphic organizers in the passage.	1	2	3	4	N/A
4) Students read the captions of the pictures, maps, charts and other graphic organizers contained in the selection.	1	2	3	4	N/A
5) They find out the meaning of the words that are unfamiliar.	1	2	3	4	N/A
6) My students predict what will happen/what they will learn before reading the text.	1	2	3	4	N/A
7) If they do not understand what they read, my students reread the passage.	1	2	3	4	N/A
8) While reading, students generate questions they want answered.	1	2	3	4	N/A
9) When they finish reading, my students can summarize what they read.	1	2	3	4	N/A

❒ **I deliver direct instruction in reading content skills in the areas circled above.** (Circle the question numbers above that correlate to the skills that you teach). I also instruct students in the following skills (not already noted in questions above-use back if needed):

Student Survey adapted from Improving Student Comprehension in Social Science by Teaching Reading Strategies (Bauman, 2002).

Appendix D

Content Reading Pre-Test

Pre-test Text – 4.3 “Guilds” (page 45) (*History Alive! The Medieval World and Beyond*)

Text Readability
Flesch-Kincaid Grade Level 6.1
Metametrics’ Lexile Analyzer 1000 Lexile (middle seventh grade)

KNOWLEDGE

List the three things a master agreed to provide to an apprentice after an agreement was signed. [House, feed, train the apprentice]

COMPREHENSION

Look at the picture. Predict why the cobblers working in the shop were most likely journeymen. Explain/support your opinion. [Because it was too expensive to set up their own business, these men could probably not afford to do so, and so they became journeymen, working for the master of the shop that is pictured.]

APPLICATION

What do you think would happen if an apprentice’s “master piece” was not approved by the guild? [They would not set up a business and might become a journeyman, or they might go through the apprentice process all over again]

ANALYSIS

How is the medieval apprenticeship like modern-day schooling? [People go to school to learn skills and have to be tested and receive a diploma or degree to prove their expertise or skill, and then they can go into business for themselves or work for a ‘master’]

SYNTHESIS

Write an advertisement for a modern-day apprenticeship in one of these fields (airplane mechanic, veterinarian, math teacher, archaeologist, gardener, architect, and biologist). Include the length of the apprenticeship, what the master would have to provide if an agreement is signed, and what has to be proved in order to be declared a “master.”

EVALUATION

Assess the value and importance of medieval guilds. Support your explanation.

Appendix E

Example of a Weekly Reading Log with Non-Fiction as the Requirement

NON-FICTION TEXTS WEEKLY READING LOG FOR

(NAME) _____ WEEK OF: APRIL 9 – APRIL 14

GOAL	*WRITE OUT YOUR GOAL FOR THE ENTIRE WEEK FIRST THING EVERY MONDAY MORNING!*	
PAGES	How many pages do you predict you will read this reading log? _____ pages	How many pages did you actually read for this log? (fill out on the due date) _____ pages

IR Accountability: *Carrying out your Reading Goal*—the log below is to be completed **AT HOME AFTER** reading each night.

Parents- PLEASE DO NOT ADD YOUR SIGNATURE TO THE LOG IF YOUR SON/DAUGHTER HAS NOT READ OR HAS NOT COMPLETED THEIR LOG.

Date	Title of the Book (Use ditto marks if title is the same the next day)	Author (Last name, First initial)	Genre/Form (fantasy, etc.)	Page #s (From ? to ?)	Book Status (Y,N, HW, AF, AB)	*Parent Signature* (Please, no initials)
MON. APR. 9			NON-FICTION			
TUES. APR. 10			NON-FICTION			
WED. APR. 11			NON-FICTION			
THURS. APR. 12			NON-FICTION			
FRI. APR. 13			NON-FICTION			
SAT. APR. 14			NON-FICTION			

	Date	Title of the Book	Author	Genre/Form	Page #s	Book Status
SSR				NON-FICTION		
				NON-FICTION		
				NON-FICTION		

Minimum Required: 15 pages a night and 7 pages for SSR **DUE MONDAY, APRIL 16**

GRADE (To be Completed By Teacher): _____/73 points

Where are you in your book? Finished? Y=Yes; N=No; HW=Halfway; AF=Almost Finished; AB=abandoned book

Form of Prose: short story (SS), novel (n), novella (NVLA)

Appendix F

Reading Journal – Non-Fiction Independent Reading

Reading Journal – Non-Fiction Independent Reading

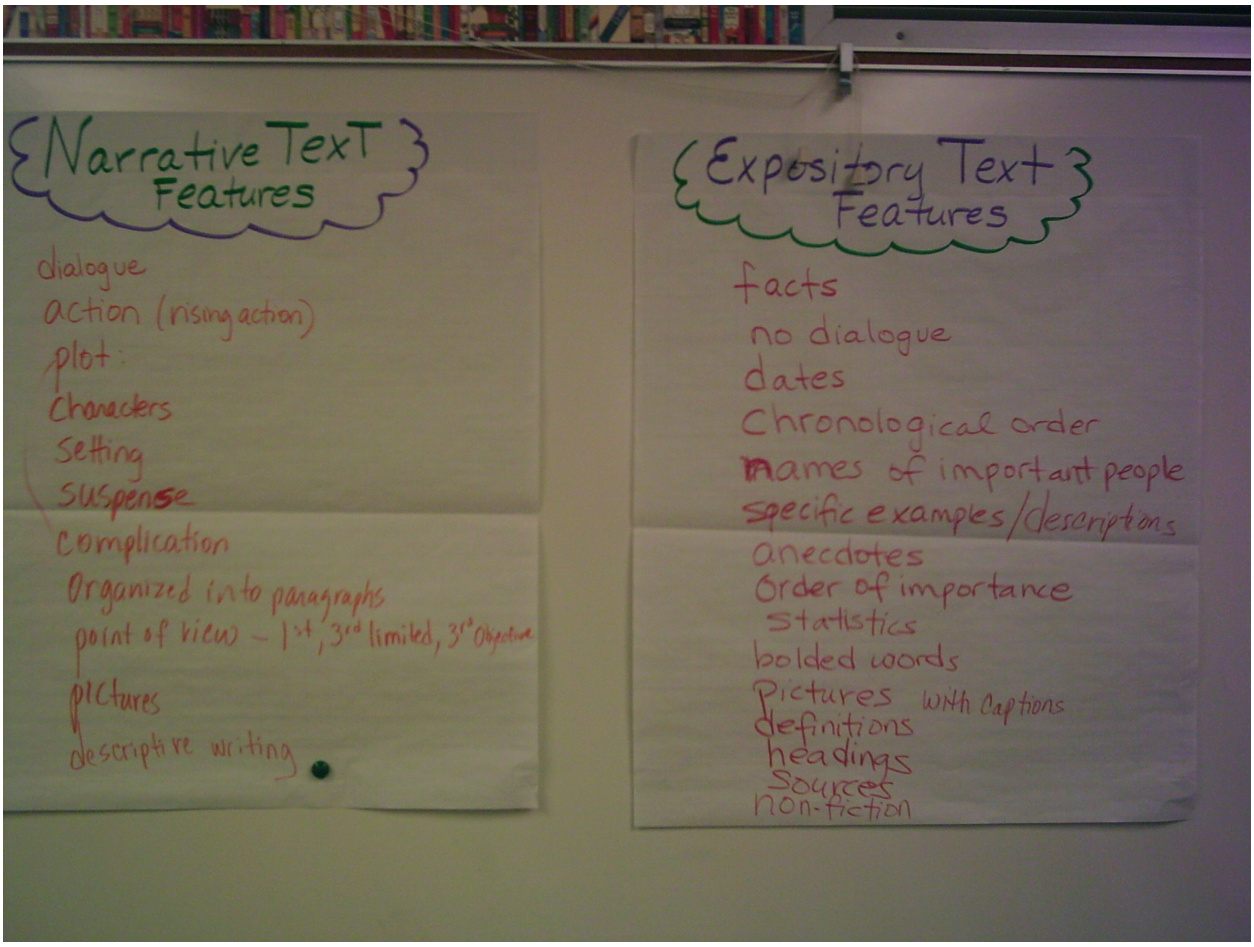
- Once a week
- Read and fill out a double-journal entry.
- On the left column are the things you noticed, and on the right column are your personal responses to those things (ex: What I Saw, What I Thought.).

WHAT I SAW:	**WHAT I THOUGHT:**
April 12, 2007	**"Geography and Trade" – pages 138-139**
Woodland forest	I never realized that Western Africa actually has forests. The forests have a variety of plant life, such as oil palms, yams, and kola trees. I wonder if these kola trees have something to do with what we call "cola?"
Extended families	I have learned that an extended family includes all of your close relatives; not only father, mother, and siblings, but also aunts and uncles, even distant cousins. Families seemed to be much more dependent upon each other back in middle ages West Africa because they relied upon each other for everything. It's too bad that my own family does not have that same sense of "need" for one another; maybe we'd be closer than we are.

- Looks like the above…. Narrow left column, wider right column.
- You must write a minimum of one full page, with 1" margins on all sides
- Every week you will receive a participation grade for writing in your journal, based upon how fluent of a writer you are (the more you write, the higher your grade)
- Every so often, your journal will be collected over the weekend and returned the following Monday.

Appendix G

Photo: The Structure and Features of Texts



The Structure and Features of Texts

Appendix H

Photo: Reading Strategies

Display of Reading Strategies in Classroom

Appendix I

Content Reading Post-Test

Post-test Text – 25.2 "Class Structure" (pages 280-281) (*History Alive! The Medieval World and Beyond*)

Text Readability
Fleisch-Kincaid Grade Level 8.0
Metametrics' Lexile Analyzer – 6.0 (early sixth grade)

KNOWLEDGE
What are the five main social classes in Aztec society? [**Ruler** and his family; **noble class** of government officials, priests, and high-ranking warriors; **commoners** (citizens who were not of noble rank); **peasants** (neither slaves nor citizens); **slaves**.]

COMPREHENSION
What differences exist between the *pochteca* and farmers? Explain/support your response in your own words. [*Pochteca* had their own god, lived in a separate section, paid taxes with rare goods; enjoyed many privileges such as owning land and sending children to the nobles' schools. Farmers could not own land, but were loaned plots of land to live and farm on; paid tribute using crops, labor or manufactured goods.]

APPLICATION
Construct a graphic organizer to illustrate the class structure of Aztec society.
[Graphic organizer should reflect the five levels, indicating the ruler at the top and slaves at the bottom, with the others falling in likewise fashion between.]

ANALYSIS
Why do you think Aztec rulers were not chosen based on heredity? [Answers can vary. One reason might be so that the best for the job could be chosen, rather than who is next in line. It makes rulership less predictable, given that the new ruler would be chosen by a select group of advisors (although perhaps the advisors could be "influenced.")]

SYNTHESIS
Aztec advisors have given you the job of creating a new class structure in Aztec society.
Create a new class structure in Aztec society, inventing new levels and rights, purposes, etc.
[Students should create definite levels that indicate a hierarchy; those with more details will earn more points, especially if rights and purposes are addressed.]

EVALUATION
Do you think giving Aztec slaves rights is a good or bad thing? Why? Explain/support your response. [Answers will vary.]

Appendix J

Action Research Intervention Journal Excerpts

Intervention journal:

Week of April 9, 2007

This week my students started reading nonfiction books for SSR/IR. I have a basic collection of nonfiction books, so they were able to find something right away. A few students were finishing up with fiction books, which I permitted them to do.

Their response was really surprising to me – they cheered when I announced the switch. Made me realize that this is an important genre that needs to be included much more for SSR/IR.

On Friday I delivered the lesson on structure of informational materials and it went well. The students were interested in digging into the materials. They were not as strong at being able to provide the structure of the materials; they were mostly giving generic features, or in some cases, overly specific features of the materials. We ran out of time, so we will wrap up this lesson on Monday, and then I can provide them with independent practice.

April 19, 2007

Reading Journals
The students are used to writing a personal response to fiction, but this is a new experience, and it is interesting to hear and observe their reactions. For example, Amanda was struggling with what seemed to be the format of the journal, and expressed a desire to just free-write her thoughts. It was only after guided practice had ended, that she told me she now understands, but will miss the 'letter writing' format. I told her that she could use that format every so often, but that learning this new format will enable her to respond more specifically to nonfiction texts.

I'm glad we used the text on the fall of the Roman Empire for guided/independent practice, because it will nest perfectly with our upcoming unit on Medieval Europe.

Week of April 16…

Things have already fallen behind and it is due to the fact that we are in the midst of reviewing the ELA standards because of STAR quickly approaching. So far, I have had to push things forward one week. We wrapped up the types of informational materials lesson early in the week, and have covered reading journals in a two-day lesson, finishing today. A lesson that somehow got lost in the shuffle was choosing a n/f book.

I think this is a necessary skill to cover, and so we will for next week.

April 25….

I taught the lesson in comparing narrative and expository texts today to both classes. This was a more difficult skill for them to do than I had anticipated. They wanted to comment on the content rather than the actual structure. Once a few appropriate responses were given, that changed things for the better. The students (both classes) came up with a long list for each form

of text. There were some interesting comments to the questions, especially surrounding how they approach nonfiction text. Comments like 'it's more boring,' 'I can't lie down and read nonfiction, I have to sit at my desk,' are a few that stand out for me.

Week of April 30…

4/30 – I did a lesson on reading strategies, and was delighted to discover that so many of the kids knew these strategies ahead of time! I also began meeting w/kids individually to talk about their reading journals and how reading is going in general. It's interesting, because there seem to be two distinct groups: kids who provide evidence of using reading strategies in their journal writing and those who simply don't respond at all to the writing, but instead "copy" from the text into their journal. I was only able to meet about 4 or 5 students per class today, so it will be interesting as this kicks into full swing, if I can sense any growth. Of those who gave evidence of strategies, the most prevalent today was visualization and making connections. I wonder if they will transfer this to a testing situation?

Appendix K

Reading Log Tally & Reflection

End of the Year Reading Log Tally & Reflection

ITEMS READ (indicate the genre)	**TITLE**	**AUTHOR**	**# Pages you Read in this Book.**	**When did you read this novel?** (Write down the dates you read this book)	**Did you complete this book?** (Y=yes; NA= No, A= abandoned)	**Did you read this more than 1 time?** (Yes or No)
Sample: *Hist. Fiction*	*Anne of Green Gables*	*L.M. Montgomery*	*pgs 3-345*	*11/2 – 11/30*	*Y*	*NO*

WRITE YOUR TOTALS BELOW:

GENRE	# OF ITEMS	# OF PAGES
EX: Hist. Fic.	*14*	*6,314*
HISTORICAL FICTION		
B IOGRAPHY		
FANTASY		
SCIENCE FICTION		
REALISTIC FICTION		
NON-FICTION		
OTHER		
GRAND TOTALS		

Reflection Questions

On a separate piece of notebook paper, answer each of the following questions in complete sentences. Answer all parts of each question.

1. How do you feel about the reading that you have done this year at school and at home? Are you surprised by your totals? Why or why not?
2. What have you learned most about being a reader this year?
3. What is the best thing you have read this year? Why did you like it?
4. Is there a genre that you have especially enjoyed? Which one? What are some titles that stand out to you?
5. Set one goal for yourself as a reader next year.
6. What advice about reading would you give to next year's students?
7. Do you have any suggestions/recommendations for me about SSR and IR?
8. Is there anything else you want to say about your reading this year?

Attach all of your reading logs to this tally along with your reflection.

Appendix L

Reading Journal Tally

READING JOURNAL TALLY

Section: **Student Initials: _____**

Date:	
Incidences of Reading Strategies	Tally #s
Predicting	
Picturing	
Questioning	
Making Connections	
Identifying a Problem	
Summarizing	
Using fix-ups	
Other:	
Direction copying from text	

Date:	
Incidences of Reading Strategies	Tally #s
Predicting	
Picturing	
Questioning	
Making Connections	
Identifying a Problem	
Summarizing	
Using fix-ups	
Other:	
Direction copying from text	

Appendix M

Reading Response Journal Rubric (for 7th Grade)

RRJ # _____ Score _____/20 = _____% = Grade _____

Comments:

7th Grade Humanities
Reading Response Journal Rubric

Indicator	4	3	2	1
Includes three quotes from the literature, including page numbers.	Writes out more than one passage from the literature (includes page numbers).	Writes out one passage from the literature (includes page numbers).	Writes out one passage from the literature (no page number given).	No passages from the literature are included in the student's journal response.
Demonstrates understanding of text by providing evidence of reading strategies	Shows multi-dimensional understanding of text by using <u>two or more</u> reading strategies at a <u>deep level</u>.	Shows adequate understanding of text by using one reading strategy.	Shows some understanding of text by providing limited application of one reading strategy.	Shows no understanding of text; no reading strategies appear to be used.
Idea Development	The writing is clear and focused and explained very thoroughly. Details are neither skimpy nor over-whelming. *They enlighten*.	The writing has defined topics, but lacks the details that "complete the picture". Information is general, *not very specific or personal.*	The writing has a main topic, but provides no detail, or might just be a summary of the story with minimal application of reading strategies.	The writing is sketchy and poorly focused. Reader must guess as to meaning. Main topic is unclear if present at all.
Use of Conventions	Uses conventions accurately. Properly cites a text (page number, underlines title or uses quotes)	Use conventions adequately. Response is mostly understood without confusion	Uses conventions sparingly. May result in some confusion.	Uses correct conventions rarely. Writing is nearly impossible to follow without confusion.
On Time – Written with the Proper Date & Labeled Correctly	Is labeled with the correct date for that RRJ, and includes the correct RRJ #__ and title of book read.	Is missing one of the following: date, RRJ#, book title.	Is missing two of the following: date, RRJ#, book title.	No date, no RRJ #, and no book title.