Increasing Secondary Reading Comprehension and Reading Proficiency Across Content Areas

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Abstract

This action research developed as a response to the researcher's experience with struggling and aliterate readers across all content areas in secondary schools. The researcher witnessed the negative impact of a depressed economy and depressed reading proficiency pervasive among students based on classroom experience and standardized testing. The research question became "How can students experience an increase in both reading comprehension in the classroom and reading performance on standardized tests, especially emphasizing non-fiction, informational reading across content areas?" Baseline analysis of data was collected using pre- and post-ACT reading scores, pre- and post-surveys of students, observations/anecdotal data and a post-teacher interview. The researcher, an educational coach and consultant who worked through a high school teacher and two of her classes of sophomores, then correlated and analyzed the data. A series of six bi-weekly guided highlighted readings that included writing summaries and taking a multiple-choice quiz under time constraints, revealed conclusive evidence indicating a pattern of increased student comprehension and engagement in reading, writing, and thinking. This growth appeared across social studies, prose fiction, science and humanities readings. Anecdotal evidence additionally indicated transferability of this advanced habit for skimming and scanning for key information outside of the classroom, indicating a real-life skill and applicability.

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Chapter One – Introduction

Located outside the major urban area of Michigan, this largely rural community of 33 square miles sold only 12 houses in the second quarter of 2010, a sign of extended high unemployment partly due to the reliance on the domestic automobile industry, with two of its three major companies experiencing bankruptcy and requiring federal assistance to reinvent. This community is served by a single traditional public high school. State law allows local school districts to enroll nonresident students and count them in membership, which directly ties to increased state education funding. This can be done without obtaining approval from the district of the student's residence.

This school district is not a school of choice district. It is surrounded by districts that are and that are also in many cases socio-economically affluent. This results in almost a 50% loss in student enrollment to surrounding districts who market their districts aggressively. A goal of the district is to improve the level of teacher achievement and student ownership of learning and subsequent predispositions to careers to convince more of the local residents to return to their own community's school district.

Further evidence of the local economic downturn considers that 32 subdivisions under construction have stopped building. This school district believes a significant improvement in learning achievement of its students could entice more parents to send their children to the

school in their own district and could appeal to families seeking homes once the real estate industry returns.

As required by federal law, this high school tracks the results of subgroups. In Michigan, a subgroup is counted for Annual Yearly Progress (AYP) when thirty (30) or more students are in a group. This high school has three subgroups: Socio-Economic Status (SES)(or Economically Disadvantaged) White students and Gender (Male and Female). How these sub-groups perform on the state standardized testing of high school juniors, called the Michigan Merit Exam (MME), in the core content area of reading, is as follows:

The AYP target for 2010 is 71%. This AYP target increases in the 2010-2011 school year to 79% and again in the 2011-2012 school year to 86%. The percentage of New Haven High School students scoring proficient on the MME in Reading for the Socio-Economic Status (SES) subgroup (OEAA calls this group Economically Disadvantaged) includes the following:

Year	Socio-Economic Status	Free Reduced Lunch
2008	25%	40%
2009	15%	50%
2010	6%	

(The latest data indicate more than 50% free and reduced lunch for school year 2010.)

The percentage of high school students scoring proficient on the MME in Reading for the Gender subgroup includes the following:

Year	Male	Female
2008	44%	54%
2009	28%	44%
2010	48%	50%

Response to the need.

None of these subgroups hit the 2007-2008 (target of 61%), 2008-2009 (target of 61%), or 2009-2010 (target of 71%) scored proficient. In response to the need, the high school staff participates in reading apprenticeship and literacy strategy training three years previous. The county's Intermediate School District (ISD) assigned this researcher as an educational literacy consultant to various school buildings in the ISD area, to include this high school. This researcher emphasizes job imbedded professional teacher and staff development, modeling literacy strategies in the classroom for both teachers and students, and conducting one on one follow-up teacher consulting, receiving and providing feedback regarding the effectiveness and use of the strategy as a means of informing alternative literacy instruction. Observing a pattern of apathetic student behaviors in the classroom, this researcher realizes students who can read but do not care to read, across content areas, must become active and willing participants in the reading, writing and thinking process. While not cited in this research, the writing proficiency of students from 2007-2010 have followed the same pattern as that cited in the statistical view of reading proficiency above. This researcher has noticed anecdotal evidence of significant improvement when attempting a guided-highlighted reading process intended to engage and involve students in the reading of both fiction and non-fiction. It is his intent through this action research to seek to understand how struggling, low socio-economic readers, as well as all readers, can become intrinsically motivated to change from aliterate to literate and engaged practitioners in the classroom, including active engagement and interest in informational, content-specific reading.

Chapter Two – The Issue

Inadequate student reading achievement in the classroom and reading proficiency as measured on high-stakes standardized achievement tests (such as the ACT and SAT) challenges the researcher's high school building. This jeopardizes our students' opportunities to maximize their choices for post-secondary education and vocational opportunities and ultimately, limits their career choices in life. Our society subsequently pays for the missed opportunities of our future workforce embodied in today's students.

Three years ago, the researcher became acquainted with the staff as they experienced an intensive four-day Reading Apprenticeship in-service training. This presented the staff with choice from an assortment of thinking and comprehension strategies. These strategies are designed for teacher use as a means of increasingly engaging and heightening students' reading and metacognitive ability. While helpful, evidence shows that more work needs to be done. Over the past three years, a range of only 35% to 49% of junior classes has met or exceeded the state reading proficiency benchmark compared to the current Annual Yearly Progress (AYP) minimum requirement for 71% reading proficiency. The percentage of those graduating over three years averages to 91% (almost one out of ten students not graduating on time or at all). One socioeconomic indicator reveals at least 40% of students are considered "economically disadvantaged," and qualify for the free and reduced lunch program in this school.

The researcher observed teachers use a multitude of different strategies in their classrooms, learned from Reading Apprenticeship and from other professional development. Well-intentioned, this approach lacked a building-wide consistency of practice. Research (Ness, 2009) identifies the importance of consistency. At another level of inconsistency, this staff experienced three principals in the past four years.

The researcher literacy consultant heard teachers reference a deficit in student prior knowledge or schema as one theme illustrating teachers' frustration with underperforming students. This theme expresses itself across all subject content areas in spite of teachers' hard work and effort. The teachers associate this deficient schema (prior knowledge) across the entire spectrum of student population, and especially among the percentage of struggling students (defined as not meeting minimum reading proficiency).

Regardless of internal building pressures facing the researcher's school building, this researcher considers four components as fundamental to the issue of students across the socioeconomic spectrum inadequately meeting minimum reading proficiency and the school building not meeting AYP in accordance with the No Child Left Behind (NCLB) Act.

These four components are informed by research (Daisey, 2009; Hornoff, 2008; Ness, 2009). They include: 1) inadequate prior knowledge and student motive for reading, especially reading informational text; 2) aliterate students, able to read but not interested in doing so; 3) practicing and simulating timed reading habits in the classroom which may equate to giving students a practice field over time to prepare and give a more confident effort in timed high-stakes testing; and 4) the use of a reading intervention applied consistently over time (12 or more weeks), meaning consistently experienced by the students. This fourth component attempts to investigate a measurable increase in students' classroom reading and comprehension. It also attempts to measurably predict improved reading performance on standardized tests, predictably contributing to the building's achievement of AYP. This researcher attempts to find and use a consistent intervention with freshmen and sophomore classes in the researcher's building in an attempt to answer the following question.

The question to be researched at the researcher's high school building: "How can students experience an increase in both reading comprehension in the classroom and reading performance on standardized tests, especially emphasizing non-fiction, informational reading?"

Literature Review

With a combination of low student reading proficiency in both the classroom and in reading performance across content areas on the standardized tests, this researcher's curiosity centers around establishing an intervention that does both – increase the overall student reading comprehension in the classroom, and prepare students to increase their reading proficiency on state-mandated standardized testing. A survey and analysis of what other authors and researchers have revealed about both the causes and the solutions for secondary school student reading proficiency in the classroom and on standardized tests has been completed by the researcher with the intent of clarifying and determining an appropriate intervention that measurably improves student reading comprehension and standardized reading test proficiency across content areas at the secondary level.

The literature collected does not specifically address the researcher's question as it specifically relates to the secondary schools level. But a preponderance of related research at the primary school level outweighs related secondary school level research in this researcher's literature search. This preponderance of primary school literature combined with the entire literature search, results in three things: a discovery, an examination specific to [causes in] the secondary schools, and a discussion of research-based best practices.

What does this reveal about the discovery?

The researcher's discovery of a disparity of related secondary school literature may be related to secondary school teacher attitudes towards reading. Ness (2009) spent 24,000 minutes

of direct observation of eight certified teachers across content areas in middle school and high school with whom the researcher had no prior relationship. Supplementing the observation with teacher interviews, Ness (2009) states "reading comprehension instruction is particularly important to middle and high school students as they encounter informational text in their content area classes" (p. 146). However, Ness notes teachers expressed uncertainty in the interviews as to what reading comprehension really entailed, and that "In 2,400 minutes of [observed] instruction, a total of 82 minutes of reading comprehension instruction occurred. Thus, over the course of this study, reading comprehension instruction comprised only 3% of classroom observations" (2009, p. 152). Additionally, "in disaggregating a total of 82 minutes of reading comprehension instruction, the data indicated that more reading comprehension instruction occurred in middle school classrooms (79 minutes total) than in high school classrooms (three minutes total)" (2009, p. 154). Examples of research include Ford and Opitz (2008) entitled "A National Survey of Guided Reading Practices: What We Can learn from Primary Teachers." The researchers' target population comprised 1500 K-2 participant teachers. A sample of K-5 teachers in the research of Ferguson and Wilson (2009), entitled "Guided Reading: It's for Primary Teachers," and the sampling of only primary teacher participants in the research of Fisher (2008), "Teaching Comprehension and Critical Literacy: Investigating Guided Reading in Three Primary Classrooms" present what appears to this researcher as a trend showing a preponderance of reading comprehension, especially specific to guided reading, towards the primary grades, relatively absent in grades 9-12.

Could this reveal a correlation between the diminishing amount of reading comprehension strategies (if established) that students receive as they increase grade levels as noted by Ness (2009), and the proportional lack of research on reading comprehension in the secondary

schools compared to that of primary schools? And could the content focus of high school teachers be a fundamental cause for high school students' low reading proficiency and performance on standardized tests? Could this content focus of high school teachers creep in as a negative bias into our overall existing research at a summary level? Or, could the reading focus of elementary teachers creep in as a positive bias into our existing research? Answers to these questions lie outside the scope of this research, and indeed, could be a focus of additional research. This researcher concludes from this literature review that teacher attitudes and a culture of high school teachers focused on their content could be a root cause, and should at least be considered in the execution of this research. A focused inclusion of reading comprehension, including guided reading applied and adapted at the high school level, may truly exemplify a seamless, back to basics approach, concluding the undergraduate education years by keeping the beginning in mind. So what does research at the secondary schools reveal about improving student reading comprehension?

The state of reading comprehension in secondary schools.

Ness' research (2008) entitled "Supporting Secondary Readers: When Teachers Provide the "What," Not the "How," studies the "instructional strategies that middle and high school teachers used …." (p 81) specifically focusing on informational-based, non-fiction reading, targeting science and social studies. Ness concluded that "teacher-dominated instruction was a common trend in these eight classrooms…. teachers were the primary conveyors of information, presenting content through lectures, PowerPoint, and demonstrations" (2008, p. 88). Ness further summarized her conclusions stating "teachers provide remediation for content, not for reading skills….with interventions based on content rather than those with explicit [reading comprehension] instruction…These findings have several implications about secondary content-

area teachers' understanding of the benefits of reading comprehension instruction and about teachers' instructional priorities and responsibilities. It may be possible that the teachers in this study have incomplete understandings of how reading comprehension instruction benefits struggling readers….When teachers do not understand the instructional value of reading comprehension instruction, such instruction is not prioritized. Instead, the teachers in this study prioritized content over reading instruction" (Ness, 2008, p. 92).

As one might predict, in the face of incomplete understanding and inadequate appreciation for reading comprehension, lack of time becomes commonly cited by secondary school teachers for addressing reading comprehension. In another report, Ness (2007) cites "[teachers] lack the time and knowledge" (p. 229) and must move from that belief towards "[beginning] to understand that literacy integration does not detract from content coverage but actually improves both comprehension and retention" (2007, p. 230).

Brinda (2008) in research entitled "Engaging *Aliterate [sic]* Students: A Literacy/Theatre Project Helps Students Comprehend, Visualize, and Enjoy Literature," samples a sector of secondary students, "reluctant readers" (p. 488), readers who are able to read but won't read. Aliterate students also exist as part of the reading comprehension and proficiency deficiency, especially across informational reading.

Best practice evidence for secondary reading comprehension.

Lapp and Fisher (2009) emphasize the effectiveness of giving students choice in reading texts as a way of engaging struggling readers at the secondary level. While limited primarily to fiction, this researcher sees the potential for application, even if limited, to informational readings across content areas. Daisey (2009) identifies the benefit of secondary school teachers taking time in per-service training to examine their own motivations for reading, and translating

a discussion of that personal awareness by communicating with students the differences between a reader reading for self versus a reader only reading for others (or in my interpretation, only reading when one is forced to read). This research also points to the role of both students as well as teachers. Both Wolsey, Lapp, and Dow (2010), and Daisey (2009) identify student (reader) choice as a means of increasing both the relevancy and variety of reading, as well as increasing the level of engagement (and this researcher ultimately believes) the proficiency of reading comprehension, both in the classroom and on standardized tests.

Hornoff (2008) identifies student choice as part of research entitled "Reading Tests as a Genre Study," in the context of a larger set of strategies. Instead of "teaching to the test by teaching techniques or facts that could soon be forgotten as soon as the test was over, [Hornoff suggests] teaching the test takers [students] strategies they could use again in similar situations, refining them as they grow and … adapting them to new situations they encountered" (p. 69). Volante (2006) in research entitled "Toward Appropriate Preparation for Standardized Achievement Testing," speaks to "the need for students to be aware of the structure of common standardized questions and [that] the diversity of item formats be emphasized" (p. 129). The researcher's study argues against teaching by line item, teaching to the test, which "promotes convergent [as opposed to divergent] thinking and didactic instruction over discovery learning" (2006, p. 135). Instead, Volante suggests districts seeking alignment of curriculum with the standardized tests, and understanding the types of questions appearing on standardized tests. Au (2007) in research entitled "High-Stakes Testing and Curricular Control: A Qualitative Metasynthesis," also notices the convergent impact teaching to the standardized test has on the curriculum, meaning students converging into similar thinking, rather than fostering divergent, creative thinking. Hamilton et al. (2009) discovers that student data informs student learning.

Herman et al. (2008) argues for consistency of practice and early wins when turning around student proficiency in low-performing schools.

Students [become] empowered as successful learners by involvement in their own feedback and getting a first-hand look at self-assessment as noted by Yeh (2006). "Two meta-analyses found that feedback, such as praise or criticism, that directs attention to the learner's ego can have negative effects, suggesting that nonjudgmental feedback is more effective. Feedback was more effective when it involved testing…and was presented immediately after a test (effect size= 0.7); these results suggest the nature of effective feedback systems: nonjudgmental, involving testing, and presented immediately after a test…these results suggest that testing can promote learning" (p. 624). This last statement suggests another view contrary to the position that testing retards learning.

Massengill (2004) specifically examines the relationship of guided reading with improving the literacy of low-literate adults. Placing an emphasis on word recognition, successful improvement was realized. However, Akinbobola and Afolabi (2009), in research entitled "Constructivist Practices Through Guided Discovery Approach: The Effect on Students' Cognitive Achievements in Nigerian Senior Secondary School Physics," while declaring the merits of a pictorial organizer as an element of constructive learning in improving physics comprehension, this researcher noted "physics teachers should make all their lessons problem-oriented, because students always show interest when they are faced with a puzzle" (2009, p. 250). Could there be a way to create a puzzle effect for students as a part of increasing their reading proficiency and comprehension and thinking skills across content areas, with an emphasis on informational reading?

Literature review summary.

Research supporting student reading comprehension and proficiency at the primary level outweighs that at the secondary level as one highlight in summary. Yet some people, such as Ness, are waving the secondary schools research banner on this issue. What does the literature review suggest? Ness (2007) captures the essence of need based on the literature (or mission) analysis: "Literacy coaches could show content-area teachers that reading comprehension strategies do not detract from students' learning of content but help them engage with, think critically about, and retain content. The stakes are high for our nation's middle and high school students. We expect them to read and learn a wide variety of material in texts with complex vocabulary and dense content. Secondary schools and teachers simply cannot shirk the responsibility of preparing their students for the academic demands they face. There are tremendous opportunities for schools and teachers to rise to the challenge; [there is] a wide body of research, including professional development journals and books, showing what effective literacy integration in secondary classrooms entails. By improving professional development, encouraging reflective school environments, and sparking collaboration between teachers, literacy coaches, and curriculum specialists, we can make instruction in reading comprehension an expected classroom norm, rather than a rare occurrence" (p. 231). With research to support the use of guided reading at the secondary schools level, and the use of student self-tracking and self-assessment, across content areas, this researcher sees an ability to increase student reading comprehension and proficiency across content areas at the secondary schools level, with students who are able to read and won't, as well as students who are not confident in their ability to read informational texts. Our future society requires this, expects this, and needs this in order to thrive.

Chapter Three – The Goal of the Action Research Project

The question to be investigated at the school site is how can 10th grade students in the literacy coach's high school building increase both classroom reading comprehension and reading proficiency performance on standardized tests, especially emphasizing non-fiction, informational reading?

The research reveals that high school students generally receive a focus specific to reading content without a corresponding continuation or focus on instructional reading strategies, such as guided reading practiced at the primary grade level (Ferguson & Wilson, 2009; Fisher, 2008; Ness, 2009). Some of this is due in part to high school content-specific teachers seeing a conflict between scarce time to teach their content and additional time to teach reading strategies. This researcher believes the three consecutive previous years of the building's inability to achieve the minimum reading proficiency for Annual Yearly Progress (AYP), and a growing sense of student apathy towards reading, a lack of reading confidence and an attitude that reading is too difficult, can be reversed by successfully investigating the research question. If this issue is solved, the building will see a two-fold change: meeting reading proficiency standards in mandated testing, and increased student reading comprehension and performance across content areas, especially reading and comprehending informational texts in the classroom.

Instruments for gathering data.

There will be different instruments used to gather data on the two classes of tenth grades (approximately 30 students per class). To collect baseline data, the researcher will administer an ACT reading test as a pre-test, and survey students regarding their reading ability and attitudes (Appendix A).

After collecting baseline data, the researcher will implement a series of weekly guided-highlighted readings accompanied with a multiple choice test and writing a summary. As Yeh (2006) identifies students empowered as successful learners by involvement in their own feedback and participating in self-assessment, students will track their own progress during weekly (over the 10 weeks between pre and post testing) guided highlighted reading practice sessions, grading both their ability to write a summary following the rubric (see sample, Appendix B) and tallying their total score on 10-question multiple choice tests (Appendix C). Herman et al. (2009) also speaks to student data informing student learning. During the 10 weeks between pre and post testing, students will be alerted to the two kinds of ACT reading questions (referring questions and reasoning questions) used on the reading portion of the ACT standardized test, which is used as the state-wide standardized portion of the test to determine this school building's AYP reading proficiency at the junior grade level. Volante's (2006) research substantiates this practice.

Students will also receive weekly guided-highlighted reading, using high-interest informational reading articles, over a 10-week period, to try and encourage students to become engaged and enthused about informational reading. If the high-interest reads become successful at increasing student interest, this will partly address some teachers' perceptions about time used for instructing reading strategies as taking away from their time teaching content.

After administering the weekly guided-highlighted reads over a 10-week period, the researcher will administer a post-test using another ACT reading selection (Weber & Wozniak, 2010), survey the students a second time (Appendix D), and interview the two classroom teachers involved (Appendix E). A quantitative comparison of the pre-test and post-test, in conjunction with a comparison of student surveys before and after, and interviews with classroom teachers evaluating the process from the teacher's perspective, will give the researcher information as to the impact of the guided-highlighted reading interventions on student classroom reading comprehension and reading proficiency performance on standardized tests.

Chapter Four – Action Steps.

The researcher asks how will secondary school students (10th grade students are specifically examined in this research) increase both classroom reading comprehension and reading proficiency performance on standardized tests, especially emphasizing non-fiction, informational reading across content areas? Further, will a process used in the classroom be able to increase students' confidence in their reading ability and increase their interest in reading informational texts?

Current research on the issue reveals that attentiveness by teachers to increasing student reading comprehension in the classroom decreases or drops off into the secondary school years, replaced by teachers' focus on getting the content over reading the content for understanding.

Possible solutions.

The leveraging of schema, or prior knowledge, as a means of connecting what a reader already knows through prior experience with new information to increase reading comprehension presents progress. A historical perspective of research by Anderson and Pearson, (1984) will refine comprehension for our purpose to mean "interaction of new information with old knowledge" (p. 3). They will further state "the basic principle of Gestalt psychology, called the Law of Pragnanz, is that mental organization will always be as good as prevailing conditions allow...good embraces such properties as simplicity, regularity, and symmetry…and is dynamic" (p. 7). Speed dialing into the 21st century, Pink, in his book *A Whole New Mind* (2006), based on relatively recent brain research, this researcher believes heightens the importance of leveraging schema through use of the right hand side of the brain, and implicating the value of identifying purpose for reading through meaning seeking. Pink quotes Viktor Frankl when he writes, "[Frankl] argues that 'man's main concern is not to gain

pleasure or to avoid pain but rather to see a meaning in his life'" (p. 217). All of these researchers help one to understand both the reason and the motive for a reader leveraging schema to better comprehend a read. This theory of building a student's prior knowledge or reviewing what they generally know before reading new text takes steps towards the issue, but does not go far enough in the opinion of this researcher to resolving what appears to be a wide gap in readers' comprehension at the secondary schools. A more fundamental, far-reaching solution with impact both in school and in post-secondary careers and life is sought.

A second solution will involve Robert Marzano's meta-analysis to identify the most effective instructional strategies, in which Haynie (2010) in "Effective Teaching Practices," researches effective teaching strategies across five different subject areas in secondary schools. Including 42 language arts teachers in English I, Haynie examined "recalling information (knowledge); understanding information (comprehension); using information in a new way (application); breaking down information into parts (analysis); putting information together in new ways (synthesis); and making judgments and justifying positions (evaluation)" (2010, p.11). While a relationship between teacher expectations and student results was noted (2010, p.14), teachers who promoted more results among their students were observed using more of "[Marzano's] nine most effective instructional strategies [such as] identifying similarities and differences, and [emphasizing] summarizing and note taking" (2010, p. 22) to increase the comprehension, to include the reading comprehension, of their students. One of the implications of Haynie's research suggested "the attitude that a teacher holds is the attitude that the students adopts" (2010. p. 29). This researcher believes that considerable learning and benefit from Haynie's study will be applicable to the issue of secondary student reading comprehension. However, the researcher will seek a solution that both simplifies a process

incorporating Marzano's effective instructional strategies, yet invites a higher percentage of teachers into the practice of effective expectations through repeated exposure and practice which in its nature invites teachers to challenge students to engage, and one that will promote a building-wide approach.

ReLeah Lent will set the stage for a third solution to increasing secondary students' reading comprehension and proficiency when in her book, *"Engaging Adolescent Learners: A Guide for Content-Area Teachers,"* Brian Cambourne, in the foreward, comments that "the lack of congruence between research-based knowledge and the messy complexity of the real world is a perennial problem" (Lent, 2006, p. x). Cambourne further applauds Lent's ability to show '"how theory can be turned into [high school] (classroom) practice,' …in ways that engage adolescent learners" (2006Lent, p. x). Lent accurately describes the setting and environment this researcher addresses when she states, "The very culture of secondary education is changing day by day. Teachers are reporting that many students are not coming to school, and when they do, they are passive, often disengaged and disinterested; or worst, literally asleep" (2006, p.xiii). Question Answer Relationships (QAR) is one way to attempt to engage the disengaged reader across all content areas, by approaching comprehension through an increased emphasis on the question – the type of question – to assist not only determining the answer, but developing the answer. Raphael, Highfield & Au (2006) developed QAR as a language to help change from "thinking about comprehension as a magic box where a 'miracle occurs,' …to think about it as a complex process that can be unpacked, unmasked, and brought out for public inspection [and personal introspection]…so that students can see how it [comprehension] works" (2006, p. 5). The authors combine the ideas of schema theory and script theory to increase reading comprehension. However, the solution, while a concept this researcher uses with students and

prefers, does not singularly meet the reading comprehension and proficiency crisis now facing many of our secondary school students. A broader solution is sought by the researcher.

The three solutions examined will require building and incorporating a students' prior knowledge; leveraging Marzano's most effective instructional strategies; and revealing our thinking about comprehension through a focus on the types of questions, so that with better a better understanding of our questions, we develop a better understanding of the answers, of the solutions, of the material. While each hold both merit and contribution to student growth and learning, they will be rejected by the author on the basis of being too limited in scope (schema and Q-A-R), and too complex (Marzano's instructional strategies). However, the researcher will incorporate the ideas of "simplicity, regularity, and symmetry" (Anderson and Pearson, 1984, p. 7) in schema. The researcher will incorporate the issue of a teacher's attitude becoming what the student adopts (Haynie, 2010, p. 29), by working into the solution what the researcher calls an attitude-backwards approach, to determine if increased student attitude can positively influence teacher attitudes. And the researcher will consider the value of understanding types of questions

to help students see their thinking about their thinking, at a meta-cognitive level.

The researcher will suggest another solution. Since reading, writing and thinking mutually reinforce and support each other, the researcher will introduce a guided-highlighted reading approach called Close and Critical reading (CCR). This will require a fairly simple model which integrates three main elements – reading, writing and thinking – necessary components for classroom comprehension, standardized test-taking, and life and career skills. The model will initially subject students to a pre-test, using a previously released ACT standardized reading test, enabling students to experience the struggle of attempting a difficult

test designed to determine who can excel in college. Towards the end of the study, students will take another previously released ACT reading test, to compare both their scores and through the use of pre and post surveys, their attitudes towards reading, especially when reading informational texts. In between the pre and post test, students will scaffold their learning experience, becoming exposed to a series (weekly) of high-interest, informational reads which will eventually increase in complexity. These teacher-driven reads will support the instructional content in the classroom. For each read, students will highlight their articles following a series of teacher-driven prompts, asking them by paragraph, to find and highlight important information ("In paragraph one, please find and highlight what the 1400's are known for….In paragraph two…"). Following the guided-highlighted (close) reading, the students will write a summary of the article emphasizing synthesis thinking (the "critical" in Close and Critical) and will be expected to increase their number of words over time, using a specified time period of 3 minutes. The Close and Critical model will also prompt students to review what they highlighted, then take a timed, multiple-choice test. To encourage intrinsic motivation, students will self-score and track their progression of both multiple test scores and their summary writing. Summary writing will be compared to both a writing rubric and a sample model provided by the teacher/coach/researcher. Each of the series of Close and Critical reads will require the use of one period, weekly. Logistics expense will be limited to the time to prepare CCR lessons, and the costs for reproducing student handouts (the readings), and a classroom set of colored (yellow) highlighter markers. The entire process will take approximately fourteen weeks.

Action plan details.

The action plan schedule is outlined as follows:

Week One: Receive permission from the school site principal and classroom teacher.

Week Two: Identify participants and send and receive returned informed consents.

Week Three: Collect baseline data (pre-test/student survey).

Weeks Four – Fourteen: Administer weekly Close and Critical guided-highlighted, high-interest reads, collecting data.

Week Fifteen: Administer post-test/student survey.

In week one, the researcher will meet with the school and request permission to conduct the Action Research. After permission is received, the researcher will select the two sophomore classes.

To collect baseline data on the students' reading comprehension and proficiency, the researcher will administer a pre-test, sing a previous ACT reading test. Student surveys about their ability to understand informational texts will also be administered as part of the baseline.

After collecting the baseline data, the researcher will conduct a series of weekly Close and Critical reading experiences weeks four to fourteen. During this time, the researcher will observe the students' participation and progress, as they self-score, and as they make comments about their progress.

Concluding the final week with an ACT post-test and a student survey, the researcher will compare pre and post-test and pre and post-survey data, as well as comments offered by the students regarding the process overall will be captured. After all data is collected, the researcher will be able to begin the process analyzing the students' reading comprehension and proficiency with regards to informational texts at the secondary school level. This data will become useful

in establishing and documenting a process focused on improving the intrinsic desire and ability of students to read, understand, and write – to comprehend reading, especially reading of informational texts, and increase reading proficiency.

Chapter Five – Results and Next Steps

The purpose of this action research project was for the researcher to find whether a series of close and critical, guided-highlighted readings provided to high school students could increase both their reading comprehension and proficiency. This served to answer the question, "How can students experience an increase in both reading comprehension in the classroom and reading performance on standardized tests, especially emphasizing non-fiction, informational reading?" Student gains were measured on standardized tests. The guided-highlighted readings emphasized non-fiction, informational reading across the content area. In addition, the researcher explored whether the project could increase students' confidence in their reading ability and increase their interest in reading informational texts.

To answer the researcher's question, baseline analysis of data was collected using pre- and post ACT reading scores, pre- and post-survey of students, observations/anecdotal data and a post-teacher interview. The researcher, an educational coach and consultant who worked through a high school teacher and two of her classes of sophomores, then correlated and analyzed the data, to determine results, conclusions, and suggestions for further study.

These results were broken down in this chapter into these areas: The story, which described the process and flow of events**;** the data, which described the qualitative and quantitative data, analyzing and making some preliminary conclusions from the data; the anecdotal evidence which provided some indirect response to the research question and which spoke for those participating students whose data was not captured for this research; and finally, detailed conclusions and suggestions for further study.

The story.

Conversation with one veteran teacher on staff at this high school when he heard I was conducting this action research with their sophomores, replied, “Good luck. The reputation of this sophomore class through the middle school and their freshmen year, is not complimentary. They are known as the worst class in terms of not doing the work. “They don’t care, don’t read, and they don’t do what you ask them.” With this unexpected revelation, I immediately discovered getting all parent consent forms returned took high energy, and imaginative techniques on my part to get the students to remember and follow through. But eventually all consent forms were turned in.

A further sequence of events included: each student completed a close and critical guided-highlighted pre-reading survey, assessing their individual capability toward informational reading. In September, students were given an initial pre-test, using a previous ACT college readiness test to determine reading proficiency similar to the state’s standardized reading assessment for high school juniors. Then, students experienced a series of bi-weekly guided-highlighted readings, six total. In these, students were required to highlight key information following verbal prompts from the teacher, and required to write a summary of what they read. In each of the cases, students also took an ACT-like multiple-choice reading quiz on that informational reading text. This quiz included both referring (literal) questions and reasoning (inferential) questions. The informational readings were two pages long, generally high-interest, and represented social studies, science, prose fiction and humanities (the four genres for reading used on the ACT). A post-ACT reading test (composed of reading selections different from the pre-ACT test) was administered just before Christmas break. Students individually completed close and critical guided-highlighted reading post surveys. A teacher

post-interview and survey was not conducted until February, 2011, to accommodate post-holiday end of semester exams, a change in semester and adapting to new second semester classes at the school building.

The story included administrative adjustments made by the researcher. The biggest adjustment required combining the data of both classes into one group or set of data. This arose due to a combination of events. Some students were scheduled into and out of the classroom well into September, meaning some students did not take the reading pre test or pre reading survey. Some students were present at school but not in the class the day of the scheduled post-test or post survey. All tests were scored using a first-time district wide use of a system called Data Director. While this system improved the reporting and selection of assessment views and history, the pre and/or post reading tests of those students whose names were not initially entered correctly into the system by the district became lost and their scoring was not documented.

Another administrative adjustment required dropping student self-scoring sheets. Students used these to self-score their writing based on a rubric, and to self-score the number of multiple choice questions correctly answered for each guided-highlighted reading. While students did engage in self-scoring and some analysis, and researcher's personal observation was that while it did heighten student interest and involvement in their learning, too many sheets became lost and misplaced to reasonably include as data with this research. However, the use of student self-scoring sheets was not intended as part of answering the research question.

Whether students' data was included or not, all students did participate throughout the research, and later anecdotal evidence will speak to the performance of students whose data was excluded or otherwise unable to be included in this research.

The data.

Qualitative data

Preliminary data from the pre-reading survey, called the "Student Survey Pre-Close and Critical Guided Highlighted Reading" was initially collected from the students. This was intended as a baseline to establish some understanding of student attitudes towards informational reading, and whether students perceived informational reading as hard (-3) or easy (3), as unenjoyable (-3) or enjoyable (3). It also established some view of student perception toward their ability to find the important information in science and history, and informational textbooks, and how well they understood what they read and felt they could write and speak to what they read. The exact survey language used as seen and replied to by the student is shown in Table 1.

Table 1
Student Survey Pre-Close and Critical Guided Highlighted Reading

Student Survey Pre-Close and Critical Guided Highlighted Reading

Name:_____ Date:_____

Circle the answer that works for you:

1. Informational Reading is
Hard -3 -2 -1 0 1 2 3 Easy

2. Informational Reading is
Not enjoyable -3 -2 -1 0 1 2 3 Enjoyable

3. I know how to find the important information in science and history articles and textbooks.
Yes No

4. I understand what I am reading and can talk and write about it.
Yes No

A "Student Survey Post-Close and Critical Guided Highlighted Reading" was then administered following the students taking the final ACT-like post-test as a wrap-up to the research. The first four statements, using the same scale, were repeated on this survey. Students were not given a copy of the pre-survey (Table 1) to see how they had completed it three months earlier. Based on the personal observation of this researcher, students had little recollection of how they had precisely scored the pre-survey three months earlier. That just was not on the radar screen of these teenage learners. Additionally, as shown in Table 2, the survey obtained a view of the attitude or perception of students towards the series of Close and Critical guided highlighted readings of informational texts they experienced in this research in terms of their confidence in both reading and learning important information. Finally, any student

comments towards other ways that the close and critical guided highlighted reading had helped them were solicited.

Table 2
Student Survey Post-Close and Critical Guided Highlighted Reading

Student Survey Post-Close and Critical Guided Highlighted Reading

Name:_____ Date:_____

Circle the answer that works for you:

1. Informational Reading is
Hard -3 -2 -1 0 1 2 3 Easy

2. Informational Reading is
Not enjoyable -3 -2 -1 0 1 2 3 Enjoyable

3. I know how to find the important information in science and history articles and textbooks.
Yes No

4. I understand what I am reading and can talk and write about it.
Yes No

5. Close and Critical Guided Highlighted reading has improved my confidence in reading informational (i.e. science/history) texts and learning the important information.
Yes No

6. How else has close and critical guided highlighted reading helped me? (circle all that apply)

Writing summaries Answering test questions

Other: (Please Explain)

Table 3 below gives a partial comparison of the qualitative pre and post survey attitudinal data of the 27 students who had completed both sets of quantitative and qualitative research data.

Table 3
Qualitative Pre and Post Survey data [1]

High School												
Teacher		Infl'l Reading is Hard (-3) to Easy (3)			Infl'l Reading is Unenjoyable (-3) Enjoyable (3)			I know how to find key info in a science and history story (Y/N)		I understand and can talk and write about what I read		Close & Critical guided highlighted reading improved my confidence reading informational texts and learning key information
Student	Grade	Sep-2010	Dec-2010	Change	Sep-2010	Dec-2010	Change	Sep-2010	Dec-2010	Sep-2010	Dec-2010	Dec 2010 [only]
Student 1	10			0			0					
2	10	1	3	2	-3	2	5	Y	Y	Y	Y	Y
3	10	-2	1	3	-2	-1	1	Y	Y	Y	Y	Y
4	10	-2	0	2	-1	0	1	Y	Y	Y	Y	Y
5	10	2	1	-1	-3	0	3	N	N	Y	Y	Y
6	10	0	0	0	-2	0	2	Y	N	N	N	Y
7	10	-3	0	3	-2	-1	1	N	Y	Y	N	Y
8	10			0			0					
9	10			0			0					
10	10	0	2	2	-2	-1	1	Y	N	N	Y	Y
11	10	0	3	3	0	3	3	Y	Y	Y	Y	Y
12	10			0			0					
13	10	2	1	-1	-1	-2	-1	Y	Y	Y	Y	Y
14	10			0			0					
15	10			0			0					
16	10			0			0					
17	10			0			0					
18	10	3	3	0	-2	-2	0	Y	Y	Y	Y	Y
19	10	1	2	1	-1	1	2	Y	Y	N	Y	Y
20	10	1	2	1	-3	0	3	Y	Y	Y	Y	Y
21	10			0			0					
22	10	1	3	2	-2	2	4	Y	Y	N	Y	Y
23	10			0			0					
24	10	0	1	1	-1	-1	0	Y	Y	Y	Y	Y
25	10	2	2	0	-2	0	2	Y	Y	Y	Y	Y
26	10	1	1	0	-3	0	3	Y	Y	N	Y	Y
27	10	3	3	0	0	0	0	Y	Y	Y	Y	Y
Average		**0.59**	**1.65**	**1.06**	**-1.76**	**0.00**	**1.76**					
Standard Deviation		**1.70**	**1.11**	**1.18**	**0.97**	**1.37**	**1.53**					

Note. Students understood "important information" and "key information" as identical in meaning throughout the research.

To the statement "Informational reading is hard/easy," Table 3 shows the student average of 0.59 in September using a scale of hard at -3 to a scale of easy at 3 at the opposite end, increased to a 1.65, closer to the easy spectrum. This resulted in the average of student perception of the ease of reading informational text increasing by just over 1 whole point (1.06) between September and December. Interestingly, the standard deviation (SD=1.11) in December also indicates a tighter range of student responses to this statement when students completed the post-survey in contrast to when students completed the pre-survey (SD=1.70) in September.

To the statement "Informational reading is unenjoyable/enjoyable," table 3 shows the student average of a (negative) -1.76 in September using a scale of unenjoyable at -3 to

enjoyable at 3 on the opposite end of the scale. This -1.76 average increased to a zero average closer to the enjoyable spectrum by a margin of 1.76, or almost 2 whole points. Combined with a tight standard deviation (SD=0.97) for the September survey, this indicates a fairly consistent unfavorable perception among these students towards informational text. The positive, upward trend to a student average response of 0.00 towards this same statement in December, albeit with a slightly higher SD=1.37, revealed to this researcher a positive shift in perception towards informational reading by these students. This followed six exposures to guided-highlighted reading over a period spanning three calendar months. (The blanks occurring for some students indicated those students who were scored on both the ACT pre and post test, for special cause reasons completed either one or neither of the attitudinal surveys.)

Table 4 below gives an additional comparison of the qualitative pre and post survey attitudinal data among a sampling of the 27 students who had completed sets of both quantitative and qualitative research data.

Table 4
Qualitative Pre and Post Survey data [2]

Teacher	I know how to find key info in a science and history story (Y/N)		I understand and can talk and write about what I read	
Student	Sep-2010	Dec-2010	Sep-2010	Dec-2010
Student 1				
2	Y	Y	Y	Y
3	Y	Y	Y	Y
4	Y	Y	Y	Y
5	N	N	Y	Y
6	Y	N	N	N
7	N	Y	Y	N
8				
9				
10	Y	N	N	Y
11	Y	Y	Y	Y
12				
13	Y	Y	Y	Y
14				
15				
16				
17				
18	Y	Y	Y	Y
19	Y	Y	N	Y
20	Y	Y	Y	Y
21				
22	Y	Y	N	Y
23				
24	Y	Y	Y	Y
25	Y	Y	Y	Y
26	Y	Y	N	Y
27	Y	Y	Y	Y

Note. Students understood “important information” and “key information” as identical in meaning throughout the research.

To the statement “I know how to find the important information in science and history articles and textbooks,” while most of the students responded ‘yes’ in September, three of those respondents changed their response in December, resulting in a net gain of one additional ‘no’ response in December. The researcher initially found this data puzzling, as it does not seem to support the researcher’s research question and hypothesis. However, when the researcher more

closely read the very statement composed by the same researcher, the researcher made a discovery. None of the six informational, high-interest articles used in the research required students gleaning information from charts, maps, legends, or other bits of data typically illustrated on informational readings. Additionally, the researcher surmised that students became more cognizant of the challenge of reading informational text without support such as the guided prompts highlighting key and important information. This reminder of how difficult informational reading is and the challenge it presents to the students may account for the relative flat line of no change between September and December. However, for being able to understand, read, write and talk about the information from informational text, the number of yes responses increased from 12 to 15, among 17 students. This increase in 3 yes responses out of 17 total responses in spite of 1 of the 17 students changing from a yes response in September to a no response in December.

Table 5 below gives an additional student qualitative perspective included only in the post survey.

Table 5
Qualitative Pre and Post Survey data [3]

Student	Close & Critical guided highlighted reading improved my confidence reading informational texts and learning key information (Dec 2010 only)
Student 1	
2	Y
3	Y
4	Y
5	Y
6	Y
7	Y
8	Y
9	
10	
11	Y
12	Y
13	
14	Y
15	
16	
17	
18	
19	Y
20	Y
21	Y
22	
23	Y
24	
25	Y
26	Y
27	Y

Note. Students understood "important information" and "key information" as identical in meaning throughout the research.

The final qualitative statement requesting student perspective regarded a perception of the value of doing the research from the end user (or student) viewpoint. "Close & Critical guided highlighted reading improved my confidence reading informational (i.e. science/history) texts and learning the important information." For a group of students who previously showed

their willingness to circle “no” as a response on previous statements, every one of these students chose to circle “yes.” While appreciated by the researcher, this indicator of student recognizing the value of doing the research speaks positively toward the research issue of increasing student reading, writing and thinking across informational reads. If more students perceived increased enjoyment towards informational reading (Table 4) and all students acknowledged the experience as building confidence, these indicators suggested an increase in reading proficiency across content areas of social studies, humanities, prose fiction and science. A look at the quantitative data needs to pick up from where this leaves both the reader and the researcher.

Table 6 below provides the “Teacher Interview Post-Close and Critical Guided Highlighted Reading” survey. As you review the teacher comments, keep in mind that the researcher intentionally did not reveal the data and student pre and post survey results to this teacher prior to her completing the survey. It was the intent of the researcher to enable the reader a view of the teacher based on her knowledge of her students and her observations of both how her students performed her coursework and of their applied comprehension and learning, beyond the series of six, semi-weekly guided-highlighted reading sessions.

Table 6
Teacher Interview Post-Close and Critical Guided Highlighted Reading survey

Teacher Interview Post-Close and Critical Guided Highlighted Reading

Name: (Classroom Teacher's Name) Date: 2-09-2011

Circle the answer that works for you:

1. My students' overall ability to comprehend informational text and improve their reading proficiency as a result of participating in the CCR guided highlighted reading changed how?
Decreased No Change Improved **Improved Substantially**

Comment: In general student's use of personal examples and specific detail has been evident in their essays and writing assignments. Students that had previously struggled with informational text have become confident in their ability to identify key ideas and concepts as well as draw conclusions from the reading.

2. Did my struggling readers' ability to read and comprehend informational text change, and if so, how? **Yes** No

Comment: I had one student who had been extremely reluctant to attempt reading informational text on any level who began reading and sharing his summaries with the class! As a whole, the anxiety levels of the struggling readers were reduced. As a result these students turned in more of their writing assignments and homework. They also became better test takers.

3. How else has close and critical guided highlighted reading helped my students? (Circle all that apply)

Writing summaries **answering test questions**

Other: (Please Explain) I had a student that was involved in a state speech competition: extemporaneous speech. She used the skills and strategies from our close and critical reads to prepare for her speech. She won second place! This student declared that the techniques practiced through the close and critical reads proved to be an invaluable key to her victory!

Note. Highlighted responses indicate teacher responses.

Beginning with “Other” under #3 in the classroom teacher survey, Table 6 above, note the teacher refers to one student’s using the “skills and strategies” to prepare for a speech. The researcher comments in more detail regarding this noteworthy incident in the section “Anecdotal Evidence” which follows.

The researcher agrees with the teacher comment that the students who “had previously struggled with informational text have become confident in their ability to identify key ideas and concepts as well as draw conclusions from the reading” (Table 6, #1). An example occurred in early December, when the researcher verbally gave the students their prompts for them to find and highlight appropriately in their copies of the text. I suddenly paused mid-way through, and asked them, “Given a choice, answer the following question. Is the researcher [Am I] stating these prompts too slowly, at just the right pace, or too quickly for you to follow?” Their unanimous response was “too slowly.” I reminded them that this pace was a little quicker than the first time we had done a guided-highlighted reading in late September, when they frequently interrupted by saying, “Would you repeat that [Mr. Zimmerman]?” to the researcher. Now they gave the appearance of looking around and waiting just enough for both the researcher and the teacher to notice.

To elaborate further on the comment about the one specific struggling reader under #2 of the teacher survey, Table 6 above, there was a day when this student actually beat the professional writer in the room, the researcher. As the student read his summary out loud, the entire class individual by individual strained and bent forward or sideways to hear his every word. The teacher later commented to the researcher after class that this student had often been made fun of by some of those same students, and although he rarely expressed himself, when he had, students talked over him as if he had nothing worth listening to. Now, these same students

were straining to hear him talk, listening to every word of his summary. Although not within the realm of this specific research, the researcher believes this speaks to further research and to other research centered around peer recognition and peer acceptance as a function of how well one thinks and shares his or her thinking. For example, could this student sharing his thinking propel an individual from Safety/Security and Social into the Self-esteem level of Maslow's Hierarchy of Needs values, or on some related psychological model describing the human experience?

Referring to the further comment under #2 addressing the teacher's perception that guided-highlighted reading practice influenced an increase in writing assignment and homework turn-in surprised the researcher, who was not previously aware of this teacher's specific observation. This too goes beyond the intent of this research to measure or to determine any cause and effect of the strategy to completion of assignments, yet raises the possibility for future research and examination.

Finally, the teacher's comment under #2 about better test-taking skills was partly a function of this researcher explaining to students the difference between a reasoning and literal multiple choice questions, and the types of specific words to look for in question statements. This was also not measured and considered beyond the scope of the research question regarding increased reading proficiency and comprehension across content areas.

The qualitative data captured a sense of student attitude towards informational reading, and used a guided highlighted Close and Critical strategy for finding key information and increasing one's reading, writing and thinking skills. Students indicated an increased propensity towards enjoying informational reading, and indirectly indicated through response to the final

statement (Table 5) that the practice of highlighting for key information in this research was worth their time.

Quantitative data

A comparison of the pre and post ACT reading scores is shown in Table 7 below.

Table 7
Quantitative Pre and Post ACT reading test scores

Teacher			ACT Pre-Reading	ACT Post-Reading	
Student	**Firstname**	**Grade**	**Test**	**Test**	**Change**
Student 1		10	17	13	-4
2		10	8	17	9
3		10	6	15	9
4		10	12	14	2
5		10	13	11	-2
6		10	7	8	1
7		10	16	12	-4
8		10	25	27	2
9		10	9	6	-3
10		10	10	11	1
11		10	13	13	0
12		10	17	11	-6
13		10	5	7	2
14		10	11	13	2
15		10	19	17	-2
16		10	17	24	7
17		10	10	18	8
18		10	10	14	4
19		10	13	16	3
20		10	10	10	0
21		10	9	15	6
22		10	8	13	5
23		10	8	20	12
24		10	31	16	-15
25		10	17	20	3
26		10	11	11	0
27		10	16	9	-7
Average			**12.89**	**14.11**	**1.22**
Standard Deviation			**5.84**	**4.88**	**5.72**

The researcher used two previous and different ACT reading tests for the pre-test baseline data and the post-test for comparison analysis. Each test was composed of four different reads, one each from prose fiction, social studies, humanities and science. Each of the selections was followed by ten multiple choice questions, each set of questions incorporating a combination of referral and reasoning types of multiple choice questions. And simulating actual ACT testing conditions, the students were given a total of 40 minutes to complete the entire test.

The average increase of 1.22 points between the pre and post test becomes more significant when accounting for what teachers refer to as a recalcitrant student, student 24, who is known by reputation to be intelligent and one prone to "checking out" when the mood strikes. This male dropped 15 points from achieving the group's highest score of a 31 in September, to attaining a 16 score in December of the post-test. The researcher happened to know from personal knowledge that student 12, who dropped six points from a 17 to 11, was experiencing extraordinary family problems and issues at the time of the post-test, just prior to the holidays. This accounts for two of the three lowest drops among the 8 out of 27 students who dropped between the pre and post test. Of the other 19 students, 3 students scored the same score and 16 students showed an increase in score. The number of students (16) who increased their score over the total number of 27 students, represented over 59%, or almost 60% of the total population.

This researcher believes the larger trend supports a secondary positive conclusion that the reading proficiency of students across informational texts and their ability to read, write and think about the material, can be increased by incorporating this habit of guiding students with prompts to identify the key information. Even aliterate students, or students who did not

normally participate in the in-class assigned reading, participated in the series of guided readings of informational text over the three month period.

The anecdotal evidence.

Another term this researcher would more informally refer to as a substitute for anecdotal evidence is "the totally unexpected and related evidence of the effect of this research." Three relevant albeit indirect examples of anecdotal evidence were discovered by this researcher during the course of this research. Indirect means this researcher did not measure the evidence (hence the term anecdotal), but the evidence was deemed so important and relevant to the issue of increasing student comprehension and reading proficiency across content areas, to include career, that the researcher would be remiss to exclude them from the discussion and picture presented by this research. All three of the examples of evidence given occurred coincident to and during the time that this research was conducted. The first and third examples involve individual experiences – one of a student involved in the research, and one of a teacher using the methodology of this research, although not a part of the class of students sampled by this research. The middle example of evidence sandwiched between the individual citations, reflects an indicator of a student body perspective towards its teachers based on the use of this same guided highlighted reading, writing and thinking methodology used in the research.

Item one is the story of one of the student participants in this research. In early December, she participated in a regional competitive business challenge of the High School Business Professionals of America (BPA). The event called "Extemporaneous Speech" requires student competitors to research and prepare a business speech in 10 minutes, given a topic. This participant in the research told me she initially experienced what was like a frozen moment in thought, temporarily paralyzed as to what she would do or say given the immediacy and

enormity of the situation. Suddenly, she decided to take a page from the habit in this research of finding and highlighting key information given by the prompt. While not a direct part of this research, I also challenged the students to write a creative summary of the informational article. The way this would work is the researcher would prompt the students who then would highlight the key information in the article guided by the prompts. Following completion, the researcher gave the students "60 seconds" to review what they had already highlighted in the article.

This gave them the real experience for skimming and scanning for key information. The researcher deemed this critical in developing the students' habit of skimming and scanning as a real-life skill with application across career and educational boundaries. The researcher would always recommend, almost to the point of insistence, that students then be given this opportunity to leverage what they highlighted by applying the skill in preparation for what was to come next – communicating. The researcher then challenged the students in a writing competition. While their classroom teacher timed us, usually in four minutes, each of us would write a creative summary of the article we had just skimmed and scanned for the key information.

The researcher defined creative summary as one in which the writer both retells the story in the writer's own words, and also "adds value" by including a personal connection, weaving a story or analogy into their summary which supports the facts or purpose of the story, or which can also be used to refute the facts of the story. The other goal of the students in this classroom is to try and beat (the researcher). If any one student in the classroom beat the researcher in total number of words, it meant the researcher had to perform for the students before the period ended. With no supporting research data since this aspect fell outside the initial realm of the research issue, this researcher noted that as the student with the highest number of words read

their creative summary out loud, it was voted by the class of students as the most enjoyable and interesting and relevant to listen to, even among students who challenged each other or in some way did not get along socially.

The student in this research transferred her new norm, her new behavior pattern to perform and write a creative summary under time constraint, onto this time pressure of a business competition. She focused on the key information, the essential elements of the issues, and quickly composed a creative summary in minutes which, just like in the classroom experience, sounded enjoyable, interesting and relevant to the audience of business judges. In her mind, as she would have you believe, she came from out of nowhere to place second in this event regionally.

The second anecdotal evidence actually comes from introducing this technique of guided highlighted reading to another high school building of teachers coincident to the research. Beginning in September, select students representative of the entire student body were surveyed regarding their perception of teacher attitudes towards them as students. The consistent reply indicated a perception that teachers did not really care about their learning. This same survey was given to the same select students in January, to determine what, if any, change in perceptions had occurred. To the “surprise” of the building improvement committee of teachers responsible for giving, collecting and communicating the survey results to the teaching staff, students consistently responded to the same survey question with a positive perception that teachers did care. When asked to explain with comments any reason for the change, they consistently noted two reasons. The first and primary of the two reasons given was the building-wide commitment by teachers in all content areas to introduce the method of guided-highlighted reading and writing summaries proposed by this researcher and modeled after the methodology

used in this research. Students gave this as primary evidence that teachers showed concern for their learning as a reason for positive change in their perception. The researcher notes that this staff of teachers had always shown commitment and support for their students by their involvement with students in after-hour activities, not given as a part of their job-description as educators. Yet it was teacher instructional practice and newly established classroom routines which were cited by the students as a reason or factor for positive change in perception of teacher attitudes towards students.

The third anecdotal example was driven by a teacher who used the guided highlighting methodology modeled for him in the classroom by the researcher. The teacher met the researcher in the hallway. The gist of his conversation was to share with the researcher how his attitude and motivation for teaching had increased. As the researcher asked him what had caused this change in his mind, he cited the guided-highlighted instructional experiences with his students as a main reason. He specifically made an observation that all of the kids, crossing the spectrum of low socio-economic and low-performing students to the high-performing students were improving. For him, to have students who did not care or do the assigned work to suddenly participate in the activity created a significant experience. He talked about how he wanted to teach longer and looked forward to coming to work. The researcher asked him if he thought his zeal and energy for the guided-highlighted readings somehow rubbed off on all of his students.

The sum of these three unrelated samples of anecdotal evidence, occurring independently of each other, all communicated consistently positive indicators of indirect evidence towards answering the issue of this research. While not considered on any equal level with the data, the researcher would be remiss to exclude these real-life episodes coinciding with the conduct of

guided highlighted reading as a part of instructional classroom experiences across classrooms and even across high school buildings.

Paired sample t-tests of the data.

The following charts and accompanying descriptions summarize the results of paired sample t-testing across quantitative and qualitative data collections.

Table 8.

Paired Sample t-test ACT Pre and Post test data

All Students

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ACT Post	14.1111	27	4.87800	.93877
	ACT Pre	12.8889	27	5.83974	1.12386

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ACT Post & ACT Pre	27	.442	.021

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	ACT Post - ACT Pre	1.22222	5.71996	1.10081	-1.04052	3.48496	1.110	26	.277

Table 8 shows a range of scores exist on the pre and post test data. Means (*M*) (with standard deviations (*SD*) in parentheses) for pre and post test were 14.11 (4.87) and 12. 88 (5.83) respectively. A paired samples correlation of .442 and a significance of .021 indicate the results of the pre and post test are somehow related. The mean gain calculated in the paired samples test $M = 1.22$ and $SD = 5.71$ suggests a 95% confidence that a loss of 1 point to a gain of 3.5 points exists for any one student.

Table 9.

Paired Sample t-test ACT Pre and Post test data without student #s 12 and 24

without #12 & 24

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ACT Post	14.1600	25	5.02228	1.00446
	ACT Pre	12.0000	25	4.66369	.93274

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ACT Post & ACT Pre	25	.546	.005

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	ACT Post - ACT Pre	2.16000	4.62493	.92499	.25092	4.06908	2.335	24	.028

What results if the researcher eliminates the two extreme cases of student drops in test scores with rationale to explain it? Table 9 shows a range of scores exist on the pre and post test data excluding the two students (#s 12 and 24), previously mentioned, both presenting special causes (referring here to Deming's language of special cause and common cause) based on personal researcher knowledge. This time, a significant correlation occurs both with the paired sample correlations (.005) and the paired samples test (.028) – both considerably less than the accepted .05 measure for the social sciences. This indicates something significant happened as a result of the intervention pertaining to reading comprehension. Also noted in the Paired Samples Test of Table 9, with a 95% degree of future confidence, all remaining students experienced a growth from .25 on the low end, to 4.07 on the high end.

Table 10.

Paired Sample t-test ACT Pre and Post test data without student #s 12, 24 and 27

Paired Samples Statistics

without #12, 24, & 27

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ACT Post	14.3750	24	5.01140	1.02295
	ACT Pre	11.8333	24	4.68732	.95680

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ACT Post & ACT Pre	24	.608	.002

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	ACT Post - ACT Pre	2.54167	4.30348	.87844	.72447	4.35887	2.893	23	.008

What happens if the researcher eliminates the three extreme drops in student test score results? Table 10 shows a range of scores exist on the pre and post test data excluding the three students (#s 12, 24 and 27), representing the three unusual drops in results among those students. An even greater significant correlation occurs both with the paired sample correlations (.002) and the paired samples test (.008) – both considerably less than even the accepted .01 for medical science. This indicates something significant happened as a result of the intervention pertaining to reading comprehension. Also noted in the Paired Samples Test of Table 10, with a 95% degree of future confidence, all remaining students experienced a growth from .72 on the low end, to 4.36 on the high end.

Table 11.

Paired Sample t-test reading is easy survey data from September to December

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Reading is Easy Dec-2010	1.6471	17	1.11474	.27036
	Reading is Easy Sep-2010	.5882	17	1.69775	.41176

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Reading is Easy Dec-2010 & Reading is Easy Sep-2010	17	.612	.009

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Reading is Easy Dec-2010 - Reading is Easy Sep-2010	1.05882	1.34493	.32619	.36733	1.75032	3.246	16	.005

Table 11 shows a range of scores exist on the pre and post survey data, gauging the perceived degree of ease in reading informational content. In the paired samples statistics, the approximate .6 decrease in *SD* between September and December indicates less variance in responses in December to this survey question. The number of 17 students means 17 of the 27 total students who took the pre and post test also took both the pre and post survey, which had to be given on days separate from testing.

Table 12.

Paired Sample t-test reading is enjoyable survey data from September to December

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Reading is Enjoyable Dec-2010	.0000	17	1.38931	.33211
	Reading is Enjoyable Sep-2010	-1.7647	17	.97014	.23529

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Reading is Enjoyable Dec-2010 & Reading is Enjoyable Sep-2010	17	.094	.719

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Reading is Enjoyable Dec-2010 - Reading is Enjoyable Sep-2010	1.76471	1.60193	.38852	.94107	2.58834	4.542	16	.000

Table 12 shows a range of scores for the pre and post survey data, gauging the perceived degree of enjoyment in reading informational content. The paired samples correlations showed no correlation between September and December surveys, so no definitive conclusions can be determined from this data analysis.

Detailed Conclusions and Suggestions for Further Study

This researcher concluded that strong evidence supported using a strategy such as guided highlighted reading of informational texts to increase student reading comprehension and student reading proficiency across content areas in secondary schools. To the researcher question, "How can students experience an increase in both reading comprehension in the classroom and reading performance on standardized tests, especially emphasizing non-fiction, informational reading?" I suggest engaging the students in a series of guided highlighted readings of text across content areas eventually increases reading comprehension and contributes to increased reading performance on standardized tests. The following analysis of data and evidence led the researcher to this conclusion.

Three independent measures indicated a positive correlation between the guided highlighted reading practice and improving student's comprehension and reading proficiency.

The qualitative measurement of surveys of student attitude towards reading and writing across content areas also indicated a positive correlation of guided highlighted reading practice to students' increased reading comprehension and student reading proficiency of informational texts. Student perception of informational reading as easier gained 1.06 points on a 7 point scale (a low of -3 to a high of +3). This became further supported by a parallel student perception that informational reading was more enjoyable by a gain of 1.76 points on a 7 point scale. A premise of this researcher was a correlation can be deduced as existing and universally applied to increased confidence and competence in a skill following increased enjoyment of that skill.

As previously cited, the additional 'no' among 17 survey responses to the statement "I know how to find key information in a science and history story" showed a slight decline.

While not attempting to explain away the data, it struck this researcher as making sense, based on the six informational articles used, that either (a) students were then more aware of the higher degree of difficulty and what is actually involved in reading informational texts; or (b) students were not given informational readings containing charts, graphs, tables, legends, and other unique associations with informational readings in the research, in their series of six sample practice activities. The researcher wanted to explore this in future conduct of guided-highlighted reading researching its effect on reading comprehension and proficiency. A matter of using this data by the researcher would be to carry a direct conversation with students about the differences and ways to find information among charts and graphs associated with informational readings, and modeling that for the students more explicitly during the conduct of the research.

A series of paired sample t-tests across both the pre and post ACT test results and the survey responses of students before and after indicated overall significant correlations that are also related, showing something happened and growth did occur (Tables 8-12). This became more obvious when first one, then a second, and finally a third student's scores were taken from the pre and post test results.

The most dramatic finding among the series of responses reflecting student attitudes towards informational reading and guided highlighted reading as an enabling practice for increased comprehension, occurred in the final survey item listed in Table 5. Only asked in the post-survey, all students marked "yes" to perceiving guided highlighted reading as improving their confidence in reading informational texts and learning key information. If more students acknowledged increased enjoyment of informational reading, and all students expressed increased confidence reading informational text, then these qualitative indicators summarily

suggest an increased reading proficiency across content areas of social studies, humanities, prose fiction and science. This "so what" indicator of the data carried implications for future secondary classroom instruction.

A qualitative measure of the teacher's attitude (Table 6) has to be considered since the teacher was also seeking proof of a technique for increasing the comprehension and proficiency of aliterate students from a low socioeconomic background. She was not ready to just buy in to guided highlighted reading unless she was firmly convinced through several of her own key indicators. For this teacher to mark "Improved Substantially" to the impact of guided highlighted reading was very telling to this researcher. This teacher considered a myriad of factors due to her daily contact with the students beyond what this researcher and this research observed and attempted to measure. This researcher has previously commented in detail on the teacher's comments, offering additional insight and clarification as the researcher could provide the reader. One additional comment by this researcher noted that the teacher's comment about a reluctant reader in #2 of the survey reinforces the relevance of this guided highlighted strategy with those students termed as struggling or reluctant readers at the secondary school level.

Does the quantitative data support the qualitative data?

Using a series of six informational texts, the student sample scored a gain of 1.22 points comparing the ACT post-test data to the Act pre-test data. The standard deviation of 4.88 for the post-test again indicates some level of consistency among the student scores. This level of consistency would have been tighter, had it not been for the "recalcitrant" student who scored a 31 on the pre-test and a 16 on the post test (student # 24), and considering student #12, who experienced a recent traumatic home life, scoring 17 on the pre-test and 11 on the post-test. By excluding these two students' data, the overall point gain of 2.40 points (from the current 1.22

points) across the remaining 25 students speaks considerably to the trend of data supporting the qualitative data previously documented.

Using former standardized tests as the tool for a quantitative expression of student growth and proficiency across fiction and non-fiction (humanities, prose fiction, social studies and science) became a telling indicator of the applicability of guided highlighted reading among even students of low socioeconomic background to increase reading comprehension and proficiency.

The anecdotal evidence further confirmed what the quantitative and qualitative data and teacher observations suggest. While not measurable, the concept of transferability of the guided highlighted reading, writing and thinking from within the classroom to outside the classroom, from within one school building to other school buildings, and impact on teacher morale and student confidence leads to suggestions for further study.

Suggestions for further study included the following:

(1) Could the self-scoring sheets (such as sampled in Appendix C) be included in a future research? Surveying of students could investigate the usefulness of the self-scoring process and gauge student perception of how it influenced their learning and intrinsic motivation.

(2) Incorporate the use of paintings, photographs and charts as a means of scaffolding students to build comprehension at the level of inference and interpretation of author's intent, of what the material does not say, reading between the lines and other critical thinking aspects.

(3) Incorporate informational texts with charts, maps, graphs and legends, scaffolding students by prompting them to highlight specific and key information from all the data, and to become discrete users of data. While not included as anecdotal evidence, the researcher did introduce a text heavy with both charted information and with text requiring the use of specific

information provided by the chart with a seventh grade math class. Prompting the students to find and highlight key information, some students began to verbalize "ooh" on occasion. Afterwards, the math teacher indicated he had never seen this or any of his math classes ever speak up and talk about an issue, incorporating the mathematical analysis as a natural part of their discussion, ever previously.

(4) Examining the emphasis the pacing brings to student awareness and ability to more spontaneously find the key information. For example, if a teacher was to prompt students in a monotone voice, students would naturally become inclined to gradually tune out and disengage. Examining the opposite side of pacing – how can varying the pace and rhythm of delivering the prompts to the students further engage student development? For example, the researcher has occasionally stated to students his intent to speed up the pacing and delivery. Afterwards, he asks, "Show of hands, how many kept up and managed to still find and highlight the key information [as guided by the prompts]?" Good news for the rest of you, you now know where your stretch is for keeping up. As you keep stretching, that indicates learning." One discovery may be the establishment of an "instructional" (just right for stretching and growth of the audience) pacing, as opposed to too "easy" (learner stagnation) or too "hard" (learner frustration) of pacing.

(5) Use the guided highlighted reading as a means to occasionally focus o new vocabulary used within the text. For example, teacher can direct student to highlight those words in the text which the student does recognize but does not understand, and with another color highlighter (or circling with a pencil instead of underlining), mark those words the student has never seen before. Any number of other follow-up activities (pair share, etc) could be taken to help students explore the meaning of these vocabulary.

(6) Increase the number and frequency of guided highlighted readings to one per week for a three month period to determine how the baseline analysis would differ. The researcher would predict an even more positive correlation of the practice to answering the question, ""How can students experience an increase in both reading comprehension in the classroom and reading performance on standardized tests, especially emphasizing non-fiction, informational reading?"

Soon after conducting the research, the researcher experienced a Spanish teacher apply this guided highlighted reading for key information with her Spanish students. Skimming and scanning for key Spanish verbs, conjugates, and information, all students appeared to be naturally engaged with the text. Early indicators suggest the students' Spanish proficiency and ability to more quickly process the language increased from this experience.

This researcher intends to continue to practice and expand this process in the researcher's personal instructional delivery, across all content areas, for all students. More to come "en el futuro."

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Appendix A

Student Survey Pre-Close and Critical Guided Highlighted Reading

Name:_____ Date:_____

Circle the answer that works for you:

1. Informational Reading is
   Hard -3 -2 -1 0 1 2 3 Easy

2. Informational Reading is
   Not enjoyable -3 -2 -1 0 1 2 3 Enjoyable

3. I know how to find the important information in science and history articles and textbooks.
   Yes No

4. I understand what I am reading and can talk and write about it.
   Yes No

Appendix B
High-Tech Ways to Extend Your Life (Dr. Oz)

Question #1 What does the text say? (Briefly summarize the short story at a literal level.)

Rubric for Close and Critical Reading(CCR) Question #1

Questions	3 (meets assignment)	2 (partially meets)	1 (minimally meets)
What does the text say? (Briefly summarize the story.)	Answer is accurate, significant, and relevant with many details and examples. Details support point. Word choice and conventions support meaning.	Answer is accurate, significant, and relevant but has few details to support or explain the answer. Attempts at organization are partially successful. Word choice and errors in conventions do not distract from meaning.	Answer is inaccurate or a misinterpretation with little or no relevance to text or question. Ideas and content are not developed with details or appear random. Word choice and errors in conventions may distract from meaning.

Sample Responses for ***High-Tech Ways to Extend Your Life***

3

On an Oprah Winfrey show, Dr. Oz gives us insight to the future of medicine and science advances based on what is known today, and how they impact our living healthier and longer lives in the future. The labs at Wake Forest University feature regenerative medicine research. Our life span is limited by our parts breaking down, but in the future, parts can be regenerated. Life span could almost double to 130 years. Dr Oz indicates doctors begin with a mold when building new body parts. They seed the mold with live cells and then place it in an incubator where the cells grow and multiply. Doctors can build a replacement bladder in eight weeks using the patient's cells. Another life extension tool, hyperbaric oxygen therapy, involves getting pressurized oxygen in a chamber which helps in recovery. The infrared sauna heats the body which lowers blood pressure and increases circulation. It also burns calories and sweats toxins through our skin. The Japanese invented a smart toilet which collects urine and analyzes sugar levels. Who knows what is next!

2

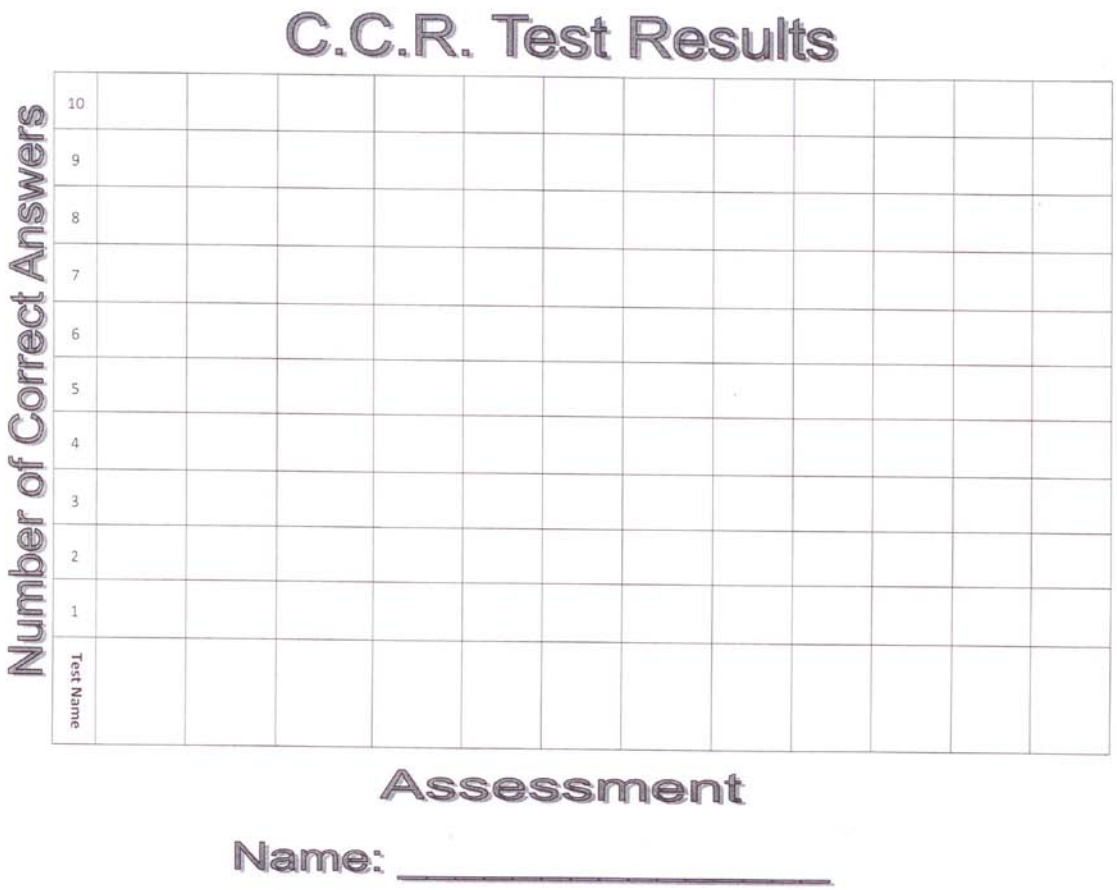
This is about the future of medicine based on the evidence today can extend our future life span to 130 years and improve our quality of life. Regenerative medicine research at Wake Forest leads to regrowing one's finger, or an internal organ as well. A hyperbaric oxygen therapy can force oxygen into our cells to speed recovery. But wait until you experience the infrared sauna and the smart toilet.

1

Dr Oz talks about advances in medicine so we can live longer and regrow our body parts and organs. Sitting on a smart toilet is scary to think about. Will it be able to see something and show others? UGH!

Summaries Created by: (Researcher's Name), ISD Literacy Coach

Appendix C


C.C.R. Test Results
Number of Correct Answers
10
9
8
7
6
5
4
3
2
1
Test Name
Assessment
Name: _____

Appendix D

Student Survey Post-Close and Critical Guided Highlighted Reading

Name:_____ Date:_____

Circle the answer that works for you:

1. Informational Reading is
   Hard -3 -2 -1 0 1 2 3 Easy

2. Informational Reading is
   Not enjoyable -3 -2 -1 0 1 2 3 Enjoyable

3. I know how to find the important information in science and history articles and textbooks.
   Yes No

4. I understand what I am reading and can talk and write about it.
   Yes No

5. Close and Critical Guided Highlighted reading has improved my confidence in reading informational (ie. science/history) texts and learning the important information.
   Yes No

6. How else has close and critical guided highlighted reading helped me? (circle all that apply)

Writing summaries Answering test questions

Other: (Please Explain)

_____
_____
_____
_____

Appendix E

Teacher Interview Post-Close and Critical Guided Highlighted Reading

Name:_____ Date:_____

Circle the answer that works for you:

1. My students' overall ability to comprehend informational text and improve their reading proficiency as a result of participating in the CCR guided highlighted reading changed how?

Decreased No Change Improved Improved Substantially

Comment:

_____
_____
_____
_____

2. Did my struggling readers' ability to read and comprehend informational text change, and if so, how? Yes No

Comment:

_____
_____
_____
_____

3. How else has close and critical guided highlighted reading helped my students? (circle all that apply)

Writing summaries Answering test questions

Other: (Please Explain)

_____
_____
_____
_____