The Relationship Between the Next Generation Content Area Reading Professional Development Program on the Effectiveness of Teaching Literacy Strategies in High School Biology Classes

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The Relationship Between the Next Generation Content Area Reading Professional Development Program on the Effectiveness of Teaching Literacy Strategies in High School Biology Classes

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The Relationship Between the Next Generation Content Area Reading Professional Development Program and the Effectiveness of Teaching Literacy Strategies in High School Biology Classes

Tia Pridgen Brown
Educational Leadership Doctoral Program

Submitted in Partial Fulfillment of the Requirements of Doctor of Education

National Louis University
2020
Abstract

The need for effective content area reading teachers have continued to increase since the introduction of one public school districts’ Content Area Reading Professional Development (CAR-PD) in 2006. In 2011, modifications were made to improve the program, and it became known as the Next Generation Content Area Reading Professional Development (NGCAR-PD). The purpose of this program evaluation is to investigate the relationship between NGCAR-PD certified Biology teachers and their ability to implement reading strategies with science content effectively. The context of this inquiry is a mid-sized public school district that has implemented the program since 2006 at the middle and high school level with content area teachers. This study demonstrates that the expected outcomes of a program completer do not match the actual results. Quantitative and qualitative data revealed that specific improvements were needed for the NGCAR-PD program for teachers to be effective when implementing reading comprehension strategies with students in content area classrooms.
Preface

As a district leader in a public school district, I am passionate about student
success as it relates to reading comprehension in content area classes. My work involves
supporting administrators and teachers in a variety of ways. While I am in my third year
as a district leader, my background includes nine years as a classroom science teacher,
and two years as an instructional coach. I completed the Content Area Reading
Professional Development (CAR-PD) program in 2008 and began integrating reading
strategies into Biology classes. As I continually worked towards effective implementation
of reading strategies with students, I noticed the positive difference it was making in their
state assessment scores. They could read and comprehend the assessment, which led them
to improved achievement scores.

Upon entering my current position, I walked through science classrooms and
noticed that CAR-PD certified teachers were not implementing reading strategies with
any kind of consistency. They were all on a variety of levels of implementation, even
after going through either CAR-PD or Next Generation Content Area Reading
Professional Development (NGCAR-PD) programs. This observation made me question
the program's effectiveness for teachers. The teachers' effectiveness in implementing
reading strategies correlates with students' success in content area reading
comprehension. This study is vital because the expected outcomes for NGCAR-PD
certified teachers do not match the actual result that is occurring. This outcome is directly
affecting the education that our students are receiving.

The leadership lesson that has resonated from this research is those district
leaders, school leaders, and teachers must have ongoing support with this type of
program to produce the desired outcomes. There must be guidelines set for all involved and regular collaboration meetings to ensure we are meeting needs. It is disconcerting that leaders expected an eight-month program to create immediate and continuing effective content area reading teachers. As a leader, when I want an application to be useful for students, I must make sure it is sufficient for the teachers; otherwise, all efforts are futile.
Acknowledgments

I would like to acknowledge the assortment of people that contributed to my success during my doctoral adventure. The first person I want to thank is my husband, Jacob Brown. He accepted that I could not join many outings with him because I needed the house to myself to write. His constant words of encouragement, hugs during my meltdowns, ensuring that I took time to relax, and understanding when I needed his support through this experience were infinite. I have to thank my "children" Taz, Razor, Pepper, and Vane, for snuggling in my lap and comforting me through many days of writing.

I want to recognize my family, James, Linda, Chandler, and Kelly Pridgen for being encouraging in many ways, and understanding why sacrificing family time was necessary. Their continued expression of how proud they were of me, indeed kept my determination steady.

I want to express my gratitude to my closest friends that always inquired about how my dissertation was going, offered words of encouragement, and ensured that I was taking quality time for myself. This group of ladies includes Lindsey Barber, Sandra McDermott, Kathy King, Alyson Savage, Kara Pinero, Jillaina Mickelson, Brittney Smith, Bridgette Tully, and Kelly Todd.

My highest appreciation goes to my dissertation chair, Dr. Karen O'Donnell, and my dissertation committee member, Dr. Bradley Fuller, for their endless commitment to my success. Dr. Carla Sparks and Dr. Daniel Buckman for their dedication to my achievement. These four leaders were appreciated more than they will ever realize.
Finally, I want to thank my district leaders, school leaders, and teachers who willingly participated in my research. Without them, I could not have accomplished this task that I hope will benefit students, teachers, and leaders.
Dedication

This dissertation is dedicated to anyone that has ever struggled with reading comprehension and the teachers that modified their teaching strategies to ensure adequate support for their students' reading comprehension abilities.
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Section One: Introduction

If you were born during or before the 1980s, like me, your secondary teachers probably taught you through lectures. The teacher would write vigorously on the board while you frantically copied copious notes. Even in college, this was common practice for my professors. I did not realize I had a reading comprehension problem with the informational text until I actually "read" my entire Animal Physiology textbook and still made a C in the course. I was devastated! I had read and highlighted in the book, but could not understand what had I done wrong to deserve a C.

As I pursued my career collegiately and professionally, I finally realized what I had been missing when it came to reading challenging text: I had no strategies to help me comprehend the information. As a fourth-year teacher in 2008, this epiphany occurred when I participated in a district program called Content Area Reading Professional Development (CAR-PD). While I was on the bandwagon of "I am a science teacher, not a reading teacher," this program changed my mindset. The program made me realize that I was depriving my students of what they needed to survive in the world.

My journey of discovering disciplinary literacy for science has been a challenging one. I have learned how to implement literacy strategies well, and I have supported content area teachers with changing their mindset and implementation of literacy strategies. Schmoker (2018) stated, "genuine literacy is still the unrivaled key to learning both content and thinking skills" (p. 9). The intent of this study was to improve the CAR-PD program so that teachers can implement literacy strategies with their content with confidence and integrity.
While the district I am analyzing has trained science teachers in the Content Area Reading Program, these teachers appear challenged with implementing literacy strategies with integrity. Leadership expects these teachers to support students with reading comprehension in their content, specifically, high school biology. The purpose of this research is to help unveil why the teachers are inconsistent and what support would help make them better for students.

The mid-size school district where the research took place was diverse in terms of socioeconomic status and ethnicity. The school district serves approximately 43,000 students with 42 public schools. The mission of the school district is to create successful citizens for society. The school district supports a minority population of approximately 21,000 out of the 43,000 students that attend public schools (Department of Education, 2018). From personal experience in the classroom, families do not place a priority on practicing literacy with their children for a variety of reasons. This culture places the literacy objective in the school district, which creates the need for a range of literacy interventions to be offered in schools. The school district has a state-approved reading intervention plan that spans grades K-12 (Omitted for Confidentiality, 2018).

Statute 6A-5.090 that outlines the requirements for the Content Area Reading Programs offered in school districts (Department of Education, 2011a). School districts have the option of creating their 90-hour program for state approval or using what the state has provided (Department of Education, 2011a). The school district in this study created its own Next Generation Content Area Reading hybrid program that was approved by the state for professional development. This hybrid model includes half face-to-face and half online and is offered at school sites using a combination of school
and district personnel. Most of the participants in this study were trained at a district location with no hybrid option and were required to complete a practicum. This model was all face-to-face professional development and the practicum included an action research portfolio by each participant.

**Purpose of the Program Evaluation**

At the time of this study, I was the Secondary Science Program Specialist in a Southeastern Public School District. As part of my job responsibilities, I conducted walk-through classroom observations to evaluate the support needed among the grade 6-12 science teachers. Before this job, I was a professional development specialist who supported all teachers at a public high school with their various instructional needs. That job also included walking through classrooms to observe and determine the support needed by teachers. During the past three years, I have recognized a trend of ineffective implementation of strategies among Next Generation Content Area Reading (NGCAR-PD) certified Biology teachers. The

Next Generation Content Area Reading Professional Development [is] designed to prepare contents area teachers to effectively deliver the reading intervention to students who score at Level 2 in reading on the State Comprehensive Assessment Test and do not need instruction in decoding and text reading efficiency.

(Department of Education, 2011a, p. 1)

If I have interpreted my observations correctly, then the NGCAR-PD program is not preparing teacher adequately and needs to be modified for their success.

Teachers are failing to show students how to use strategies appropriately when introducing a literacy strategy. The teachers are not matching literacy strategies to the
text students are using. I have observed some teachers using a graphic organizer as a note-taker, and the students are copying teacher notes into the organizer. These incidents do not challenge students in their reading comprehension. According to the Department of Education State Literacy Plan (2011b), the ultimate goal is to empower students to think critically about the text and walk away with a deep understanding (p. 27). "Students need a set of interactive approaches that facilitate conceptual learning from context area texts" (Department of Education, 2011b, p. 27). My classroom observations did not reflect this practice.

The purpose of this program evaluation was to investigate the relationship between NGCAR-PD certified biology teachers and their ability to implement reading strategies with science content effectively. "Once teachers enroll and start the NGCAR-PD content area package, content area teachers may begin to provide reading intervention through content area classes to students who score Level 2 on [state] comprehension assessment test and do not need instruction in decoding or fluency" (Department of Education, 2011a, p. 1). This regulation allows an NGCAR-PD-certified biology teacher to serve as the reading teacher of record for students who require reading comprehension support. The Department of Education (2019) explained

From 2011–2014, the [State] Comprehension Assessment Test 2.0 was used to measure student achievement of the Next Generation Sunshine State Standards (NGSSS) in reading, mathematics, and writing. In spring 2015, it was replaced by the [State] Standards Assessments in English language arts and mathematics to measure student achievement of the [State] Standards. (para. 1)
"The NGCAR-PD program is designed to prepare content area teachers to effectively deliver reading instruction" (Department of Education, 2011b, p. 27).

According to the State Department of Education (2011a), NGCAR-PD consists of a 60-hour face-to-face academy and a 30-hour practicum developed by the department or developed by the district and approved by the department (p. 1). This county modified the program to be hybrid, which consists of a 30-hour practicum, 20 face-to-face hours, and 40 hours of Moodle online coursework for certification. From experience facilitating this program, the teachers experience sessions on re-engaging students, vocabulary, comprehension, writing, observing lessons, creating lessons, and teaching lessons. This "professional development package [was] designed to provide information that grades 6-12 content area teachers need to become proficient in applying scientifically based reading strategies through their content areas" (Department of Education, 2011b, p. 26).

**Rationale**

The NGCAR-PD professional development program needs to be evaluated to ensure that teacher implementation is leading to positive results for students. When I progressed through the CAR-PD program, I began to apply reading comprehension strategies with integrity in my Biology classes. I modeled specific reading strategies such as text coding and magnet summaries while supporting students as they consistently practiced strategies. The experience supported improving my instructional pedagogy as I realized what students needed to be successful. While I was not comfortable teaching this way, I noticed students' reading comprehension improving. As I continually monitored my students' abilities, they were reading Biology texts and understanding the information
without my instruction. I hoped that this comprehension ability would allow students to be able to navigate and be successful with a variety of informational texts.

As a college graduate, I know that reading comprehension is essential to success in all higher education classes. A variety of literacy strategies is necessary to evaluate informational text. I selected this program because supporting curricula and instructional approaches that encourage the use of reading, writing, and discussion for authentic purposes across disciplines will prepare many more students for success in the college and university curriculum and should result in a decreased need for remedial courses at the college level.

(Department of Education, 2011b, p. 5)

As I have observed NGCAR-PD certified teachers' instructional practices in the classroom, I have not seen literacy strategies implemented well, if at all. The NGCAR-PD program and classroom implementation do not appear to have a viable relationship to produce college ready students.

Students must be able to read the informational text to be successful in careers, daily life, and academics. As I pursued my Bachelors degree, I discovered that I struggled with reading informational text. My grades faltered and my lack of comprehension of concepts created a learning barrier that was difficult to overcome alone. I finally found a group of peers who shared literacy strategies for learning, and so my grades improved. As I worked toward my Masters degree, I used literacy strategies I learned from the CAR-PD program to be a productive and successful learner.

Our students need to arrive at college and start careers with practical reading comprehension skills to ensure success in any area in which they choose to begin their
life after high school graduation. Arming all our students with effective literacy strategies could guarantee the possibility of their success in any path that they choose to pursue. As our community grows, current and future parents could realize the significance of literacy at home and in school through reading intervention programs. This importance of literacy trend will hopefully become embedded in daily educational and community life. Overall, an effective NGCAR-PD program is integral for improving literacy for all stakeholders involved in the school district and community.

The CAR-PD professional development program taught me that literacy strategies had to be demonstrated for students when using them the first time. "'We must explicitly teach students to read science text as we "consistently model how to read critically and question ideas presented in the text," according to Hapgood and Palincsar (2006-2007)' " (Schmoker, 2018, p. 206). My facilitators required all participants to try literacy strategies with students and bring work samples to class to evaluate their effectiveness with students, with the content, and reflect on our practices when introducing the literacy strategy. The reflection we did during the course was crucial for helping us determine which strategies would be most useful to use with the content text structure.

When discussing strategies, teachers told me they implemented NGCAR-PD literacy strategies effectively because they implemented strategies in their classrooms. My observations revealed that most NGCAR-PD teachers were not monitoring student reading skills in coordination with the literacy strategies to determine the effectiveness of the literacy strategies. The relationship between what teachers learned in the NGCAR-PD program and what occurred in classrooms appeared to be disconnected. I examined the relationship between the NGCAR-PD program and how teachers implemented the
NGCAR-PD strategies to identify whether the NGCAR-PD program needed to be improved, and if so, then what means could be used to improve the NGCAR-PD program.

**Goals**

The goal for my research was to determine the relationship between the expectations of the NGCAR-PD program, as implemented in one school district, and that district’s NGCAR-PD certified teachers' classroom practices. After observing teachers' practices in the classroom and comparing interview results, I intended to reveal the disconnection between program objectives and classroom practices. I wanted to know how to improve the program so that all NGCAR-PD certified teachers implemented NGCAR-PD literacy strategies with integrity.

Evaluating the NGCAR-PD program allowed me to determine how to improve the program for teachers potentially. Once I understood the teachers' perspectives of the program, I was able to move forward in evaluating options for improving the program. An adequate experience allowed teachers to be more confident in their classroom literacy implementation. This improved experience supported the transition from the program to the classroom, where it positively impacted student achievement.

When the teacher implemented the NGCAR-PD literacy strategies with integrity, student reading comprehension should improve. "According to Hapgood and Palincsar (2006-2007), who found that students who ‘used textbooks’ and wrote purposefully about what they read ‘learned the most content’ (pp. 57-58)” (Schmoker, 2018, p. 207). Schmoker (2018) said, “Good things will result from such literacy-rich science instruction: "significantly higher" scores on both reading and science tests, more positive
student attitudes toward science, and more "confidence in [students'] capacity to learn science” (p. 208).

**Definition of Terms**

The subsequent terms are used throughout this dissertation. These terms are important for readers to comprehend portions of my dissertation.

**Comprehension strategy instruction.** “The idea behind explicit instruction of text comprehension is that comprehension can be improved by teaching students to use specific cognitive or to reason strategically when they encounter barriers to comprehension when reading” (Ness, 2009, p. 59).

**Content area reading professional development (CAR-PD).** “A professional development package designed to provide information that grades 6-12 content area teachers need to become proficient in applying scientifically based reading strategies through their content areas” (Department of Education, 2011b, p. 26).

**Effective.** “Teacher’s practices display activities and assignments that are appropriate and engaging to all students, instructional groups that are productive and appropriate to instructional purposes, instructional materials and resources that are appropriate and appropriate pacing with closure” (Department of Education, 2018, p. 39).

**Integrity or fidelity.** “Providing frequent, focused opportunities for analytical reading, talking and writing about science concepts” (Schmoker, 2018, p. 205).

**Lesson study.** “Groups of teachers come together to formulate lessons that are taught, observed, discussed, and refined” (Department of Education, 2011b, p. 23-24).
**Literacy coach.** “Serves as a stable resource for job-embedded professional development throughout a school to generate improvement in reading and literacy instruction and student learning” (Department of Education, 2011b, p.22).

**Modeling.** “A demonstration or explanation of a single, brief step, procedure, or mental operation, delivered at a stimulating pace” (Schmoker, 2018, p. 92).

**Next generation content area reading professional development (NGCAR-PD).** A program “designed to prepare content area teachers to effectively deliver reading instruction” (Department of Education, 2011b, p. 27)

**Professional development (PD).** “Learning opportunities that result in improvements in teachers’ and school leaders’ knowledge and practices, and, most importantly, in improved student achievement” (Department of Education, 2011b, p. 21).

**Reflection.** “Teacher’s reflections display: accurate assessment of a lesson's effectiveness in achieving instructional outcomes, makes a few specific suggestions about how a lesson could be improved” (Department of Education, 2018, p.42).

**Research Questions**

My research questions were:

1. How does teacher implementation of literacy strategies relate to the expected outcome of the NGCAR-PD program?
   a. To what extent will remediation rates improve when teachers learn to implement literacy strategies effectively?

2. What is the relationship between the NGCAR-PD program and teacher classroom practices?
3. What support do teachers need to implement the NGCAR-PD program with integrity in their classrooms?

**Conclusion**

The NGCAR-PD program can support a student with reading comprehension improvement when the teacher implements literacy strategies with integrity by the teacher. The State Department of Education (2011a) stated that "NGCAR-PD [is] designed to prepare content area teachers to effectively deliver the reading intervention to students." (p.1) Since this did not appear to occur, analysis of this program revealed where teachers need support in order to be more effective for students in the classroom. "Schools must increase the quality and consistency of instruction in the classroom to reflect the instructional principals derived from scientifically based research in reading" (Department of Education, 2011b, p.2). Improving the program for teachers could have a positive impact on students’ reading comprehension.
Section Two: Review of the Literature

This literature review explains the current research status on content area reading at the secondary level. The major topics discussed include content area literacy, the impact of attitudes on literacy, and disciplinary literacy. Currently, the Next Generation Content Area Reading (NGCAR-PD) program focuses on content area literacy. This program covers general strategies that are for use in any content area; the primary focus for our county is science and social studies teachers. After evaluating research, it appears that the current program does not take into account the impacts of teachers' attitudes about literacy or discipline-specific literacy.

When I began my research, I used the terms content area reading and secondary reading comprehension using EBSCO host in the National Louis University library. The sources currently being used in my literature review span from 2008-2017, except for 2009, when there was no published research on this topic. There was only one article each from 2010, 2012, and 2015 that was related to my topic. In 2008, 2013, and 2014 two articles per year were similar; then again, in 2016 and 2017, an increase in related articles blossomed again. The main issue with recent articles was they referenced past articles that I had already found and cited in most cases.

Another method I used was reading through the reference sections of articles. Most of these referenced articles I already had or magazine articles that were simply blends of what I had already read. Mainly, the researchers all used each other as well. This barrier made it challenging to find research that was no more than five years old. In recent research, it was necessary to search for disciplinary literacy instead of content area literacy to find any results, so there was a shift in jargon during that time gap as well. I
also had the expectation of more literature related to effective professional development when training for content was literacy.

**Content Area Literacy**

**Change of perspective.** Most content area teachers are considered experts in their chosen content area. In general, this means that most content area teachers only focus on teaching their specified content when in a classroom environment, leaving literacy to English teachers. The following studies put teachers through content area literacy courses hoping to change content are teachers' perspectives about literacy. Jewett (2013) "found that teachers modified their definition of literacy, recognized distinctive disciplinary languages, and expanded their definition of text" (p. 21). Friendland, Kuttesch, McMillen, and Del Prado Hill (2017) found that "teacher candidates stated that they now believe that (1) all content area teachers are responsible, (2) the teacher candidate himself or herself is responsible and/or (3) not only the English teacher is responsible" (p. 41). These studies revealed that teachers require collaborative activities in the course that shows them how critical literacy is for student success.

Jewett's research revealed an item that Friendland et al. (2017) did not address. "They need to be discriminating in how they choose and use literacy strategies to support discipline-appropriate ways of thinking and acting" (Jewett, 2013, p. 23). In other words, it is the teachers' responsibility to determine which strategies work best with the content they are teaching.

**Literacy instruction.** The ultimate goal of literacy instruction is to enable students to comprehend text. While this goal has not changed over the years, "education standards and the purposes of education are changing, [which means] curriculum
frameworks, instructional methods, and assessment strategies must also change" (Saavedra & Opfer, 2012, p. 12). Another aspect that educators must adjust to is the continuing change in student population needs. Tatum (2008) asserted that "literacy development has to be conceptualized in such a way that it addresses the needs of all adolescents" (p. 177). Overall, teachers must learn how to adjust to the literacy instruction needs of all the students they serve.

**Teacher training and support.** Secondary educators tend to come from a variety of career backgrounds, most of which were in their content specific areas. This experience makes them experts in their content but lacking knowledge in terms of instructional pedagogy. In order for these teachers to be effective for students, they must have active professional development and support. Most teachers do not realize that "educators, as guiders of students, should mention on the importance of reading comprehension in their classes and organize class lectures and activities accordingly" (Akbasli, Sahin, & Yaykiran, 2016, p. 120). On the other hand, McCoss-Yergian and Krepps (2010) told us that "content area teachers report that they are not adequately trained to incorporate reading strategies and literacy skill training into their instructional approaches" (p. 6). In either case, we must determine what practical training and support need to be for every teacher.

Most teachers come to the classroom thinking they need to do what their previous teachers did—teacher-centered lecture. Hannant and Jetnikoff (2017) stated that "there should be greater emphasis on, and more time devoted to, the explicit teaching of writing in Science" (p. 64). Kuder (2017) explained that "vocabulary instruction works best when it is frequently and systematically implemented using evidence-based practices" (p. 163).
Most teachers are unaware of these classroom essentials and they must have the opportunities to learn how to implement them effectively.

In 2011, the State Department of Education initiated the Content Area Reading Professional Development (CAR-PD) program, which shifted into the Next Generation Content Area Reading (NGCAR-PD) Program in 2012. Lai, Wilson, McNaughton, and Hsiao (2014) revealed that "the content area workshops might better address the content specific items of literacy knowledge not possible in generic literacy PD workshops" (p. 329). While this program is a step in the right direction, there still seem to be some content specific strategies missing. For example, Kragten, Admiraal, and Rijlaarsdam (2013) concluded that a training program should (1) include strategies for encoding diagrams with unfamiliar components, (2) focus on the interpretation of abstract diagrams, and (3) facilitate students in learning how to gain a deeper understanding of diagrams that contain new information. (p. 1798)

Diagrams are a regular part of scientific literature, yet strategies for comprehending diagrams are not in the NGCAR-PD program.

Impact of Attitudes on Literacy

When a person has a preconceived notion about an idea, it is challenging to change that person's perspective. Two studies agreed that teachers "did not feel capable of teaching reading strategies to students in their classroom" (McCoss-Yergian & Krepps, 2010, p. 13) and "did not feel qualified or responsible for providing explicit instruction on reading comprehension" (Ness, 2009, p. 58). These feelings are essential to consider in order for teachers to be able to move forward with being a competent content area
According to Orr, Kukner and Timmons (2014), "teachers appear to both embrace and struggle with this direction" (p. 105). There must be a strategy that removes the struggle with this direction if our students are to improve.

McCoss-Yergina and Krepps (2010, p. 5) and Ness (2009, p. 60) both discussed teacher reasoning about how lack of time makes integrating literacy instruction into content extremely challenging. These types of defensive "teachers' beliefs about content area literacy operate as barriers to implementation" (McCoss-Yergian & Krepps, 2010, p. 5). These barriers must be addressed, and anxiety about them alleviated, in order to move teachers forward with productive professional development.

**Disciplinary Literacy**

Disciplinary literacy focuses on strategies specific to content, whereas content area literacy tends to rely on general reading strategies that can blend into the most informational text. Hannant and Jetnikoff (2015) asked, "whether we really know enough about the literate process and practices of the disciplines" (p. 36). While Drew, Olinghouse, Fagella-Luby and Welsh (2017) explained that their "study contributes to an overall lack of literacy research on discipline-specific practices at the high school level" (p. 953). Overall, disciplinary literacy best practices still need extensive research to acknowledge all of its potentials fully.

**Discipline specific literacy demands.** Discipline-specific literacy is still in the early stages of research. It is beginning to be known as a more common practice in secondary level schools. Shanahan and Shanahan (2008) suggested "a literacy curriculum that directly guides students to better meet particular demands of reading and writing in the disciplines" (p. 57) would better serve our student's needs. In order for this to occur,
compelling discipline-specific reading and writing strategies would need to be
determined to meet each discipline's literacy demands effectually.

**Initiate-response-evaluate.** Initiate-response-evaluate (I-R-E) is a structure used
by teachers to encourage student interaction and engagement. Friend’s (2017) study used
it as a way to code student engagement, whereas Tang (2016) revealed that the I-R-E
interaction increased engagement with literacy strategies. Friend explained that "this
research offers a compelling case for secondary schools to continue to develop units of
work in the content areas that are engaging and inclusive of student literacy and learning
needs" (p. 133). While Tang revealed that "showing them practical ways of shifting their
implicit teaching of disciplinary literacy toward a more explicit approach of disciplinary
literacy instruction will be more effective compared to adopting a set of strategies
developed outside their disciplinary area" (p. 230). Essentially, both researchers asserted
that literacy strategies paired with the I-R-E structure increase student engagement and
overall learning.

**Conclusion**

When discussing content area reading, research provided several different
avenues to evaluate. Teachers’ attitudes towards content area reading appeared to be a
barrier. If this is not vanquished, then professional development would be futile.
Professional development needs to be modified to ensure adequate training and support
for teachers is in place. Research revealed that a shift from content area reading to
disciplinary literacy may be the most beneficial for students. When moving forward with
data collection, the methodologies focus on revealing more about the current NGCAR-
PD program and its effectiveness for teachers.
Section Three: Methodology

The mixed-method program evaluation intended to determine the relationship between the Next Generation Content Area Reading Professional Development Program and teacher classroom implementation. The researcher collected qualitative and quantitative data regarding teacher classroom practices after program completion for analysis. The classroom observations and participant interviews would reveal where NGCAR-PD certified teachers were in their practices and what recommendations they had for improving the program. Overall, data would showed why expected outcomes, as stated in the State Literacy Plan, were not aligned with actual outcomes.

Research Design Overview

An outcome evaluation with an active focus approach assessed the Next Generation Content Area Reading professional development (NGCAR-PD) program. Patton (2008) explained that "staff can control processes but cannot guarantee to attain outcomes, government rules and regulations get written specifying exactly how to lead a horse to water" (p. 243). "NGCAR-PD is designed to prepare content area teachers to effectively deliver reading intervention to students who are fluent readers in English and who score at Level 2 in reading on the State Comprehensive Assessment Test" (Department of Education, 2011b, pp. 26-27). After classroom observations, the actual result was that regardless of program certification, few teachers implement literacy strategies with consistency in the classroom.

Quantitative and qualitative data were collected. Patton (2008) told us that "qualitative data capture[s] personal meaning and portray[s] the diversity of ways people express themselves; quantitative data facilitate comparisons because all program
participants respond to the same questions on standardized scales within predetermined response categories” (p. 435). Interview data involved, nine of the 12 NGCAR-PD certified biology teachers’ commonalities of interview answer resulted in each question (see questions in Appendix D). The population represented was 10th grade biology NGCAR-PD certified teachers from a total of 222 secondary NGCAR-PD certified teachers in the mid-sized southern district. The researcher completed two 30-minute observations per participating teacher, one announced, and one unannounced (see Appendix A). All observation data was placed in a table and graphed for data analysis. The interview data were transcribed and evaluated according to prevailing trends. The classroom observation codes were placed in a table to determine the number of times specific instances occurred in the classroom environment. The graphs of results data were analyzed.

The interview results revealed what biology CAR-PD certified teachers believed would improve the NGCAR-PD certification program, as well as how effective they think they were at implementing literacy strategies in their classrooms. Patton (2008) explained that "qualitative data in program evaluation is aimed at letting people in programs express their reactions in their own terms rather than impose on them a preconceived set of limited response categories" (p. 435). The classroom observations revealed whether teachers' self-reflection from the interviews match their literacy implementation instruction. From classroom observations and personal discussions, most teachers believed that because they had certified program completers, they were implementing literacy strategies effectively. This data comparison revealed potential
improvements needed for the NGCAR-PD program to have initial and sustained effectiveness in the classroom.

Participants

According to the 2018 list of 222, CAR-PD and NGCAR-PD certified teachers, 19 teachers were high school science teachers. The researcher confirmed teaching assignments for the 2018-2019 school year to choose participants. This guaranteed biology was a course they had been assigned. Biology is generally a course for 10th graders with some high school campuses using it for 9th grade advanced students. I had 12 CAR-PD certified teachers available to invite to participate in the study. An invitation to participate was extended via email to three male and nine female CAR-PD and NGCAR-PD certified biology teachers to ensure accurate records of responses. The final sample size for this study included one male and eight female teachers.

Data Gathering Techniques

The researcher gathered quantitative data through classroom observations and qualitative data through interviews. The interviews allowed the "capture what [the] program experience means to participants in their own words" (Patton, 2008, p. 434) and how they implemented their training in their classroom environment. The classroom observations and coding allowed the ability to determine whether teacher perspectives aligned with their classroom literacy practices. Interviews were conducted after classroom observations to avoid teacher assumptions from questions asked in the interview.

Interviews. A 30-minute, 10 mixed-method question interview was conducted with each participant within two weeks after completing their second classroom
observation. Patton (2008) pointed out that "both qualitative and quantitative data can contribute to all aspects of evaluative inquiries" (p. 438). In this case, four of the 10 open-ended questions required participants to rank themselves on a scale before explaining their reason for how they ranked themselves. The interview questions were emailed to the participant no more than 24 hours before the interview to allow participants time to prepare answers to guarantee that interviews did not exceed 30 minutes. The researcher recorded interviews using the iPhone app called Just Press Record. The researcher transcribed interviews and evaluated answer trends from participants. The main idea from each scaled and open-ended answer to every question was placed in a table to assess potential trends (see Appendix D).

**Observations.** The researcher conducted two 30-minute observation sessions for each participant. The announced observation had a predetermined date and time that were agreed upon by the observer and participant. The second observation was unannounced but fell within a date range agreed upon by the participant and the researcher. The Classroom Observation Coding System created by Dr. Molly Ness (see Appendix A) was used to code the classroom environment every 30 seconds. The researcher chose this coding system because of its well-defined codes for observing reading comprehension in a secondary classroom environment. This research needed a component to identify if the teachers' instruction was effective, so the county's teacher evaluation rubric definitions were used to determine the guideline. A combination of the district teacher evaluation rubric for Domain 3a-c and the Ness coding system scored the level of effectiveness occurring during instruction (see Appendix C).
Data Analysis Techniques

The recording and transcribing of mixed-method qualitative interview data entailed using the iPhone App called Just Press Record. The application did not correctly transcribe interviews, so edits were performed manually. The interview included six interview questions related to teacher implementation of literacy strategies, two questions about improving the program, one question regarding the year of completion, and the one question asking for additions they would like to express. Four of the 10 questions required a scaled answer. Qualitative data main ideas were categorized by similarity and placed in table form to analyze results. The four questions that had scaled answers were grouped by scale, then categorized by answer similarity. This data presentation followed Patton’s (2008) recommendation that "data need[s] to be arranged, ordered, and organized in some reasonable format that permits decision-makers to detect patterns" (p. 479). The final mixed-method data allowed teacher perspective as an NGCAR-PD strategy implemener and about the program, they completed in the purest form possible.

Coding Classroom observations occurred by combining the Classroom Observations Coding System created by Molly Ness (2009) and the school systems teacher evaluation rubric Domain 3a-c to determine effectiveness (see Appendix G). A comprehension instructional code and effectiveness of the comprehension instructional code implementation were collected every 30 seconds for each 30-minute observation. The number of each code assigned per participant per observation was added manually and entered into a Microsoft Excel spreadsheet. Pre-determined formulas for Microsoft Excel calculated totals, means, and standard deviations.
Patton (2008) explained that "evaluators should be able to use a variety of tools if they are to be sophisticated and flexible in matching research methods to the nuances of particular evaluation questions and the idiosyncrasies of specific decision-maker needs" (p. 438). This information assisted in creating data collection methods. The data collected identified whether participants' classroom instruction aligned with their self-evaluation questions that related to their effectiveness when teaching. Participants had coded observations categorized in a table with totals, minimum, maximum, mean, and standard deviation, then graphed to percentages of effectiveness and comprehension instruction.

**Ethical Considerations**

A signed informed consent letter (see Appendices E and F) for each participating teacher and their school principal was explained and collected before experimentation. The informed consent explained all required details of the study, including recording, transcribing, and number and amount of time for interviews and number and amount of time for observations. All participants identifying information remained confidential by giving them a random number of 1-10 to be used throughout the study. Minimal participant harm occurred through maintained participant anonymity, privacy, and confidentiality throughout the study. Maximizing benefits ensured the utmost privacy for participants so that shared final results benefit the program. Participants were chosen based on NGCAR-PD certification and the content area they would be teaching for the 2018-2019 school year. This information gave the most participants possible for this research.
Limitations

There are a variety of limitations that can impact the results of this research. Simon and Goes (2013) defined limitations as "matters and occurrences that arise in a study which are out of the researcher's control" (p. 1). Only nine of the possible 12 qualifying teachers chose to participate in the study. Two of the participants that chose not to participate were from the same school. It would have been beneficial to have at least one of their perspectives for data analysis so that each school had a representative with a biology content area certified teacher.

Another limitation was the length of time since each participant CAR-PD/NGCAR-PD certification. This aspect could affect their sustaining of effective literacy strategy practices. During the study, interviews revealed that two teachers had experienced the CAR-PD program twice, giving them a potential reinforcement advantage over other teachers. Schools operate differently in regard to principal expectations of NGCAR-PD strategies used in the classroom, and some schools have specifically CAR-PD labeled classes. This inconsistency could have limited CAR-PD practices due to a lack of or an enhanced focus depending on the program's expectation in the classroom environment by each administration. The researcher’s presence in the classroom could influence teacher instruction, regardless of whether it was an announced or unannounced observation.

An additional limitation would be the chosen sample group. As previously stated there were 222 CAR-PD/NGCAR-PD certified teachers. This group of teachers teach grades 6 through 12 in science and social studies content areas. Some of these content areas were structurally different and the CAR-PD/NGCAR-PD programs could have
created positive results for students in those areas. Overall, this sample group may not have accurately represented the entire population of content area reading teachers from which I drew conclusions.

In order to complete the research, the researcher created boundaries. Simon and Goes (2013) defined delimitation as "characteristics that arise from limitations in the scope of the study (defining boundaries) and by the conscious exclusionary and inclusionary decisions made during the development of the study plan" (p. 3). Observations were limited to two 30-minute observations per teacher. More observations per teacher may have shown different literacy practices due to the different content during that time frame. The announced observations could have potentially created uncommon practice since the teachers were aware of the researcher’s presence at the specified time. The research was only in one school district and only high school biology classes in order to narrow the scope for manageability and reduction of variables. The coding system for observations could have been subjective since it the researcher was the sole person performing the observations. In order to mitigate this potential subjectivity, the researcher chose a coding system that was well defined and used by Molly Ness (2009), another literacy researcher.

Some items that would have improved the study could have been teachers having more than two observations; however, there were doubts that results would have varied much. While 30 minutes may seem like a limited observation time, the researcher was an instructional coach for two years, where observations to assess teachers' support needs were a daily part of the researchers' job. The researcher is currently a program specialist, and classroom observation is part of the researcher’s job to diagnose where teachers need
support. The researcher is an experienced observer, and within 15 minutes, could have an accurate support diagnosis. The researcher’s experience is what determined the need for only two observations.

**Conclusion**

Overall, the outcome evaluation methods revealed the alignment or misalignment between teachers' NGCAR-PD program experience versus what occurred when implementing literacy strategies in their classrooms. These potential implementation gaps supported determining adjustments for the program to make it more effective. The next section discusses the research findings.
Section Four: Results

This results section embodies my analysis of ideas that appeared within the collected data. The Department of Education (2011b) State Literacy Plan said that "schools must increase the quality and consistency of instruction in the classroom to reflect the instructional principals derived from scientifically based research in reading" (p. 2). As I evaluated data, I focused on rubrics and coding descriptions to prevent personal bias from interfering with data collection. My findings revealed some expected and unexpected outcomes that were all helpful in determining a course of action for an improved program.

Findings

The findings of this study focus on data from a 10 question semi-structured interview and coded results from one announced and one unannounced observation per participant. Nine participants met the criteria of being a high school biology teacher and having completed the CAR-PD program or the NGCAR-PD program and agreed to participate in this research.

Quantitative data are shown in tables and graphs, while qualitative data shows in tables for data analysis. The goal of this data was to determine how the NGCAR-PD program can improve to better support teachers with implementing literacy strategies with science content. Strategies and effectiveness ratings were defined to create clear guidelines for improving the program in the future.

Participant Demographics

Nine CAR-PD/NGCAR-PD certified high school biology teachers were interviewed and observed for this study. Their teaching experience ranged from five
years to 37 years in the classroom. All participants completed the CAR-PD program or NGCAR-PD program and have been working with implementing the strategies in their classroom for a minimum of three years.

**Table 1**

*Participant Demographics*

<table>
<thead>
<tr>
<th>Participant #</th>
<th>Gender</th>
<th>Years Teaching</th>
<th>School</th>
<th>Program(s) Completed</th>
<th>Year Certified</th>
<th>Years since Completion</th>
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<tr>
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<td>Female</td>
<td>14</td>
<td>2</td>
<td>CAR-PD &amp; Biology</td>
<td>2009</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Female</td>
<td>6</td>
<td>3</td>
<td>NGCAR-PD</td>
<td>2016</td>
<td>4</td>
</tr>
<tr>
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<td>4</td>
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<td>5</td>
</tr>
<tr>
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<td>NGCAR-PD</td>
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<td>5</td>
</tr>
<tr>
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<td>2010</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
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</table>

**Announced Observations**

**Observation coding.** During 30-minute announced observation visits, there was no observation of Comprehension Instruction-Question Generation (CI-QG), Comprehension Instruction-Summarization (CI-S), Comprehension Instruction-Text Structure (CI-TS), Comprehension Instruction-Comprehension Monitoring (CI-MO), or Comprehension Instruction-Multiple Strategies (CI-MS). Ness (2009) defined CI-QG as a teacher asking students to generate questions from the text, CI-S is when a teacher asks students to summarize informational text either orally or in writing, CI-TS is when the teacher provides students with information on how to use informational text structure to understand the text, CI-MO refers to a teacher providing students with strategies to understand their reading, and CI-MS is when
the teacher shows students how to apply several strategies to increase comprehension. (pp. 83-84)

The most observed code was Didactic Instruction-Review (DI-R), with 131 total occurrences. Ness (2009) defined DI-R as the teacher leading a review of past materials (p. 82). Only 2 participants, 3 and 4, showed no evidence of DI-R happening during their observation. The least observed code was Comprehension Instruction-Cooperative Learning (CI-CL) at 12 occurrences during the observation is participant six. Ness described CI-CL as a teacher giving students independent practice in a cooperative learning environment so they can apply strategies together (p. 83).

The Participatory Approach (PA) was observed 24 times, and only with participant five. Ness (2009) said that PA is when students present information to the class (p. 82) All participants showed evidence of Didactic Instruction-New Information (DI-NI) and Transitions (TR) occurring in their classroom. Ness described DI-NI as the teacher orally delivering content area information through lecture, and TR is a teacher giving transitory directions (pp. 82-83). Non-instruction (NI) instances were present in all observations except with participant two. Ness defined NI as the teacher not engaging in instructional behavior such as behavior management (p. 83).

Comprehension Instruction-Graphic organizers (CI-GO) were in use for participants eight and nine. "CI-GO is when the teacher employs graphic organizers as a means for students to comprehend text" (Ness, 2009, p. 83). Participant nine showed 23 of the 24 instances of use. The Assignment (AS) code was documented 94 times total with only participants five and nine showing no use of this classroom practice. AS is defined as the teacher checks, gives, or assists students with an assignment (Ness, 2009,
A total of five participants showed using Comprehension Instruction-Question Answering (CI-QA) with participant four using it 22 times out of the 38 total occurrences. CI-QA is when the teacher asks students to answer questions from the text (Ness, 2009, p. 83).

To assess variability, calculating the mean and standard deviation was necessary. The mean range for coding observations was 0-14.5, with a standard deviation of 0-13.9. Carroll and Carroll (2002) explained that one number can quickly tell you if your data clustered or spread out around the mean (p. 47). Basically, "the larger the standard deviation, the more spread out [the] scores in your data set" (Carroll & Carroll, 2002, p. 47). Six out of nine observed codes had a standard deviation between four and eight. This information reveals that the codes were clustered close together with little variability of the collected data. Teachers practiced six out of nine observed codes with greater consistency. The other three codes with a standard deviation between 10 and 14 show these practices are inconsistent when used in the content area reading classroom.

**Effectiveness coding.** For this study, the definition of effectiveness related to teacher instruction in regard to communicating with students, discussion techniques, and student engagement. When a teacher interacts with students there should be

- clear purpose for lesson or unit, including where situated within broader learning,
- clear directions and procedures to students, explanation of content that connects with students' knowledge and experience, spoken and written language that conforms to standard English and is understood by the students and vocabulary is appropriate to students' ages and interests. (Department of Education, 2018, p. 38)
A teacher's discussion techniques should use "cognitively balanced questions with adequate response time, and discussion among all students" (Department of Education, 2018, p. 39). Teachers must keep students engaged through "activities and assignments that are appropriate and engaging to all students, instructional groups that are productive and appropriate to instructional purposes, instructional materials and resources that are appropriate, and use appropriate pacing with closure" (Department of Education, 2018, p. 39).

A highly effective teacher communicates well with students when they create "relevance [for the] student, anticipate student misunderstanding, provide opportunities for students to explain to peers, is engaging to students, and extends students' vocabulary" (Department of Education, 2018, p. 38). Classroom discussion and questioning techniques are "questions that are consistently high quality with balanced cognitive challenge, adequate response time and persistence in soliciting responses, and discussion among all students with students formulating questions and initiating discussions” (Department of Education, 2018, p. 39). Highly effective student engagement is when a teacher provides

activities and assignments are appropriate and engaging to all allowing students to choose, initiate or adapt activities to enhance their understanding, instructional groups are productive and appropriate to instructional purposes with students taking ownership of the group's learning, instructional materials and resources enhance student learning and engagement, and appropriate pacing allows for student closure and reflection. (Department of Education, 2018, p. 39)

When communicating with students, a progressing teacher
attempts to explain purpose for lesson or unit with limited success, [gives] directions and procedures that are clear to students after clarification, [gives an] uneven explanation of content, [uses] spoken and written language that conforms to standard English but may not be understood by students, and vocabulary is not appropriate to students' ages and interests. (Department of Education, 2018, p. 38)

The teachers' discussion techniques are "questions that are of mixed quality with low cognitive challenge and/or inadequate response time, and discussion among students with uneven results" (Department of Education, 2018, p. 38). Student engagement consists of "activities and assignments that are appropriate and engaging for some students, instructional groups are partially appropriate or moderately successful, instructional materials and resources that are partially appropriate, and inconsistent lesson pacing with no closure" (Department of Education, 2018, p. 39).

Student communication becomes an unsatisfactory rating when there is an "unclear purpose for lesson or unit, confusing directions and/or procedures, confusing explanation of content, written and spoken language that contains grammatical errors and/or is inaudible or illegible and vocabulary is not appropriate or is used inappropriately" (Department of Education, 2018, p. 38). The teacher’s discussion techniques reveal "questions that are poor quality and/or of only low cognitive challenge with inadequate response time and no student discussion" (Department of Education, 2018, p. 38). Student engagement is unsatisfactory when "activities and/or assignments are inappropriate and/or not engaging, instructional groups are inappropriate or nonexistent, instructional materials and resources that are inappropriate or nonexistent, and no defined lesson structure" (Department of Education, 2018, p. 39).
When implementing literacy strategies during announced classroom visits, most participants’ effectiveness ratings were progressing or effective (see Appendix C). These two ratings had the highest observation totals of 205 times for effective and 248 times for progressing with a close mean of 23 for effective and 28 for progressing. While there were no highly effective practices observed, there were 46 instances of unsatisfactory practices occurring during the announced observation visits (see Table 2).

Participant nine had the highest number of unsatisfactory occurrences of 16 during a 30-minute observation. The remaining participants had 13 or fewer instances of being unsatisfactory, while participants two, six, and eight had no instances of an unsatisfactory rating. Participant six had the highest number of progressing ratings of 49, while participant eight had the lowest occurrences of three. Participants one, five, six, seven, and nine had greater than 30 occurrences of progressing during their observations. Participants two, three, four, and eight had less than 30 progressing incidents.

Participants two and eight had the most significant number of effective ratings at 49, while participant nine had the least number of effective occurrences of six. Effective incidents occurred more than 30 times for participants two, four, and eight. Participants one, three, five, six, seven, and nine showed effective practices less than 30 times during the announced observation. No participants received a highly effective rating during their announced observation visit.

The mean range for effectiveness was 0 - 27.6, with a standard deviation range of 0-16.8. A 15.2 and 16.8 variability is large when comparing those numbers to five and zero. This gap is showing that there is significant variability between teachers that are unsatisfactory or highly effective teachers and teachers that are progressing or effective.
These statistics tell us that there is wide variability among content area teachers in terms of effectiveness when ranked progressing and effective. Decreasing this variance must happen to preserve the integrity of the program.

A cluster analysis revealed that participants four, six, and nine used comprehension instruction the most. These were in the category of question answer, graphic organizers, and cooperative learning. These three participants had between 33 and 37 years of experience teaching in the classroom. Participants six and nine completed the CAR-PD program 8 to 13 years ago and both were in the top three participants with the most instances of a progressing rating. Participant four completed NGCAR-PD five years ago and had 32 instances of an effective rating, making the participant number three out of all nine participants. This information suggests that experienced teachers are more comfortable with comprehension instruction yet not effective with implementation.

As previously stated by the Department of Education, CAR-PD and NGCAR-PD have the goal of creating an effective content that is reading teachers. The results from the announced visits are showing a concerning variability with teacher effectiveness. Teacher effectiveness must improve to enhance student comprehension. Table 2 and Figure 1 are shown below as reference to the announced visits discussion.

Table 2

<table>
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<tr>
<th>Code</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>Max.</th>
<th>Mean</th>
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</table>
Figure 1. Summary of announced visits. This figure shows the average or mean percentages of the comprehension instruction and effectiveness from all nine participants data during announced visits. Codes with a no data (0%) were removed to ensure clear readability.

Interpretations. In an ideal situation, a teacher should be using any comprehension instruction strategy more than didactic instruction to ensure students are
practicing their comprehension skills daily. Announced observation data showed teachers using a variety of strategies. There were recordings of only one participant using CI-CL (P6), PA (P5), and CI-QA (P4). Only two participants, P8 and P9, were recorded using graphic organizers (CI-GO).

The results show that participants need more support with implementing literacy strategies effectively, a program specific to science content, and integrity criteria. Table 2 revealed that 59% of announced visits were rated progressing or unsatisfactory. The progressing rating had the highest number of recordings during observations at 248 for announced. These figures say that content area certified teachers need support in improving their effectiveness in the classroom.

DI-R instruction was seen the most during visits with 131 occurrences during announced visits. Comprehension Instruction was never observed in regards to question generation (CI-QG), summarization (CI-S), text structure (CI-TS), or comprehension monitoring (CI-MO). There was no observation of multiple strategies comprehension instruction (CI-MS) during announced visits. There were no observed patterns between comprehension instruction and level of effectiveness. This information says that teachers may need support with these comprehension strategies to support student comprehension successfully.

**Unannounced Observations**

**Observation coding.** There was one 30-minute unannounced visit for each participant, with results shown in Table 3. During unannounced visits, there was no evidence of Comprehension Instruction-Question Generation (CI-QG), Comprehension Instruction-Summarizing (CI-S), Comprehension Instruction-Graphic Organizers (CI-
GO), Comprehension Instruction-Text Structure (CI-TS), Comprehension Instruction-Collaborative Learning (CI-CL), or Comprehension Instruction-Comprehension Monitoring (CI-MO). The most observed classroom practice was Didactic Instruction-Review (DI-R), with 243 total occurrences with participants two, six, and nine having the top three number of instances at 45, 48, and 54. Participants two, three, and six showed the use of Didactic Instruction-New Information (DI-NI), while three showed the most use with 20 out of 31 total. The Participatory Approach (PA) was only observed twice overall in participant one's observation. All participants showed evidence of transitioning from two to 15 times during an observation.

Table 3

Summary of Unannounced Visits

<table>
<thead>
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<th>Code</th>
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</table>
There was no evidence of participants two, five, and eight having non-instructional (NI) time during their observation. All other participants showed the existence of non-instruction, with participant seven having the most at 19 times out of 32 total. Comprehension Instruction-Question Answering (CI-QA) was not observed with participants two, five, eight, and nine, while participant four showed use 36 out of the 58 times. Participants three and eight used Comprehension Instruction-Multiple Strategies (CI-MS) between 22 to 26 times.

The mean range of use for strategies was 0 to 27, with a standard deviation range of 0 to 18.9. DI-R had the highest mean at 27 with the next closest mean being 7.8 for AS. This gap between means showed that didactic instruction (lecture-type teaching) was observed significantly more during unannounced visits. The standard deviation showed significant differences with approximately 6-point gaps among the top four strategies being DI-R, AS, CI-QA, and DI-N. This amount of variability between strategies reinforces the need for greater integrity of the program. It appears that teachers may be relying on lecture-style teaching when they are uncertain about what strategy to use with the content or when they are not expecting any observers in their classroom. Regardless of the reason, the Department of Education Literacy Plan (2011b) pointed out that "effective daily literacy instruction integrated with content area instruction" (p. 4) is what students need for improvement.

**Effectiveness coding.** There were 16 instances documented for an unsatisfactory rating for participants three and nine, with 14 of those occurrences belonging to participant nine. Progressing and effective were the most observed during unannounced visits with totals of 268 and 232. Participants two, three, six, seven, and nine had more
than 30 occurrences of progressing, while participants one, four, five, and eight had less than 30 recorded instances. Effective participants with numbers 30 and higher include participants one, four, five, and eight with participants two, three, six, seven, and nine having less than 30 occurrences in a 30-minute observation. There were no incidents of highly effective rating recorded.

The mean for progressing and effective occurrences was a four-point difference at 29.8 and 25.8. This data shows that participants need support with moving to effective or highly effective when using strategies. The standard deviation shows high variability at 19.4 and 22.8, which reveals low integrity when implementing strategies. These results are showing inconsistency among teachers with effectiveness, which would affect students' ability to learn comprehension strategies.

**Interpretations.** The results showed that participants need more support with implementing literacy strategies effectively, a program specific to science content, and integrity criteria. Figure 2 will be used to display percentages from Table 3 data. Table 3 and Figure 2 data revealed that 55% of unannounced visits were rated progressing or unsatisfactory. The progressing rating had the highest number of recordings during observations at 268 for unannounced. These figures say that content area certified teachers need support in improving their effectiveness in the classroom.
Figure 2. Summary of unannounced visits. This figure shows the average or mean percentages of the comprehension instruction and effectiveness from all nine participants data during unannounced visits. Codes with a no data (0%) were removed to ensure clear readability.

Table 4 is significant when discussing interpretations as it shows a side by side comparison of both announced and unannounced observation data. The unannounced visits are shown in italics to enhance readability. Didactic instruction was seen the most during visits with 243 instances during unannounced visits. Comprehension Instruction was never observed in regards to question generation (CI-QG), summarization (CI-S), text structure (CI-TS), or comprehension monitoring (CI-MO). There was no observation of Graphic organizers (CI-GO) and cooperative learning (CI-CL) during unannounced visits. This information says that participants may need support with these comprehension strategies to support student comprehension successfully.

Table 4

Summary of Announced and Unannounced Visits

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<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
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</table>
During announced observations, there were two or less instances of comprehension instruction for participants one, two, three, five, seven and eight. These participants were an even split with the number of CAR-PD and NGCAR-PD
participants. This evidence reveals that both programs do not create comprehension instruction focused participants.

Participant two showed no comprehension instruction during either observation. Participants six and nine showed no comprehension instruction during their unannounced observation. All three of these participants completed the CAR-PD program 8 to 13 years ago. The length of time since completion of the CAR-PD program and the program itself are both variables that may have affected this lack of comprehension instruction for these participants.

Participants' data showed that they fall back to lecture type habits when they are not aware of observation. This information indicated that participants may be avoiding comprehension strategies when not aware of observations or do not feel that the consistency of their use is an expectation. Participants need more support with a variety of comprehension strategies and expectations for implementation consistency.

Program Completion Summary

Criteria for being a participant in this research included being CAR-PD or NGCAR-PD certified. Table 5 shows the year participants completed the program and which program was completed. Question one results showed that three participants completed the program between 2007 to 2010. In 2011-2012, there was a Biology specific cohort program that focused on strategies best for science in which two participants completed. The other four participants completed NGCAR-PD from 2014-2017. The Department of Education trained district personnel on the updated requirements for the NGCAR-PD program which was aligned and began in Fall of 2012 per State Statute 6A-5.090.
Table 5

<table>
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<tr>
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<th>Biology CAR-PD</th>
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<tr>
<td>2016-2017</td>
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</table>

Implementation Level Before Program Completion

Participants ranked their confidence regarding their implementation level with literacy strategies in their classroom practices before completing a CAR-PD or NGCAR-PD Program and give the reason for their choice of ranking. When ranking their confidence level from one to five, one was low confidence and five was very confident. According to Table 6, three participants ranked themselves on a range from one to three, explaining that they did not have any knowledge about literacy strategies. One participant rated themselves a 1, indicating they were not confident when implementing literacy strategies in the classroom because they were a non-education major in college. One participant ranked themselves a 2, indicating that they had received school-based professional development that had taught them some literacy strategies. Two participants rated themselves a 2 to 3, saying their focus was on covering content, and they had never considered needing literacy strategies in a science classroom. One participant ranked themselves a 4 because having a background in English prepared the participant for teaching literacy.
Table 6

### Summary of Confidence of Implementing Strategies Before Program Completion

<table>
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<th># of Participants</th>
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<th>Reason for Ranking</th>
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<tr>
<td></td>
<td></td>
<td>Did not know what strategies were</td>
</tr>
<tr>
<td>2 (P5, P8)</td>
<td>2</td>
<td>Did not know what strategies were</td>
</tr>
<tr>
<td></td>
<td></td>
<td>School PD had taught some strategies</td>
</tr>
<tr>
<td>3 (P9, P4, P7)</td>
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<td></td>
<td></td>
<td>No idea what literacy strategies were</td>
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<tr>
<td></td>
<td></td>
<td>Never considered it for a science classroom</td>
</tr>
<tr>
<td>1 (P6)</td>
<td>4</td>
<td>English certification allowed for adeptness to teaching language acquisition</td>
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</table>

**Interpretation.** These findings are significant because this information aligns with participants requesting more support during and after the program through modeling, instructional coaches, and strategic collaboration with other science teachers. The adjustments recommended would benefit teachers by building their confidence with implementing strategies, increase the variety of strategies they are using, and allow them to assess matching strategies to content with other teachers.

### Implementation Level After Program Completion

Participants ranked themselves on their ability to implement Content Area Reading strategies after completing the program and the reason for their ranking.

According to Table 7, one participant rated themselves between a 2.5 to 3 on the implementation level because they recognized their barrier of being inefficient at lesson planning. This participant explained their uncertainty during preparation related to the timing of the strategy implementation.

Table 7

### Summary of Confidence when Implementing Strategies After Program Completion

<table>
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<th># of Participants</th>
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</table>
Five participants ranked themselves a 4 with in regard to their confidence when implementing literacy strategies after completing the program. The reasons given for their increased ability were (a) they were able to implement graphic organizers and vocabulary strategies better, (b) they had found strategies that fit best with science, and (c) they were easy to apply to see how students were learning. One participant ranked themselves a 5 right out of the program but changed it to a 4 due to forgetting strategies and how to use them over the years with no refresher courses.

Table 8 shows the comparison of confidence of implementing strategies before and after the program. Two participants ranked themselves a 5 after completing the program. While both participants were very confident with implementation, one participant had concerns about assessing students' comprehension abilities with strategies in the classroom environment. One participant ranked themselves a 5 to 6 since they began using them all the time in all subject areas once they had completed the program.
Table 8

*Comparison of Confidence of Implementing Strategies Before and After Program Completion*

<table>
<thead>
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<th>Participant #</th>
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**Interpretations.** Participant implementation ranking before the program was an average of 2.2, and after program completion, the average increased to 4.3. A 2.1 difference in the confidence of strategy implementation tells us that teachers' confidence in literacy practices increased significantly once completing the program. This data reveals that support during the program is imperative to teachers being confident when implementing literacy strategies.

**Participant Recommendations**

Participants recommended improvements for the CAR-PD program. See Table 9 for the summary of recommendations. One participant suggested the trainer model the strategies in a classroom environment to allow participants to observe how to implement the strategies with students. Two participants explained how a refresher course would be beneficial to remind them of the strategies they have forgotten. Two participants advised not to make any changes.

There were a variety of options for program improvement that was only mentioned by one participant. These suggestions included creating a science-focused
program for science teachers, ensuring all participants have access to a home computer, adding lesson study and professional learning communities to the program, visiting other NGCAR-PD classrooms to see the strategies in action, the trainer showing all strategies from start to finish, and providing follow-up support from the schools' instructional coach.

Table 9

<table>
<thead>
<tr>
<th># of participants</th>
<th>Recommended Improvement</th>
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<td>1 (P9)</td>
<td>Modeling of strategies in the classroom</td>
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<td>2 (P9, P4)</td>
<td>Refresher course to remind teachers of already learned strategies and introduce new strategies that have been discovered</td>
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<tr>
<td>1 (P5)</td>
<td>Science focused program to highlight best strategies for science content</td>
</tr>
<tr>
<td>1 (P8)</td>
<td>Having a home computer for online component and course work</td>
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<td>2 (P7, P6)</td>
<td>No recommended improvements</td>
</tr>
<tr>
<td>1 (P2)</td>
<td>Adding Lesson Study</td>
</tr>
<tr>
<td>1 (P2)</td>
<td>Visiting others classrooms that are using the strategies well</td>
</tr>
<tr>
<td>1 (P3)</td>
<td>Show strategy implementation from start to finish</td>
</tr>
<tr>
<td>1 (P1)</td>
<td>Adding Professional Learning Communities for all Content Area Reading teachers to meet, discuss, research and learn together about their practices</td>
</tr>
<tr>
<td>1 (P4)</td>
<td>Instructional Coach support to assist with implementation of strategies</td>
</tr>
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</table>

**Interpretations.** Overall, the participants requested follow up support. Lesson Study has been part of the NGCAR-PD program since the Department of Education adjusted requirements in 2012 per State Statute 6A-5.090. A science-focused program was trained once, according to participant interviews. The idea of creating a district Professional Learning Community would be an excellent way for all CAR-PD and NGCAR-PD certified teachers to support each other. While some school campuses have instructional coaches, supporting CAR-PD certified teachers is not a specific job responsibility for them. These recommendations suggest that teachers need more support to maintain literacy practices consistently.
Support Recommendations

Participants shared ideas about how the program could improve their confidence level in implementing literacy strategies. As exhibited in Table 10, three participants mentioned modeling in a variety of ways, such as an instructional coach modeling in the classroom with students, an instructional coach co-teaching a lesson with teachers, and an instructional coach taking teachers to observe others who have achieved proficiency with strategies. Two participants proposed making the program specific to science. One suggestion was identifying the most effective strategies to use in science and focus on those most during the program. Another recommendation was to add strategies to support students reading data tables and graphs since that is a regular part of science literacy.

One participant has a particular interest in learning how to implement a Socratic Seminar and wants more discussion strategies. Another suggestion was to incorporate a way for teachers to monitor students' comprehension growth throughout the school year to ensure the strategies they are using are improving students reading skills. A participant suggested having classroom support during the program that included immediate feedback and a reflection partner when assessing videoed lessons during the practicum. There was one proposal to supply a strategy packet for program teachers for reference to prevent forgetting strategies over time. One participant recommended that we needed to devise a way to increase reading support at the students' home because teachers in this program are doing all they can do to improve student comprehension.

Table 10

<table>
<thead>
<tr>
<th>Support Recommendations</th>
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<tbody>
<tr>
<td>Include strategies for interpreting graphs and data</td>
</tr>
</tbody>
</table>
Identify the most effective strategies for students in science
Make specific for science
Include Socratic Seminars and more discussion strategies
Do not need more support from the program, need more support from home
How to track if my student’s comprehension is improving
Seeing the strategies done with students (modeling)
Classroom support with immediate feedback and a reflection partner
Packet of all literacy strategies in the program
Instructional coach support (modeling/co-teaching)
Classroom support after program completion (modeling, co-teaching, observing others)

**Interpretations.** To improve teacher confidence level with implementing strategies, they need strategies specific for science and a way to monitor student comprehension. When a teacher can see data that shows their literacy practices are working for students, they will be more confident in themselves with implementation.

Three recommendations mention support in the classroom in the form of modeling strategies, giving feedback, and co-teaching lessons. The data from Tables 9 and 10 show a strong participant need for support in their classrooms during and after program completion.

**Strategy Use with Text**

Participants discussed if they have difficulty deciphering when to use particular strategies with varying types of text. Five participants replied no, one stated sometimes, and three admitted to struggling with connecting strategies to the text type. While all participants gave different reasons for their answers, listed in Table 11, 56% of participants expressed being confident when matching strategies to text, and 44% acknowledged that they are apprehensive when attempting to match strategies to text structure.
Participants that do not struggle with matching strategies to the text gave reasons such as they recognize when a strategy does not work with a specific text when given a directive by the school administration to use a particular strategy in a specified time frame in their classroom. If a person is confident with their content, then these strategies are easily worked into the text. Participants that answered sometimes or yes either mentioned being hesitant about trying new strategies or knowing which strategies to match with their content.

Table 11

| No (P9) | Guidelines for which strategy works best with a topic would be helpful |
| No (P5) | I don't think I have that struggle |
| No (P8) | My struggle is having the time to teach the strategies to my students |
| No (P6) | My administration asks me to use a certain strategy that week and it doesn't fit what I'm doing so I know I recognize when to use certain strategies. |
| No (P2) | When you are comfortable with your content you can work these strategies in easily |
| Sometimes (P3) | I tend to stick with the ones I'm comfortable with, I'm weary about trying new ones |
| Yes (P1) | I'm working with our instructional coach with strategies I'm hesitant about |
| Yes (P7) | All the time, which ones are good for which situations |
| Yes (P4) | It’s difficult to know how to differentiate for my widely diverse groups of students |

Interpretations. While five out of nine participants expressed that they can match strategies to text type, four still requested support in this area. To ensure all participants implement strategies with the correct text type, adding a planning component to the program would alleviate this issue. Practicing matching strategies to the appropriate text type would support teachers' skills and confidence in implementing a variety of strategies.
Implementation Effectiveness

Participants ranked themselves on their effectiveness when implementing literacy strategies with science content, with one being ineffective and five being very effective. Table 12 shows all participants' reasons for their ranking. Two participants ranked themselves a four with the reasoning that they do not take the time they should use the strategies due to content pacing, and they should use the strategies with better monitoring of student use. Five participants gave a variety of reasons for ranking themselves a three to four. Four of those five participants mentioned their inability to improve all their students' comprehension for a variety of reasons, such as there are too many differing abilities in one class or they are struggling with letting go of control to the students during reading. Two participants ranked themselves four to five because they use the strategies consistently in their classroom.

Table 12

<table>
<thead>
<tr>
<th># of Participants</th>
<th>Rank</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (P9, P5)</td>
<td>4</td>
<td>I don't take the time to use strategies like I should, due to the amount of content that has to be covered. Maybe I don't have the best classroom management. I should do a better job of making sure the students are using the advanced organizers.</td>
</tr>
<tr>
<td>5 (P6, P3, P1, P7, P4)</td>
<td>3 to 4</td>
<td>I'm trying hard but I'm not getting them all to get meaning from what they are reading. Certain classes are more open to participating in reading in class. I'm still struggling with implementing strategies daily and letting go of some of that control to the students. The kids say I'm effective at teaching them content. Too many differing abilities in the same class.</td>
</tr>
</tbody>
</table>
I've implemented these strategies in five different sciences (Earth, Physical, Integrated, Biology & Chemistry)

I think I incorporate one of these strategies into every single lesson

**Interpretations.** Data shows that seven out of nine participants need guidelines and classroom support when implementing strategies. The lack of strategy implementation and student monitoring is a common trend in the explanations. Both of these trends indicate that teachers and students are not practicing strategies and monitoring consistently in most classrooms. This information suggests that participants need support in these aspects during the program.

**Frequency of Strategy Use**

Table 13 shows the results of participants explaining how often they use literacy strategies and why they use them that frequently in their classroom. Five participants stated that they used literacy strategies daily because it is challenging to teach content without practicing reading and using literacy strategies. Four participants explained that they used literacy strategies three or fewer times a week with reasons such as the school schedule and the amount of content to cover significantly impacting their time in the classroom. No participants ranked themselves as rarely or three or fewer times a month.

<table>
<thead>
<tr>
<th># of Participants</th>
<th>How often?</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (P8, P6, P2, P3, P7)</td>
<td>Daily</td>
<td>You have to read everyday</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It's my focus using Biology to try to help teach reading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is some sort of writing assessment everyday</td>
</tr>
</tbody>
</table>
My students are reading, breaking apart text, finding main ideas, and summarizing every day. It's hard to get away from them doing vocabulary every day in Biology.

<table>
<thead>
<tr>
<th>4 (P9, P5, P1, P4)</th>
<th>3 or less a week</th>
<th>Too much content to cover</th>
</tr>
</thead>
</table>

It's useful

I shoot for 2 times a week and with other things that happen it's probably more like once a week where their reading something. Minimum of twice a week most weeks depending on school schedule

<table>
<thead>
<tr>
<th>0</th>
<th>3 or less a month</th>
</tr>
</thead>
</table>

| 0 | Rarely/Never |

**Interpretations.** According to the data, participants are implementing strategies in their classrooms inconsistently. This information suggests that the program did not set an expectation for how often the strategies should be integrated into content and practiced in the classroom. Participants' student comprehension results will vary extensively if some students are practicing literacy strategies more than others. This variability will create integrity issues in regard to the CAR-PD and NGCAR-PD program effectiveness.

**Specific Strategy Use**

Participants discussed whether they tend to stay with the strategies they are comfortable with using or if they prefer to try new strategies. Participants listed strategies that they used most. Table 14 shows the details that participants revealed about their classroom practices. One of nine participants said that they try new strategies whenever it occurs to them to use a strategy. Eight of the nine participants explained they stayed with strategies they were confident with using. Three of the eight participants mentioned using graphic organizers consistently. Two of eight participants articulated regular use of summarizing, discussion strategies, rereading, and jigsawing.
Table 14

**Summary of Trying New Strategies or Staying with the Same Ones**

<table>
<thead>
<tr>
<th># of Participants</th>
<th>New/Stay</th>
<th>Which Strategies?</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stay</td>
<td>Graphic Organizers &amp; Vocabulary</td>
<td>I tried text coding and other strategies but they didn't go well with the students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Window Pane Notes</td>
<td>Some work with certain content and that may be the only time that year I use it</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turn and Talk, graphic organizers, Claim, Evidence, Reasoning (CER)</td>
<td>I'm a creature of habit. I'm going to use the ones that are working depending on how they fit</td>
<td></td>
</tr>
<tr>
<td>8 (P1, P2, P3, P4, P5, P7, P8, P9)</td>
<td>Sticky note strategies, think pair share, placemat consensus, jigsaw</td>
<td>I have forgotten most of them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Text Marking, Summarizing, gist statements, QAR</td>
<td>I limit the amount of strategies for consistency with students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breaking down text, reread, SQ2R notes</td>
<td>Three new preps doesn't give me much time to figure out new strategies right now</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breaking down vocabulary, rereading</td>
<td>These strategies are second nature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Close reads, graphic organizers, summaries, jigsaw</td>
<td>Lack of planning time</td>
<td></td>
</tr>
<tr>
<td>1 (P6)</td>
<td>New</td>
<td>Whatever happens to work with that content</td>
<td>I try something new every time it occurs to me.</td>
</tr>
</tbody>
</table>

**Interpretations.** The strategies that participants mentioned very extensively.

While most participants prefer to remain with strategies they are familiar with, the most mentioned explanations refer to strategies matching content or consistency with students. This data shows that at least five out of nine teachers are aware that matching strategies to content is necessary and that students need practice with simple strategies.

**Final Thoughts**
Finally, participants revealed if they had any final thoughts to share about their content area reading professional development experience. As shown in Table 15, two of nine participants mentioned the same final thoughts about their program, which were a refresher class from other science teachers, no improvements are needed, and all teachers should be content area reading trained. Five other suggestions were slowing the program to three years, adding strategies to support student background knowledge and science jargon, targeting second and third-year teachers, strategy modeling, adding professional learning communities, instructional coach support, and the opportunity to observe other teachers using the strategies effectively.

Table 15

<table>
<thead>
<tr>
<th># of Participants</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (P9, P2)</td>
<td>Refresher class from other science teachers</td>
</tr>
<tr>
<td>2 (P5, P7)</td>
<td>No improvements needed</td>
</tr>
<tr>
<td>1 (P8)</td>
<td>Slow the program down over a 3 year period</td>
</tr>
<tr>
<td>1 (P6)</td>
<td>Strategies to support background knowledge and jargon of content area</td>
</tr>
<tr>
<td>1 (P2)</td>
<td>Target 2nd and 3rd year teachers</td>
</tr>
<tr>
<td>1 (P7)</td>
<td>More modeling of strategies</td>
</tr>
<tr>
<td>1 (P1)</td>
<td>Science CAR-PD Professional Learning Community</td>
</tr>
<tr>
<td>2 (P6, P3)</td>
<td>All teachers should be NGCAR-PD trained</td>
</tr>
<tr>
<td>1 (P7)</td>
<td>Instructional coach for support</td>
</tr>
<tr>
<td>1 (P7)</td>
<td>Observe other teachers</td>
</tr>
</tbody>
</table>

**Interpretations.** According to participants' final thoughts, they are eager to support literacy strategies in and outside of their classroom. Instructional coaches on their school campus would be able to help and model for them with students. Refresher courses and a Professional Learning Community would allow for collaboration among participants outside of their school campus. Overall, participants are desiring more
support so they can ensure their students are receiving the best support from them in science literacy.

As all of this data leads to interpretations, the interpretations lead to action plans that involve change to a school district. Wagner et al. (2006) “offer[s] an approach to thinking systematically about the challenges and goals of change in schools and districts, which [are] called the 4 C’s—competency, conditions, culture and context” (p. 98). The following four subsections are going to discuss how the four Cs would apply to this research. Appendix H is the 4 Cs “As Is” chart for referencing surrounding information regarding the subsections.

**Contexts.** In this section, the discussion centers on the meanings of this research in regard to context. Wagner et al. (2006) defined contexts as the "skill demands all students must meet to succeed as providers, learners, and citizens and the particular aspirations, needs, and concerns of the families and community that the school or district serves" (p. 104). My question about contexts is to what extent will remediation rates improve when teachers learn to implement literacy strategies effectively? If teacher literacy strategy implementation was improved, student literacy skills should improve. This would support creating successful students in academics, careers, and society. Currently, findings show that the majority of literacy instruction is ineffective, which does not support improving student literacy skills.

Many outside influences affect the educational environment that is beyond an education professional's control, which creates barriers to student academic success. Participant six stated in the interview, "too many of these kids don't read, won't read, and my experience has been the schools doing everything it can to try to promote strength in
literacy, and it's a very serious uphill battle." The culture of promoting literacy in school is not always the traditional culture in children's home environments. Participant six pointed out that "every parent conference that I do, the parent announces, well I didn't like to read when I was a kid." For literacy to be a priority to students, we need all stakeholders to create a literacy-focused environment.

The literacy battle affects the community politically when school grades are released annually to the public, and grades are low or decrease. The community wants to blame the schools, and the schools blame the community. In reality, we all must work together for our children to excel academically, particularly when in regards to literacy. Participant eight stated, "you have got to read every day." This objective cannot merely be the goal of the school; we need it to be the goal of all educational stakeholders to support student success.

**Culture.** Wagner et al. (2006) defined “culture as the shared values, beliefs, assumptions, expectations, and behaviors related to students and learning, teachers and teaching, instructional leadership, and the quality of relationships within and beyond the school” (p. 102). Results have shown that there is a variance between reality and expectations in a CAR-PD/NGCAR-PD classroom. "The purpose of a culture if to assist people who are members of a group in knowing the rules for acceptable behavior and to provide consistency and predictability in everyday actions" (Lindsey, Robins & Terrell, 2009, p. 25). The assumption for content area reading certified biology teachers is the nine-month program teaches them how to be an effective disciplinary literacy teacher in a nine-month training and that they maintain these practices. This assumption makes me want to know how teacher implementation of literacy strategies relates to the expected
outcomes of the NGCAR-PD program? Currently, the culture consists of teachers working in isolation and school leadership not supporting teachers with content area practices. This question is essential since there is a shared belief in the school district that a certified NGCAR-PD teacher is effectively producing proficient readers.

The Department of Education (2011b) stated that "NGCAR-PD is designed to prepare content area teachers to effectively deliver reading instruction" (p. 27). The teachers' certification in CAR-PD or NGCAR-PD provides documentation that a teacher is prepared to support students with reading comprehension effectively, or at least that is the assumption. Another cultural aspect to consider is that "teachers may take the sixty (60) hour Face to Face CAR-PD, and the thirty (30) hour practicum simultaneously with providing reading intervention" (Department of Education, 2011b, para. 4). For clarification, this means that teachers can be labeled as an NGCAR-PD teacher on a student's schedule as their reading teacher and content teacher while they are in the program.

After analyzing qualitative and quantitative data, the culture or reality is that teachers are doing the best they can with what they think is right. Table 12 results revealed that participants have inconsistency with how often they are using literacy strategies with students, yet the assumption is that this is occurring daily. Another assumption is CAR-PD teachers do not need ongoing support from leadership. Yet, according to Tables 9, 10, and 11, there are multiple suggestions in regard to support from district level and school-based leadership that would improve their practices in the classroom. The Department of Education (2011b) clarified that "four strategic approaches facilitate student content area text reading: Eyes on text, Daily text discussions: Text-
reading discussion [and] Extended text discussion, Question generation strategies, [and] extended writing” (p. 27). The research results confirm that expectations for a content area reading classroom environment are not reality.

**Conditions.** Wagner et al. (2006) defined “conditions as the external architecture surrounding student learning, the tangible arrangements of time, space, and resources” (p. 101). In regards to conditions, I want to know the about the relationship between teacher classroom practices and the NGCAR-PD program? If a teacher is confident in their classroom practices, their classroom environment should reflect this through classroom arrangement, time management, and the resources they provide for their students to learn. If a teacher is uncertain about their classroom practices, there will be evidence such as disorganization and inappropriate resources being used for student learning.

The conditions of the school system affect the environment of a content area teacher. It would require significant finances to have a content area reading district level program specialist as well as ensuring that every high school had a CAR-PD or NGCAR-PD certified literacy coach on every campus for the support of these teachers. Many of the suggested supports would require a team devoted to content area reading teachers improvement.

This change would require human resources to create job descriptions, increase personnel at each school, and complete the hiring process for these new positions. This process requires time, staff, and finances to accomplish. People hired into the positions would also need consistent training to ensure integrity when working with teachers.

**Competencies.** Wagner et al. (2006) defined competencies as “the repertoire of skills and knowledge that influences student learning” (p. 99). In this case, we need
leaders and teachers with literacy knowledge and practical communication skills. These competencies would allow a person to coach teachers and enable school leaders to understand the expectations of a certified CAR-PD or NGCAR-PD teacher. My main question is what support do teachers need to implement the NGCAR-PD program with consistency in their classroom? We know the skills the program wants participants to learn. Once we know the support teachers need to accomplish learning these skills to the appropriate effectiveness level, we can adjust the program to close this learning gap.

Content area reading certified teachers need support from their district and school-based leadership to refine the skills required to be compelling content area reading teachers. Participants referred to instructional coaches, collaborating with other content area reading teachers, and visiting other classrooms for a variety of purposes when answering interview questions. These are all items arranged through leadership.

In my current experience, unless someone on the school's leadership team has district assistance with training the program on their campus or they used to be a CAR-PD trainer, they are unaware of the expectations of a CAR-PD or NGCAR-PD certified teacher. Most school leaders appear to understand that a CAR certified teacher is right for student learning and how to work out scheduling for students that need content area reading support. While training the program would give insight on literacy research, criteria for a student requiring reading comprehension instruction, and specific literacy strategy usage, there is more a school leader would need to know to support these teachers with literacy implementation. District leaders need to create professional development to assist school leadership with understanding the expectations of an
NGCAR-PD certified teacher to help them with reaching the level of effectiveness that will impact student achievement.

The Department of Education (2011b) stated, "the school principal has the potential to have a great impact on student learning through his or her support of teachers and literacy coaches" (p. 8). School-based leadership can make decisions to prioritize having a literacy coach on their campus as well as determining their responsibilities. District leadership can prioritize the NGCAR-PD program by having a program specialist that focuses on the program to create improvements and support the campus literacy coaches, as well as campus leaders. Teachers' feedback about their needs for support suggests that leadership is not making decisions that prioritize the content area reading program. All administration seems to know what it is supposed to do because NGCAR-PD cohorts continue on campuses. However, the final product from the program is still in need of refinement to guarantee the improvement of student reading comprehension. For all leadership to be competent in regards to the content area reading program, they would need exposure to what it should look like and how these teachers can be best supported to make students successful.

Judgments

The data revealed teacher concerns about the effective implementation of strategies due to the lack of support during and after program completion. Observation visits showed that over 55% of the time, teachers were in the progressing or unsatisfactory range, which indicates that teachers need guidance to improve their practices. The interview data suggest that teachers want more support from district and
school-based leadership to improve their methods for their students' success. Cohen (1990) explained that teachers who were part of some active conversation about their work, in which a variety of questions about their practice were asked and answered, from a variety of perspectives—would have more resources for change than those who had been left to figure things out for themselves. (p. 326)

Guidance from leadership would assist teachers by enhancing their confidence and effectiveness with strategy implementation as well as develop the integrity of the program and its results.

While the results from data appear concerning the expected student results, these findings are going to lead the teacher focused program in a favorable direction. This information is useful as it points to solutions for program improvement, which could lead to academic success for students that require this intervention. The observation outcomes show that there are seven comprehension strategies rarely being used if at all. Direct instruction is used 24% or more of classroom time tells us that overall comprehension strategies are not being used in the CAR-PD classroom as much as they should be to improve students' comprehension ability. Two participants mentioned that you have to read every day to enhance comprehension, and data does not show proof of this occurring.

The data collected proves valuable as it is enough to guide program leadership in the right direction with adjustments to improve the program. Teachers are requesting a variety of support that would make a positive impact on their practices, which would, in turn, positively affect student results. These changes would move the program towards
meeting the actual expectations instead of the reality of everyone merely assuming that things are happening as they should be behind the closed classroom door.

**Recommendations**

The main change that needs to occur is support from district and school-based leadership for teachers that have completed the program. Covay Minor, Desimone, Caines Lee, and Hochberg (2016) found that meaningful professional development “requires sustained, content-focused professional development that is embedded in teachers’ work lives and that allows for practice, discussion, and feedback” (p. 3). A CAR-PD/NGCAR-PD certified literacy coach needs to be at every secondary to support their content area reading certified teachers. The support system would need to include regular classroom visits, leading new cohorts, modeling strategies, reviving old strategies, taking teachers to other classrooms to observe best practices, and holding scheduled, structured meetings for teachers to share their methods and difficulties with other teachers in their content. Ideally, a district-level program specialist would be devoted to supporting the CAR-PD/NGCAR-PD coaches and NGCAR-PD cohorts occurring on school campuses to make this change productive.

The NGCAR-PD program needs to be a gradual release model over three years instead of being completed in less than a school year. This model would allow teachers to firmly grasp a variety of strategies, observe proficient teachers, and practice implementing strategies with content. The program also needs to be specific to science or social studies so that strategies are specific to their content. Covay Minor et al. (2016) explained that “translating content knowledge into improved instructional strategies is not automatic; the process works through various mechanisms including increased
confidence, willingness to ask higher level questions, proclivity to experiment, ability to identify student mistakes, and many others” (p. 3). This type of program alleviates the need for teachers to filter strategies in an attempt to decide what works best with their content.

Another aspect of the program is the real expectation of the NGCAR-PD teacher. Guidelines are needed that outline the expectations to communicate consistency among teachers and leaders. Interview results showed that only two participants were implementing strategies daily. For goal improvement, daily practice is essential. We cannot expect consistent results with students if our teachers have no consistency.

Certified teachers in this program must have a complete understanding of their expectations and their students to be successful in improving student comprehension. School leaders would need to be trained on the expectations and needs of a content area reading teacher as well as the instructional coach on their campus. These guidelines would be the responsibility of the district program specialist. Teachers, coaches, and school leaders must all have a shared understanding of the expected consistencies for the program to move towards and maintain effectiveness.

The lack of comprehension instructional strategies observed is significant in creating a science content-specific program. Aside from teachers requesting it, this would prevent them from having to filter out strategies that would not be beneficial to their classroom. All strategies in the program must be modeled by the trainer using science content. Covay Minor et al. (2016) found that when teachers experienced content knowledge professional development, their confidence with instruction increased as well as their understanding of the goals of modifications (p. 15, 18). The addition of reviewing
content knowledge that aligns with literacy strategies during the program should have a positive impact. This would create an atmosphere where teachers are not questioning the type of approach they should use with content since Tables 7, 9, and 10 expressed this concern.

New Social Studies and Science CAR program specialists' positions would impact the county financially. There is also training time for school leaders and ensuring there is an instructional coach on every secondary campus. While these salaries will have financial ramifications, doing this as a pilot program for at least five years would prove if the financial obligations produce a positive return on investment by monitoring student achievement and creating the expected outcome of an effective content area teacher.

The results turned out this way because content area certified teachers have only had one opportunity for a content-specific certification program. The program completion currently takes a school year with no follow-up support from the school or district level. A rubric with criteria to maintain the integrity of the implementation in a content area reading classroom would improve consistency and expectations for all certified teachers. Teachers are implementing practices so differently that it is difficult to determine the impact of content area reading accredited teachers.

**Conclusion**

The observation and interview data have effectually revealed the changes needed to improve the NGCAR-PD program to make it meet expectations and be successful for students. While these changes will require time and financial obligations, our students' academic and lifelong success is a priority. All change is difficult, but what is right is
never easy. The next section discusses a change plan to support the success of these changes to the NGCAR-PD program.
Section Five: To-Be Framework

The analysis of interviews and observations of CAR-PD and NGCAR-PD certified high school biology teachers revealed three main issues. Observation analysis uncovered a deficiency of comprehension instruction and a shortage of effectiveness in classroom instruction. Interview trends disclosed teachers requesting improved support during and after program completion and inside and outside of their classroom.

Six out of eight comprehension strategies were not used during classroom observations. For students to become proficient readers, they need "daily literacy instruction integrated with content area teaching" (Department of Education, 2011b, p. 5). Didactic instruction, lecture-style teaching, was seen between 43% to 50% of the time during observations. This style of education does not improve student comprehension because students are not required to interact with content area text. Instructional effectiveness was observed 45% or less of the time during observations. This information reinforces the teachers' requests for needing more support with their literacy instruction. While the Department of Education (2011b) stated that the CAR-PD and NGCAR-PD are "designed to prepare content area teachers to effectively deliver reading instruction" (p. 27), this data shows that the expected outcome does not align with the intended goal.

Observation data revealed the need for more comprehension instruction and a lack of effectiveness with comprehension strategies. This information, in addition to 89% of participants requesting further support, reveals that the program needs to focus on assisting teachers with learning and maintaining effective comprehension strategies. An enhanced support feature for this program would give participants what they need to be effective with comprehension strategies with their content consistently, as well as
improve the outcome for students. The main goal for improving the program is to match
the expected outcome with the actual outcome, which is not occurring.

The Department of Education (2011b) stated

District systems for monitoring reading instruction that differentiates school level
services include leadership at the district and school-level guides and supports the
initiative, the analysis of data driving all decision-making, systematic professional
development throughout the school district targeted at individual teacher needs as
determined by analysis of student performance data, measurable student
achievement goals are established and clearly described, and appropriate research-
based instructional materials and strategies are used to address individual student
needs. (p. 8)

For this vision, a team of active content area reading district-level leaders would support
the school level teams. This team would be responsible for assessing and supporting the
school level teams with their variety of needs in regard to literacy instruction.

The Department of Education (2011b) outlined

The process for monitoring and improving reading instruction at the school level
includes: the principal serving as an instructional leader, the analysis of data
driving all decision-making, clearly communicated the role of the literacy coach
and supporting job-embedded professional development, establishing a Reading
Leadership Team to support literacy school-wide, and appropriate research-based
instructional materials and strategies are used to address individual student needs.
(pp. 8-9)
The school-level leadership team would be responsible for obtaining and collaborating with community members that join the school reading team. This team would have the primary responsibility of understanding, creating, and adjusting to a school-wide literacy goal. The district reading leadership would determine and maintain supports through consistent communication with a designated school leader. The Department of Education (2011b) said that "creating a plan for organizing, implementing, and sustaining an effective approach to literacy is necessary for optimal student achievement" (p. 8). It would take a collaborative effort of the district and school leaders to realize the ultimate literacy vision.

Envisioning the Success To-Be

In order to create a clear vision for the school district, I continue to follow Wagner et al.’s (2006) “analytical framework for understanding the interrelated parts or elements of the change process in schools or districts” (p. 98). The following sections discuss what the ideal 4 Cs would look like if student literacy success and teacher effectiveness were the school districts goal. The To-Be Chart can be referenced in Appendix I throughout this section.

The optimal conditions for the NGCAR-PD program would be to attain the expected student achievement outcomes through having "explicit expectations for the roles and responsibilities" (Wagner et al., 2006, p. 101) of NGCAR certified teachers and their school administration. "Research has shown that when principals and other leaders spend more time in classrooms, observing and conferencing with teachers, teacher performance will improve" (Department of Education, 2011b, p. 9). The more time that administration and literacy coaches spend in classrooms would allow them to see where a
teacher needs support and to determine the needs of individuals as well as their faculty as a whole. The teachers and administrators could create an action plan together to ensure improved instruction for student-centered learning.

Currently, teachers lack support and effective feedback from their school leadership team. The ultimate “to be” situation would be administrators are undeniably clear about evaluating teacher instruction and giving productive feedback, teachers literacy strategy practices would gradually improve. If teacher implementation practices improved and the reality was that effective literacy practice was occurring daily, it would be expected that the conditions would create positive change for student’s literacy. Wagner et al. (2006) stated that “one clear way to improve students’ literacy skills it to simply have them spend more of their day reading and writing” (p. 112). If we can get effective, daily literacy practices occurring in content area classrooms to be a reality, this would increase the amount of time students are spending practicing literacy skills. Focusing on changing the conditions in which teachers could implement literacy would steadily improve student achievement.

As a brief review, the “as is” context discussed content area literacy instruction being ineffective and therefore is not supporting the expectation of improving student literacy skills. The model “to be” context would be that content area teachers were effective with literacy implementation, which would cultivate students with college ready literacy skills. The vital focus for professional development is to support school leadership teams by equipping them with the necessary skills to guarantee effective teacher support with literacy strategy implementation for student improvement.
The context of this situation would be ideal if students had experience using literacy skills effectually at an elementary age level. The Department of Education (2011b) asserted that "it is easier to prevent literacy achievement gaps from starting during early literacy years than it is to close the achievement gaps once they have emerged" (p. 3). The best context would be that all teachers, elementary and secondary level, are NGCAR-PD certified or reading endorsed with effective instructional practices that enhanced student literacy skills. Since this is still a work in progress for all, secondary level teachers and leaders must remember that "the ultimate goal is to empower students to think critically about the text and walk away with a deep understanding. Students need a set of interactive approaches that facilitate conceptual learning from content area texts" (Department of Education, 2011b, p. 27).

Presently, the “as is” culture consists of teachers working in isolation with literacy strategies and their implementation. Most school leaders lack professional development and knowledge about content area literacy practices. This aspect makes it difficult for school leaders to have confidence about supporting and guiding teachers with their literacy instruction practices. Wagner et al. (2006), stated that “isolation is the enemy of improvement” (p. 113). With this in mind, there needs to be a cultural shift in the school district.

The model culture for the NGCAR-PD program would be district and school leadership collaborating consistently with NGCAR-PD certified teachers to support their improvement and maintain effectiveness. Teachers would use leadership feedback to improve their literacy instruction for student achievement. This feedback would create the value needed for student-centered learning and literacy practice. Teachers would rely
on leadership and each other to determine areas for professional development. Sharing best practices through visiting other classrooms or regional Professional Learning Communities would be a norm. Administration and teachers are working together as a support system for each other and students.

At the moment, the competencies of content area literacy teachers are deficient with implementing literacy strategies with students. School leadership has a knowledge insufficiency with content area literacy skills which makes providing effective feedback to teachers problematic. This variance in competencies confirms ineptitude for both parties involved and must be resolved.

For competencies to be idyllic, all leaders and teachers would need to be NGCAR-PD certified if they were not already reading endorsed. This guideline would ensure that everyone was aware of the knowledge and skills required to implement content area reading effectively. Wagner et al. (2006) suggested that "competencies are most effectively built when professional development is focused, job-embedded, continuous, constructed, and collaborative" (p. 99). All participants, including teachers, school and district administrators, and literacy coaches would receive job-embedded, continuous professional development after certification to all participants until they were scored an effective on all aspects of their job rubric. Since teachers would look to coaches and leadership for support with literacy practices, they also need to completely understand how and why in regards to content area reading.

If the goal of effective literacy instruction in every classroom occurred, features about the district would change. One main attribute would be students no longer needing remediation due to constant effective literacy instruction happening in all classes at all
levels. Improved literacy skills would create enhanced school grades and graduation rates as well as preparing students for a successful academic career in college.

Another aspect would be a supportive relationship between school leaders and teachers. The Department of Education (2011b) stated, "the school principal has the potential to have a great impact on student learning through his or her support of teachers and literacy coaches" (p. 8). Principals would have an NGCAR-PD program focused on expectations and how to support their teachers and literacy coaches. Each group of leaders, coaches, and teachers would have guidelines of expectations in terms of implementing or supporting literacy instruction. Leaders and coaches would perform observations during their program and practice creating a support plan for a variety of teachers certified in literacy instruction. All teachers would want the support of their district and school leaders to improve their literacy practices for optimum student learning.

My vision includes a district reading team that supports principals, coaches, and teachers. There would be content specific NGCAR-PD programs that literacy coaches would be required to experience and train on their campuses at the request of their principal. The campus training would be face-to-face and supported by a district reading team member. The district reading team would train school leaders on how to support literacy coaches and teachers with their responsibilities to ensure effective instruction is happening in all classrooms.

**Conclusion**

Overall, the vital outcome of the NGCAR-PD program is that effective literacy instruction would occur in every classroom on a daily basis. This instruction would lead
to student academic and career success due to the realization of proficiency in literacy skills. The support of the districts' overarching literacy goal would occur at the school level for the individuality of the population. In the next section, I discuss strategies and an action plan to support the findings.
Section Six: Strategies and Actions

Addressing two main areas is essential in the change plan to positively impact the NGCAR-PD program. First, the amount and quality of literacy instruction occurring in NGCAR-PD classrooms must be consistent. Second, teachers need support from leadership to ensure effective teaching. By focusing on these two areas, student reading comprehension in content areas should improve to create the expected outcome from the program. "Research shows that combined instruction in reading and writing leads to improvements in content retention and creation of meaning" (Department of Education, 2011b, p. 18). An active content literacy focus across the district would require adjustments to the NGCAR-PD program and extensive professional development for administrators and literacy coaches.

Strategies and Action

Appendix J references a strategy and action chart that displays recommendations for creating the to-be vision. This section elaborates on the strategies and actions needed to reach the goal of an improved NGCAR-PD program. The first strategy would be to create a literacy rich instructional environment with teachers working side by side with coaches and administrators. In order to change an atmosphere, all leadership must agree and remain resilient.

Daresh and Lynch (2010) recommended four tips for a successful change plan experience, which are "keep your school board informed, review relevant research, talk with your boss [and] cultivate supporters at the district level" (p. 121). The first step would be to provide data to show change is needed and to discuss the change plan with
appropriate leaders. Once the approval of necessary stakeholders is received, it would be time to move forward with improving literacy instruction and student learning.

District and school leaders would need to realize the necessity for a useful district-wide literacy focus. Leaders would need to see data and research showing why an effective NGCAR-PD program is essential for student learning success. The Department of Education (2011b) stated, "the goal of closing literacy achievement gaps will not be achieved until all students who evidence delays and literacy development receive intervention support in addition to daily literacy instruction across the curriculum" (p. 4). This goal reinforces that it is not just the job of the designated reading teacher; all teachers must use literacy-focused instruction.

The Department of Education (2011b) explained that "principal's and district staff's ability to influence literacy instruction has become increasingly important" (p. 9). School administrators are generally responsible for evaluating instruction, giving useful feedback, and supporting teachers with attaining their instructional goals. For the administration to recognize and assess effective literacy instruction, professional development would be required to ensure consistency. Before professional development occurs, district leaders would request that administrators follow Reeves’ (2009) suggestion to "have a garden party to pull weeds before planting the flowers" (p. 15). This strategy requires removing potential barriers that may consume teacher time as a means to allow consistent focus on literacy instruction with their content.

Another strategy is to improve literacy skill knowledge to enhance the instructional support involved with literacy instruction. Teachers have requested support during and after the NGCAR-PD program. In order for this support to be effective, the
district leaders would need to ensure that school leaders were provided the knowledge and skills to be able to coach teachers to effectiveness. Well-equipped leaders would help guarantee improved literacy instruction in the classroom.

The Department of Education (2011b) asserted that "for substantial change to occur, effective professional development is essential" (p. 21). Because the NGCAR-PD program is facing significant change inside and outside the program, it will be necessary for districts to focus on professional development. "Effective professional development is described as learning opportunities that result in improvements in teachers' and school leaders' knowledge and practices, and, most importantly, in improved student achievement" (Department of Education, 2011b, p. 21).

School administrators would need a professional development program to assist with understanding the role of a literacy coach, their function with instructional feedback, what an effective NGCAR-PD certified teacher should look like when teaching, and how to support a struggling content area reading teacher. This program would involve discussion regarding what coaches should be doing on their campus to improve student learning, teacher observations to practice recognizing effective versus ineffective literacy practices, and discussion about how to support teachers' needs for effective literacy instruction. This program would create continuity of expectations across the district with administrative practices and goals with effective literacy instruction and student learning.

As a former literacy coach, I have experience in different capacities that did not have an impact on student learning, such as monitoring student lunchtime. The Department of Education (2011b) suggested that "the literacy coach serves as a stable
resource for job-embedded professional development throughout a school to generate improvement in reading and literacy instruction and student learning” (p. 22).

The literacy coach is responsible for working with all teachers in the school they serve; however, they must prioritize their time to those teachers, activities, and roles that will have the greatest impact on student learning, namely coaching and mentoring in classrooms. (Department of Education, 2011b, p. 23)

Administrators and coaches must have a mutual understanding in terms of what a coach should be doing to have the most impact on student learning. This change plan would also have the most potent effect by having a literacy coach on every campus.

These literacy coaches would need professional development, as well. They would need to understand that "literacy coaches work with students in whole and small group instruction in the context of modeling, co-teaching, and coaching in other teachers' classrooms” (Department of Education, 2011b, p. 23). Their training would include building relationships with teachers, expectations of an NGCAR-PD teacher, planning for literacy instruction in content areas, and how to deliver the NGCAR-PD program on their campus. This training would be developed and led by district NGCAR-PD program specialists.

The Department of Education (2011b) recommended "establishing a Reading Leadership Team to support literacy school-wide" (p. 9). This team would be a "school-based decision-making group composed of school teachers, staff administrators, parents, and community members who would participate in periodic meetings that enable parents to feel that they are active participants in their children's educational practice" (Daresh & Lynch, 2010, p. 82). The schools would be responsible for recruiting participants for their
school literacy team and coordinating the meetings at least once per quarter for change evaluation. "Parents want their children to acquire many important life skills through schooling" (Daresh & Lynch, 2010, p. 82). Therefore, students should leave school with the ability to read and comprehend various materials, communicate in writing well, in addition to other skills required for daily living.

The third strategy to examine is to improve science literacy instruction at the secondary levels to develop student literacy skills. Cohen (1990) wrote that “teachers have a much larger job of unlearning” (p. 327). When you observe the vast range of years in the classroom of participants, most have enough experience to have acquired classroom practice habits. These routines may be good or bad in terms of effectiveness. In either case, if those routines need to be modified for teaching student literacy skills the teacher faces a formidable challenge and must have support.

Content area program specialist at the district level would revise the NGCAR-PD program to make it content specific for science. Research-based literacy strategies specific to science, such as analyzing graphs, tables, and pictures, would be added to the program. Those text features tend to be prominent in science text and were requested by participant nine. Another requested strategy was discussion strategies to support students with assisting each other with content by participant eight. The Department of Education (2011b) outlined "four strategic approaches that facilitate student content area text reading: eyes on the text, daily text discussions: text reading discussion [and] extended text discussion, question generation strategies, [and] extended writing" (p. 27). From interviews, the teacher recognizes what they need for student learning in science; they need support accessing the most effective strategies for their content.
The final strategy for discussion is to outline the roles and responsibilities for district and school-based leaders, teachers, and literacy coaches to create continuity in the program. District and school leadership cannot expect to “improve instruction without improving teacher’s capacity to judge the improvements and adjust their teaching accordingly” (Cohen, 1990, p. 326). All parties involved in this change process need a clear understanding of their expectations and the expectations of others they will be working with regularly.

The best action would be the addition of guidelines for NGCAR-PD certified teachers to ensure consistency and improved student learning. If we want all teachers to leave the program with the ability to "effectively deliver reading instruction" (Department of Education, 2011b, p. 27), then all teachers must understand their expectations for their instruction. For example, it should be an expectation that teachers use literacy strategies daily. Results showed inconsistency with the level of exposure to content, discussion, and comprehension strategies that students currently receive. If student practice is inconsistent when daily is recommended, then we cannot anticipate positive results. These expectations would also help coaches and administrators understand and support the teacher towards quality instruction.

Only half of the study participants stated they were comfortable with matching strategies to content. This information suggests that teachers would need practice and affirmation that they are matching these aspects proficiently. An efficient planning method would need to be added and practiced in the program to assist teachers with this obstacle. Literacy coaches and administrators would need this information in their training as well so that all involved are consistent. Another recommendation suggested by
Participant four was to have a strategy reference guide that aligned to the program to help alleviate forgetting strategies. This reference guide would be a useful planning tool as well as excellent support for coaches and administrators with content-specific strategies that work best.

Another participant’s recommendation was to slow down the program over three years. Currently, the program finishes in a school year. One idea for a three-year plan would be to focus on introduction and comprehension during year one, discussion and vocabulary in year two, and complete writing in year three. This plan would give participants more practice time with planning, explicit instruction, instructional feedback, and support with improving their literacy instruction. From my CAR-PD experience, it was tough to break old teaching habits while learning new effective routines that were out of my comfort zone. While I observed student improvement, it was easy to fall back into old behaviors quickly. Solid guidelines with an accountability group could help prevent this from happening.

Aside from consistency, a literacy-rich instructional environment that used teachers working side-by-side with coaches and administrators would require a culture change. As a former teacher, I only expected feedback from administrators, not support instruction. As a former coach and current program specialist, I have realized that teachers are reluctant to ask for help from an administrator. They offer a variety of reasons, such as they do not have time for me, or they did not teach my content area. Wagner et al. (2006) also recognized that "not only have the administrators remained uninvolved in curriculum and instruction matters, but they have also historically prevented "outsiders" from engaging in the inspection, interference, or disruption of
instruction" (p. 24). Regardless of the reason, teachers need to be comfortable receiving support from their leadership team. "Evidence from schools and other organizations that have experienced successful change encourages leaders who know that meaningful change begins with cultural change" (Reeves, 2009, p. 36). School leaders would have professional development with ongoing support on changing their school culture from district representatives. This culture change would be imperative to teachers and, most of all, student learning success.

In the evaluation of the productivity of strategies and action plans, there must be periodic assessments of student learning and honest, constructive feedback from all involved. "If assessments define the ultimate goals, the analysis identifies the strategy and tactics needed to get there" (Bambrick-Santoyo, 2010, p. 41). Student learning, specific to science content literacy, would be evaluated through the use of Quarterly Standard Mastery Assessment (QSMA) that have been evaluated and modified by our Assessment Department to meet Department of Education Item Specifications for assessments. The Comprehensive Standard Mastery Assessment (CSMA) would be given in August to establish a baseline to compare to the future QSMAs.

After each quarterly assessment, the results would be compared by school leaders and teachers at structured meetings to evaluate the next steps for continued content literacy instruction. District leaders would have previously prepared school leaders using Driven by Data a Practical Guide to Improve Instruction by Paul Bambrick-Santoyo (2010) as a guide for these meetings at their professional development. Administrators, coaches, and teachers take a 10-question survey each quarter to assist with evaluating context, culture, competencies, and conditions about the changes. While this seems
extensive, Wagner et al. (2006) explained that adaptive change "is messy and requires continuous inquiry, dialogue, and reflection, trial, and error, revision, and refinement" (p. 49). This statement means that constant evaluation of all implemented change must happen to ensure all changes are moving in the desired direction.

**Conclusion**

Changes this significant are going to take time and perseverance. The strategies and actions to improve student literacy skills will require effort from all stakeholders in the district. "We must be sure that what we want from our schools is precisely what we communicate—simply, clearly, and persistently" (Schmoker, 2018, p. 18). Our goal to have all students graduate high school with the literacy skills to comprehend any text will also require policy adjustments discussed in the next section.
Section Seven: Implications and Policy Recommendations

To initiate change in a school district, school board policy must be evaluated and placed in effect. In this case, State Rule 6A.5.090 is vague in comparison to the Department of Education’s State Literacy Plan (2011b) that both discuss the NGCAR-PD. After reviewing a comparison of details of these to documents, an NGCAR-PD school district policy is written.

After results analysis, there are details in the State Literacy Plan that were mentioned by participants, such as having a literacy coach. Creating district policy for the NGCAR-PD program that matches the State Literacy plan and our participants' needs would support increasing effectiveness of the program. When the program is more valuable, the outcomes of effective content area literacy teachers and producing proficient readers will come to fruition.

Policy Statement

Before starting my recommended policy, I would like to compare and contrast Rule 6A-5.090 and the State Literacy Plan to help explain the rationale for this policy. When comparing these State issued documents they both emphasize that the NGCAR-PD program is "designed to prepare teachers to effectively deliver reading instruction to students who score at Level 2 on State Comprehension Assessment Test Reading and do not have decoding and text reading efficiency difficulties" (Department of Education, 2011b, p. 21). This information is the only item that the documents have in common. When contrasting the texts, Rule 6A-5.090 focuses more on outlining the specifics of the program, such as hours of professional development and what qualifies the trainers of the program in school districts. The State Literacy Plan "describes the seven pillars of
success that [the State] believes will guide districts, schools, and VPK providers with reaching the three literacy goals and improving student achievement" (Department of Education, 2011b, p. 5). I use parts of the seven pillars of success in combination with recommendations from participant results to create the most effective policy for this school district.

The Curriculum and Instruction Chapter of School Board Policy is where this new policy will remain. I would recommend a policy that states, the District Level Literacy Leadership Team will support the NGCAR-PD program through the following, face-to-face professional development for secondary school leadership in disciplinary literacy and data-driven decision making, creating discipline-specific NGCAR-PD programs for delivery by secondary school leadership, hiring and maintaining a knowledgeable literacy coach, and outlining expectations for all involved stakeholders. I am recommending this policy in order to improve the current program for guaranteed teacher effectiveness and enhanced student reading comprehension outcomes.

If this policy were put into place, school leadership would have focus and knowledge about research-based best practices. Schmoker (2018) suggested that "the most successful leaders are those who know that success depends largely on implementing what is already known" (p. 14). School leadership at secondary schools would be required to take NGCAR-PD specific to them. This program would review best practices and how to evaluate them for content areas, outline expectations for leaders, their literacy coach, and certified NGCAR-PD teachers, and train them on how to support their literacy coaches and teachers for content are reading classes. Leadership would learn how to make data-driven decisions for their school, the qualities to look for when
hiring for a literacy coach, and how to recruit and lead their school Literacy Leadership Team. The State Literacy Plan says, "a key factor in an individual school's success is the building leadership" (Department of Education, 2011b, p. 8). This statement tells me that the first step to ensure success is building our school leadership to a quality capacity for supporting the program.

The second focus of this policy is specific to literacy coaches. The Department of Education (2011b) stated, "the literacy coach is vital in the process of providing job-embedded professional development at the school level" (p. 8). For literacy coaches to effectively deliver content specific NGCAR-PD and support teachers in their classroom environment, they would require face to face training. All stakeholders' expectations would be outlined for them as well to maintain continuity across leadership levels. Once trained, literacy coaches would experience monthly professional development with the district literacy leadership team. This follow-up would allow for time with disciplinary literacy experts, learning how to have crucial conversations with teachers and leaders, and preparing for their school professional development with the support of others in similar job roles. The State Literacy Plan informs us that "literacy coaches have been an integral part of the success of the statewide reading initiatives during the last seven years" (Department of Education, 2011b, p. 22). This information is why it is so vital that all secondary schools in the district need an effective literacy coach on campus to support this initiative.

The State Literacy Plan (2011b) outlined the roles of literacy coaches which include:
Model effective instructional strategies for teachers, train teachers in data analysis, mentor colleagues, provide daily support to classroom teachers, work with teachers to ensure that literacy strategies are implemented and adjusted to meet the needs of all students, help lead and support reading leadership teams, and continue to increase their knowledge base in best practices in reading instruction. (p. 23)

These are all crucial aspects when outlining their job role to leaders, coaches, and teachers. All stakeholders involved must understand the actual purpose of a literacy coach to ensure they are used effectively on the school campus. From personal coaching experience, it was easy for a school administrator to treat me like a pseudo-administrator and ask me to perform management duties that would interfere with my ability to coach teachers. Training everyone about job responsibilities would explain how coaches would strictly be coaches by following these guidelines, and NGCAR-PD certified teachers would have the support they are requesting in the results of interviews. This coaching support would also further assist in improving teachers with implementing strategies to the effective level in their classroom. The results revealed poor statistics in terms of teachers being effective with strategy implementation, and this type of support is what they need to be successful.

The essential emphasis for this new policy would be the teachers and their needs. The content-specific NGCAR-PD program would focus on strategies best used in science content. This program would assist leaders, coaches, and teachers in understanding expectations in an NGCAR-PD classroom environment. Currently, the program showcases general reading strategies that teachers must filter through to decide what
works for their content area. Content-specific strategies with practice matching strategies to text structure would further support the requested needs of teachers and emphasize continuity in classroom practices. The State Literacy Plan stated that "schools must increase the quality and consistency of instruction in the classroom to reflect the instructional principals derived from scientifically based research in reading" (Department of Education, 2011b, p. 2). School leadership and coach support should assist with quality. In terms of consistency, teacher expectations must be outlined.

The number one expectation for NGCAR-PD certified teachers would be daily literacy instruction. Only two participants stated that this was a common practice in their classroom environment while others admitted to three or fewer times a week. The State Literacy Plan stated that "schools are required to provide middle and high school students who are reading below grade level intervention support in individual or small group settings in addition to daily literacy instruction integrated with content area teaching" (Department of Education, 2011b, pp. 4-5). This information suggests that unless a teacher uses the literacy strategies daily with students, the results of improved reading comprehension will not occur. Several participants mentioned slowing down the program over three years with continued support. This model would allow participants more time to practice content-specific strategies with classroom support. The entire program would return to being face-to-face training with a stipend instead of a majority being online coursework. Participants would be able to observe the trainer implementing strategies during their program as well as work with them in their classroom environment.

The literacy coach and participant would be responsible for analyzing data together and adjusting instruction accordingly. One participant pointed out that there was
plenty of data but did not know what it meant or how to move forward with it. Although only one participant mentioned this issue, making data-driven decisions for student learning is critical to success, so all participants need the training to ensure effective learning decisions across the district.

The District Literacy Team would support schools with coordinating content specific NGCAR-PD Professional Learning Communities on in-service days. This would allow NGCAR-PD teachers to come together and discuss what literacy strategies are working best with particular text structures, share best practices, and lesson plan together. A member of the district literacy team would attend these collaboration sessions to maintain structure, support teachers and coaches with questions, and recognize teacher leaders for content area reading. Several participants mentioned that ongoing support from each other would be helpful with becoming more effective since they are all in a similar situation.

Analysis of Needs

Any new policy is going to require a variety of necessities to come to reality and be productive. While these requirements may appear dull on paper, a leader must consider how all aspects of the organization are going to be affected by this change. This section discusses the needs of the policy that every leader must consider when planning for change.

Educational analysis. Currently, the district offers a variety of levels of reading remediation for students. While the NGCAR-PD is one of them, the results from this study have revealed that teachers need more support to become competent literacy instructors. Leaders must be seen as clarifiers, focusers, "keepers of the core" who
incessantly "cut through the clutter…to distinguish between what is merely important and what is imperative…those few things you must never forget. And the core must be monitored obsessively; as Buckingham writes, "you get what you inspect" (Schmoker, 2018, p. 15). If the instruction is not sufficient for students, then reading comprehension improvement cannot be an expectation from leaders. Our leaders must be more involved in the process and maintenance of content area reading teachers.

The educational gains by students would be invaluable with this policy if we could get these research-based strategies in place. "The most successful leaders are those who know that "success depends largely on implementing what is already known" (Schmoker, 2018, p. 14). The consistency of the program would be improved with all teachers and school leaders understanding their roles. By following the State Literacy Plan that explains research-based practices, student reading comprehension should enhance and create a positive ripple effect. This ripple effect would improve school grades, graduation rates, and eventually lessen the number of students that require remediation classes.

Economic analysis. With student reading comprehension improved, more students would graduate college and career ready. Their ability to read would support them with college ambitions and positively affect their career choice. These options would allow students to attain higher-paying jobs, which would, in turn, boost economic status for their children. Their children would also reap the benefits of superior reading skills and continue to climb the economic ladder.

As the percentage of proficient readers increases with more effective instruction, the need for remediation classes, and the need for students to repeat courses would
potentially decrease. This aspect would create financial savings by lessening the number of teachers needed for remedial instruction and on credit recovery computer programs. While financial savings are always positive, the school system would need to invest in additional support for the teachers.

In terms of economics for the school district, this policy would require significant finances for the creation of a district literacy leadership team, improving professional development, and ensuring literacy coaches on all secondary school campuses. While expensive in the beginning, providing a positive change of economic status for students should be a priority. Eventually, the funding could balance out by lessening remedial instructional positions and maintaining required positions such literacy leadership team and instructional coaching positions to ensure a constant effectiveness level. This positive economic adjustment for students will eventually create better overall economics in the school district as students continue to improve their status with their efficient reading comprehension abilities. Daresh and Lynch (2010) tell us that "when effort is spent in any organization to create a sense of community through the intentional focusing of resources of common goals, the result with always be increased productivity of members of the organization and ultimately, high degrees of performance" (p. 7).

Social analysis. The social aspects of the district overall should improve with this new policy. The schools and community would be in enhanced communication and have a focused literacy goal. School leaders would need professional development and follow-up support from the district literacy leadership team to assist them with the process of establishing community relationships. Purinton and Azcoitia (2016) explained that establishing
These partnerships ultimately help build and integrate three common elements of a community school: (1) health and social supports for students and families, often called wraparound services; (2) authentic family and community engagement; and (3) expanded learning opportunities inside and outside the school that support the core curriculum and enrich students' learning experiences. For school and community leaders, community schools are not a "silver bullet" but rather are a strategy for developing collective trust, action, and impact. (p. 23)

Through the creation of community schools, students would have more opportunities outside of school to interact with a literacy-focused environment. Book clubs may be established at community centers by volunteers from sponsoring businesses. Local business sponsors may donate books to community locations or volunteer to read to children.

The end goal would be all stakeholders working as a team to improve student learning by building a social culture that considers literacy a priority. Teachers and school leaders would support each other and have support themselves from the district literacy leadership team with literacy instruction. Community members would have support from school leadership and teachers to create and maintain a literacy-focused community. As economics in the district change with improved literacy, so would the social status of students and their families.

**Political analysis.** The political relationship between the school board, the community, and the district leadership should improve with this policy change. Currently, there are issues in the district with having multiple schools in turn around status with the Department of Education. This issue suggests that these schools are failing to prepare
students to be proficient in core content areas, which results in the schools having a failing school grade. Daresh and Lynch (2010) explained that "the critical feature in a culture of collaboration is the reliance on the norm of transparency and open discussion of matters of policy and practice" (p. 36). This policy would need to be openly discussed by all stakeholders to monitor progress, make adjustments for learning communities, and bring success across the school district.

As district leadership supports schools with efforts on creating literacy-focused school communities, positive changes such as healthier social and economic status of families should gradually follow. These positive impacts would improve school grades and attract new families to the school district. The improved student achievement would create a favorable political relationship for school board members, school and district leadership, families, and local businesses with reaching the crucial goal of student success. With improved student achievement, other political issues could be addressed in hopes of continually improving the political environment.

**Legal analysis.** The policy change would put the district in better status legally because school grades would improve. Standard two of the Principal Leadership Standards is student learning as a priority that states, "effective school leaders demonstrate that student learning is their top priority through leadership actions that build and support a learning organization focused on student success" (Department of Education, 2011c, p. 1). District and school leaders would be making student learning a priority through improving the support of teachers that are certified and currently completing the NGCAR-PD program. As teachers' implementation of strategies improved from ongoing support, student comprehension and grades, as well as school
grades, would enhance and show the community and Department of Education that students are receiving an invaluable education.

The School Board members would recognize the improvements and potentially put a policy in place to create sustained funding of the literacy leadership team and instructional coaches on all secondary campuses. Community members and parents would be satisfied that accommodating student needs were a focus. Students would be more confident and prepared for college and careers. Overall, the purpose of education has always been to equip students with skills to be successful in life, and the ability to read and comprehend information is a necessary skill. The recommended adjustments for this program would make students that need reading comprehension instruction a priority for our leaders, teachers, and learning community.

**Moral and ethical analysis.** Currently, students that should receive active content area reading instruction by certified NGCAR biology teachers are not receiving consistent, practical education. While results showed the teachers need support to be sufficient content area reading teachers, it is not occurring and is unethical not to meet students' needs. "Districts and schools should be held accountable for student performance"(Department of Education, 2011b, p. 30). Accountability for students' needs that lead to success requires effort by teachers, administrators, and district leaders. The current practices must be modified to serve students better if the district is going to improve the moral and ethical status by genuinely meeting students' reading comprehension needs.
Implications for Staff and Community Relationships

This policy would require all levels of leadership and teachers to work more closely by supporting each other through consistent communication, classroom visits, and creating action plans for improvement. Relationships overall among staff should improve due to trust built from working towards a common goal. Teachers would have to become accustomed to honest, useful feedback that they would use to enhance their practice for students, regardless of how uncomfortable they maybe with the new classroom practices. Coaches and administrators would need to learn how to give difficult feedback to teachers to support students' needs and not the need for preserving teachers' feelings. This task may be difficult in the beginning as this would be a culture change for many but would overall support student learning.

Community relationships would grow under this policy because the community would see the improvement in their child's reading comprehension abilities, which would improve school grades as well as their child's academic success. The community would hopefully recognize the importance of literacy for their children's overall achievement and support the schools' efforts more in their home environment. This literacy-rich environment would prompt more community members to join programs such as Reading Pals. This program is where volunteers support elementary students with reading fluency and phonics, which creates the base for all proficient readers.

Currently, every school has a sponsor that supports the school with finances or donations for school activities. District leadership also solicits sponsors to assist financially and non-financially for various programs. Non-financial assistance ranges from being a Take Stock Mentor to judging competitions and volunteering for multiple
The sponsors for these events range from fast-food restaurants to companies such as Lockheed Martin. Purinton and Azcoitia (2016) stated, "the underpinning of effective partner engagement is a broad knowledge of the community's issues, strengths, and assets" (p. 46). Many local businesses are part of our career fairs and seeing students improve with grades and the ability to read would attract them to our students' skill sets. Local companies would want to become more involved with the school system to ensure they were attaining skilled resident employees, which would create a resilient future for their company. When companies have efficient local employee options, they spend less money on recruiting, travel, and funding new employee relocation. This aspect would add another positive to economics for the county.

Other stakeholder relationships to consider would be the Department of Education and other school districts. Once this new policy is in place, we would need funding for the positions at the district and school levels. The Department of Education supplies the finances for reading intervention, and for this to be an effective intervention, the teachers would require this support for improvement. As student success continues, other districts would inquire about the support system that is creating student success. At this point, the Department of Education would need to edit the Literacy Plan to ensure that all school districts were providing the most effective content area teachers through the NGCAR-PD program. The Department of Education's relationship with the community about this new policy would have to be close to accurately outline what schools and districts need to make compelling content area reading instruction happen.
Conclusion

For any change in a school or district to occur, a policy must be put into place so that all are aware of the expected standard of work. Along with new policy comes new culture, relationships, and the challenge of change for the good. Moving into the conclusion of this research, we have to remember that what is right is not always easy.
Section Eight: Conclusion

As a current program specialist for grades 6 through 12 science in my district, I walk science classrooms in middle and high schools consistently. I began to notice that NGCAR-PD teachers were showing a great deal of variability in their classroom practices. When walking with administrators, I realized that we had different thoughts about NGCAR-PD certified teachers' classroom practices. These observations led me to inquire as to why the expected outcome of the NGCAR-PD program was not the actual outcome that was occurring. That expected outcome being "content area teachers [being able] to effectively deliver reading instruction" (Department of Education, 2011b, p. 27). All I kept thinking was that something important was missing from the program, and fixing it, I needed to know what that was.

The NGCAR-PD program is related to student learning because this is an option for a student who needs remediation with reading comprehension. Instead of a student being in a remedial intensive reading class that focuses on reading fluency and phonics, the student is with a certified NGCAR-PD who focuses on reading comprehension in a content area class. This practice allows for a student to take an elective course of their choice and still get support with the reading skills that need to be improved. These improved reading comprehension skills support the student with the ability to pass the 10th grade State Standards Assessment English Language Arts (ELA), which is a graduation requirement.

Currently, district staff and designated school leaders work together to NGCAR-PD certify science teachers on middle and high school campuses. This certification creates a content area reading teacher that focuses on improving students reading
comprehension. The expected outcome of this program is an effective content area reading teacher. Results from this research have shown that teachers are ineffective with classroom practices, and they would need a more supportive environment to become competent and produce students that are proficient readers. According to the State Literacy Plan, administrators and literacy coaches must help create the expected outcome of an effective content area reading teacher. Teacher interview feedback revealed that school leaders need to be more involved with supporting teachers to the desired level of implementation and expected effectiveness outcomes if they are to be successful with effectively teaching student comprehension. School leadership and teachers need aligned, consistent, and collaborative focus to make this program useful for student learning.

Discussion

The purpose of the NGCAR-PD program evaluation was to determine what teachers needed from the program to increase their effectiveness for students. Classroom observations evaluating the effectiveness of comprehension strategies use has revealed that literacy strategies are inconsistent, and teacher effectiveness with literacy strategies are less proficient than expected. The State Literacy Plan expectations were the production of effective teachers and to ensure daily literacy instruction occurs. The results of this research have proven otherwise. The teacher interviews confirmed that teachers need more support from district and school leaders to become more productive with reading comprehension practices in their content area.

My goal for this research was to determine what needed to be improved in the NGCAR-PD program to produce effective content area reading teachers. Through classroom observation and interviews, I recognized that teachers lack support from each
other, district leaders, and school leaders. They become certified within a school year, and the expectation is to be effective with no follow-up, professional development, or consistent guidelines from anyone. This issue is an inappropriate practice that must be improved if effective teaching practices and student academic success is going to be a reality.

My organizational plan addressed the issues raised by the program evaluation by focusing on supporting NGCAR-PD certified teachers during and after program completion. The State Literacy Plan specifically pointed out that all leaders, including literacy coaches, need to be involved in this program for teacher support to assist with creating effectiveness in the classroom. Without a common, focused goal across the district, it will be challenging to reach successful teacher practices in all NGCAR-PD certified teacher classrooms.

The recommended policy focuses on the support teachers need from their district and school leadership to become an effective content area reading teachers. By using the State Literacy Plan as a guide, the policy ensures that NGCAR-PD certified teachers and leaders understand what is needed for teachers to be successful when teaching students how to be proficient readers. This detailed policy guarantees (a) all stakeholders involved understand their role and (b) expectations support reaching the common goal of students that can efficiently comprehend content area text.

**Leadership Lessons**

Many leadership lessons come from this process. The first one is keeping goals simple. Schmoker (2018) quoted Collins saying "the key to success if not innovation; it is a combination of "simplicity and diligence" applied with fierce, exclusive devotion to
what is truly most effective" (p. 7). I learned that choosing a pure focus on improving practices that are already proven to work is a best practice that leaders are overlooking.

Another leadership lesson is effective communication with teachers and other leaders. District and school leaders should want NGCAR-PD certified teachers to be successful with effectively teaching students how to become efficient with reading comprehension. Analyzing student data from these classes should reveal that students are not improving, which should be a concern. Leaders should be talking to each other and their teachers to determine what needed to happen to create improvement for the involved teachers and students. The State Literacy Plan laid out critical aspects for supporting teachers and could have easily been referenced by leaders to improve their practices for this program.

In this situation, the leaders' support of teachers' effectiveness and student success do not appear to be present. It is the responsibility of leaders to make student learning needs a priority. For students that are struggling readers, they must have an effective teacher if success for them is going to occur. Leaders cannot only make assumptions about professional development being effective for every participant. District and school leaders need to understand what effective content area reading instruction entails so they can successfully support their teachers with classroom instruction.

In terms of professional and ethical behavior, I learned that this behavior does not just apply to work with students and teachers. It is unethical for a leader to allow teachers to continue to be ineffective when it negatively impacts students. A leader being unaware of or potentially ignoring a problem is not an acceptable excuse. Even if the leader is not sure how to handle the issue, they should seek an answer from other leaders and work on
themselves, improving in that area. A leader must recognize their weaknesses and find solutions to become the most effective leader for their staff and students. All leaders should be working together to support each other by identifying common issues and creating a plan together to resolve the problem.

I have grown as a leader by learning not to be afraid of a challenge when it comes to improving teacher practice and student learning. While I understand what effective reading comprehension in science looks like, I do not have that expertise in other areas to support all teachers with effective instruction. That does not mean that I cannot learn and should avoid supporting those teachers to become better for their students. We are all in education together, and it should be a cohesive group effort with no one having to function in isolation.

Another aspect that has created growth for me is learning to listen and recognize when teachers need support. As a leader, you cannot only trust that a professional development experience was sufficient for a teacher. You must communicate with the person or organization that created the training for preparation to support your teachers with the expected outcome of the professional development. These details mean that I need to observe teachers in classrooms, listen to their needs, and create an action plan with the teacher and literacy coach.

Moving forward as a leader, I will keep goals simple with what we already know and improve instruction with those practices first. Many new ideas and trends occur in education, but until we have accomplished the simple goals with instruction first, there is no need to move onto a new target. I would also seek out support for myself in areas that I am uncomfortable so that I would be adequate support for all teachers and not just a
specific group. This statement does not just mean only with district leaders or teachers; it may take branching out to literature or people that have research and expertise.

I want to share these results with other districts and the state so that we can all work together to make necessary adjustments for improving the program for the entire state. If one school district is having an issue with creating effective content area reading teachers, then others probably are as well. This issue is a severe problem that needs attention so that the expected outcome of this program can be achieved; otherwise, we waste resources and fail to give teachers or students what they need to be successful.

**Conclusion**

In conclusion, good leaders must focus on research-based practices that we already know work, yet teachers simply need active support to accomplish that goal. Leaders must learn to recognize where help is needed and embrace the challenge of making all effective teachers instructors for the students. Leaders must talk to other leaders for help for themselves to be better leaders for their teachers, students, and community. Overall, we must all work together to acknowledge data confirmed issues and collaborating to solve the problems effectively. In the words of Mike Schmoker (2018), "we will never master or implement what is most important for kids if we continue to pursue new initiatives before we implement our highest priority strategies and structures" (p. 13).
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Appendices

Appendix A: Classroom Observation Coding System
Appendix B: Dr. Molly Ness Correspondence
Appendix C: Classroom Observation Rating Rubrics
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Appendix E: Informed Consent - Principal Form to Conduct Research in School
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Appendix A

Classroom Observation Coding System

Table A1: Classroom Observation Coding System (Ness, 2008)

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Comprehension Instruction</td>
<td>Didactic Instruction of New Material (DI-N)</td>
</tr>
<tr>
<td></td>
<td>Didactic Instruction of Review Material (DI-R)</td>
</tr>
<tr>
<td></td>
<td>Assignment (AS)</td>
</tr>
<tr>
<td></td>
<td>Transition (TR)</td>
</tr>
<tr>
<td></td>
<td>Non-Instruction (NI)</td>
</tr>
<tr>
<td></td>
<td>Participatory Approach (PA)</td>
</tr>
<tr>
<td>Comprehension Instruction</td>
<td>Question Answering (CI-QA)</td>
</tr>
<tr>
<td></td>
<td>Question Generation (CI-QG)</td>
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<tr>
<td></td>
<td>Summarization (CI-S)</td>
</tr>
<tr>
<td></td>
<td>Graphic Organizers (CI-GO)</td>
</tr>
<tr>
<td></td>
<td>Text Structure (CI-TS)</td>
</tr>
<tr>
<td></td>
<td>Cooperative Learning (CI-CL)</td>
</tr>
<tr>
<td></td>
<td>Comprehension Monitoring (CI-MO)</td>
</tr>
<tr>
<td></td>
<td>Multiple Strategies (CI-MS)</td>
</tr>
</tbody>
</table>

Figure A2: Classroom Observation Coding Protocol (Ness, 2009)

CODE: The category in which the observed behavior occurs.

DI-NI: Didactic Instruction: New Information

Here the teacher orally leads the class in delivering content area information, through PowerPoint, overhead projector, or lecture. Teacher behavior here focuses on information presentation. This may also include the teacher orally reading from informational or narrative text. This may also include the teacher presenting vocabulary, activating background knowledge, and setting a purpose for reading.

DI-R: Didactic Instruction: Review Material

Here the teacher leads students in a review of past material. This may include review games, asking questions, or working on test/quiz study guides. This code is also used when the teacher leads the class in reviewing answers from
past tests, quizzes, or assignments.

PA: Participatory Approach
This code is reserved for instances in which students present information to the class or act as conveyors of information. As defined by Jetton and Alexander (2004), the participatory approach provides students with learning opportunities that promote peer collaboration and increase the likelihood that students will construct knowledge for themselves.

AS: Assignment
The teacher checks, gives, or assists students with an assignment. The assignment may be in-class or outside of school, and includes both assignments focusing on reading and assignments focusing on content material. Assignments may also include the teacher leading students in a writing assignment. This code also includes the teacher giving tests, reviewing homework or classwork assignment, and conferencing with students on individual work. In these assignments, students work independently without teacher-centered instruction.

TR: Transition
The teacher gives transitory directions, including taking out or putting away materials and shifting instructional topics.

NI: Non-Instruction
This code is used when the teacher is not engaged in instructional behavior. This may include recoding grades, behavior management, or Non-Instructional conversation. This may also include announcements and material distribution.

CI-QA: Comprehension Instruction – Question Answering
The teacher asks students to answer questions from the text as a
comprehension strategy. Students independently search for answers in the text. Here the teacher provides feedback of the correctness of student responses.

CI-QA: Comprehension Instruction – Question Generation

The teacher asks students to generate questions from the text as a comprehension strategy. Questions can be of the who, what, why, when, where, and how nature. In addition to posing questions, students are responsible for answering them.

CI-S: Comprehension Instruction – Summarization

The teacher asks students to summarize informational text either orally or in writing. Here the teacher asks students to identify the main ideas and central points in a text.

CI-GO: Comprehension Instruction – Graphic Organizers

The teacher employs graphic organizers as a means for students to process and comprehend text. Graphic organizers can include any type of visual or semantic organizers intended to assist students with comprehension and to understand the meanings and relationships in text. This can include guided practice or independent practice.

CI-CO: Comprehension Instruction – Cooperative Learning

The teacher gives students independent practice in cooperative learning, where readers apply comprehension strategies together. This may include small groups or partners reading and comprehending texts together.

CI-CM: Comprehension Instruction – Comprehension Monitoring

Here the teacher asks and encourages students to be metacognitive and aware of their understanding during reading. The teacher provides students with fix it strategies to deal with such problems. Comprehension monitoring can
include teacher-led think-alouds. Additional comprehension monitor includes
teacher-generated discussions of comprehension difficulties and application of
strategies.

CI-TS: Comprehension Instruction – Text Structure

The teacher provides students with information on how to use narrative and
informational text structure to understand text. This can include plot,
sequencing, characters, and events in narrative text and text features such as
titles, headings, pictures, captions, typology, charts, graphs, glossaries, and
appendices in informational text.

CI-MS: Comprehension Instruction – Multiple Strategies

Here the teacher guides students in applying several procedures with
flexibility and appropriate application to increase comprehension. For this code,
comprehension instruction must include at least two or more combinations of
the following four strategies: question generation, summarization, clarification,
and prediction (NRP, 2000).
Appendix B

Dr. Molly Ness Correspondence

Many thanks for reaching out to me - I'd be happy to have you use my work and cite it. Please let me know if there is anything I can do to help you in your research - all the best!

On Sun, Jul 8, 2018 at 11:10 AM, Brown, Tia - Curriculum and Instruction wrote:

Dr. Ness,

My name is Tia Brown and I am currently in the EdD program at National Louis University in [BLANK]. I am researching why our Content Area Reading (CAR) certified Biology teachers struggle with implementing literacy strategies after completing the CAR program. Your research, Reading Comprehension Strategies in Secondary Content Area Classrooms: Teacher Use of and Attitudes Towards Reading Comprehension Instruction, has a lot of great information that I would like to apply to my future research. In particular, the classroom observation coding system and data analysis pieces. I know those pieces would support the validity and reliability of my research as they did yours. I would greatly appreciate your written permission to use those items in my research as I complete the IRB process. If you would like to speak via phone or have more questions please do not hesitate to contact me. I can also put you in touch with my dissertation chair if you would like to speak to her as well.

I look forward to hearing from you!

Mrs. Tia P. Brown, EdS
6-12 Science Program Specialist
### Appendix C

Classroom Observation Ratings Rubric

#### Domain 3: Instruction (Domain weight 40%)

<table>
<thead>
<tr>
<th>Performance Rating</th>
<th>Unsatisfactory (5 points)</th>
<th>Progressing (3 points)</th>
<th>Effective (2 points)</th>
<th>Highly Effective (1 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain: Communicating with Students</strong></td>
<td>The purpose and relevance of the lessons' instructional outcomes are unclear to students. The directions and procedures are confusing. The teacher's explanation of the content is fuzzy. The teacher's spoken or written language contains errors of grammar or syntax. Vocabulary is inappropriate, vague, or used incorrectly.</td>
<td>The purpose and relevance of the lessons' instructional outcomes are partially clear, and directions and procedures are sufficiently clear to guide student understanding. The teacher's explanation of the content is clear but may contain minor errors. Vocabulary is appropriate, but may not be as precise as desired.</td>
<td>The purpose and relevance of the lessons' instructional outcomes are clearly communicated to students, including where they are situated within broader learning. Directions and procedures are clear and easily followed. The teacher's explanation of the content is clear and concise. Vocabulary is precise and appropriate for students' ages and experiences.</td>
<td>The purpose and relevance of the lessons' instructional outcomes are clearly communicated to students, including where they are situated within broader learning. Directions and procedures are clear and easy to follow. The teacher's explanation of the content is clear and concise. Vocabulary is precise and appropriate for students' ages and experiences.</td>
</tr>
</tbody>
</table>

Elements include:
- Expectations for learning
- Directions and procedures
- Explanations of content
- Use of oral and written language

**Evidence:**

| **Domain: Using Questioning and Discussion Techniques** | The teacher's questions are of low cognitive challenge, with single correct responses, and are asked in a specific sequence. The teacher misinterprets questions and answers, and the teacher accepts all contributions without asking students to explain their reasoning. Only a few students participate in the discussion. | The teacher's questions are of moderate cognitive challenge, with multiple correct responses, and are asked in a specific sequence. The teacher interprets questions and answers, and the teacher accepts a variety of contributions. Most students participate in the discussion. | The teacher's questions are of high cognitive challenge, with multiple correct responses, and are asked in a specific sequence. The teacher interprets questions and answers, and the teacher accepts a variety of contributions. All students participate in the discussion. | The teacher's questions are of the highest cognitive challenge, with multiple correct responses, and are asked in a specific sequence. The teacher interprets questions and answers, and the teacher accepts a variety of contributions. All students participate in the discussion. |

Elements include:
- Quality of questions
- Discussion techniques
- Student participation

**Evidence:**

| **Domain: Engaging Students in Learning** | The learning activities and assignments are poorly aligned with the instructional outcomes or require only minimal thinking by the students, allowing most students to be passive or overly compliant. Learning activities are not sufficiently challenging and lack rigor to promote intellectual engagement. The pacing of the lesson is too slow or too fast. Few students are intellectually engaged or interested. | The learning activities and assignments are partially aligned with the instructional outcomes or require minimal thinking by the students, allowing most students to be passive or overly compliant. Learning activities are not sufficiently challenging and lack rigor to promote intellectual engagement. The pacing of the lesson is appropriate, providing most students the time needed to be intellectually engaged. | The learning activities and assignments are aligned with the instructional outcomes and require some thinking by the students. Students are moderately engaged and challenged by the teacher's thinking. The pacing of the lesson is appropriate, providing most students the time needed to be intellectually engaged. | The learning activities and assignments are aligned with the instructional outcomes and require some thinking by the students. Students are highly engaged and challenged by the teacher's thinking. The pacing of the lesson is appropriate, providing most students the time needed to be intellectually engaged. |

Elements include:
- Activities and assignments
- Grouping of students
- Instructional materials and resources
- Structure and pacing

**Evidence:**
Appendix D

Teacher Interview Questions

Content Area Reading Science Teacher Interview

Teacher #:________

Literacy strategies include: graphic organizers, comprehension monitoring (text coding/marking), summarization/writing for understanding, question generation, vocabulary strategies

1. What school year were you certified in CAR-PD-PD/NGCAR-PD-PD-PD?

2. One a scale from 1-5 with 1 being uncomfortable and 5 being very comfortable how comfortable were you with implementing literacy strategies before completing the CAR-PD-PD/NG-CAR-PD program?

Can you elaborate on that please?

3. One a scale from 1-5 with 1 being uncomfortable and 5 being very comfortable how comfortable were you with implementing literacy strategies after completing the CAR-PD-PD/NG-CAR-PD program?

Can you elaborate on that please?

4. What would have improved your experience during the program? (Things to suggest if they need support with the question: more face to face time, better trainer, more classroom support during the program, more classroom support after the program)

5. What support would make you feel more comfortable when implementing literacy strategies? (Things to suggest if they need support with the question: More training on what strategies to use when and with what text, more in classroom support when using strategies with students such as effective feedback, modeling by an expert, professional learning community (PLC), etc.)

6. Do you struggle with knowing when to use particular strategies?

7. On a scale from 1 to 5, with 1 being ineffective and 5 being most effective, how effective do you feel you are at implementing literacy strategies with science content?

Can you elaborate on that please?

8. How often do you integrate literacy strategies into the content you are teaching?

- Daily
- 3 or less times a week
- 3 or less times a month
- Rarely/Never

Why do you think that is?
9. Do you try new literacy strategies often or stick with the literacy strategies that work the best? Which literacy strategies are those?

Why do you think that is?

10. Is there anything else that you would like to share about your NGCAR-PD professional development experience?
Appendix E

Informed Consent

Principal: Permission to Conduct Research at School

You are being asked to participate in a research study conducted by Tia Brown, doctoral student at National Louis University. The study is entitled The Impact of the Next Generation Content Area Reading Program on the Effectiveness of Teaching Literacy Strategies in High School Biology Classes. This study will help the researcher develop a deeper understanding of the effectiveness of Next Generation Content Area Reading (NGCAR-PD-PD) certified Biology teachers in implementing reading strategies with science content.

Participation at your school includes up to three 10th grade Biology teachers. The researcher will conduct two 30-minute classroom observations and one face to face 30-minute interview with participants who are willing and available. The participant will designate one observation day and time and the other observation will be unannounced in a period specified by the participant. All information collected during observations will remain anonymous and confidential.

All information collected during the interviews reflects the opinions and experiences of the participants related to the NGCAR-PD-PD professional development program and their classroom teaching practices. Interviews will be recorded using the iPhone app called Voice Recorder and Audio Editor to help ensure accuracy of information collected. These recordings will be kept confidential, as the researcher will use pseudonyms for the participants during the interview, and the identities of the participants will not be attached to the data collected during the interview. Permission to conduct the observations and interviews requires an informed consent form to be signed and returned indicating your willingness to allow research to be conducted at your school.

Participation is voluntary and may be discontinued at any time without penalty. All identities, including that of the school, will be kept confidential by the researcher and will not be attached to the data. The researcher will keep all data collected for this project in a locked safe in her home. Only the researcher will have access to it. Participation in this study does not involve any physical or emotional risk to participants beyond that of everyday life. While each person is likely to not have any direct benefit from being in this research study, taking part in this study may contribute to decisions regarding professional development opportunities for teachers, and instructional practices to enhance student achievement, as well as expansion and/or adjustments to the program’s structure.

While the results of this study may be published or otherwise reported to scientific bodies, identities of participants will in no way be revealed. Results will be made available upon request by contacting Tia Brown at tbrown48@my.nl.edu.
In the event you have questions or require additional information you may contact the researcher: Tia P. Brown, National-Louis doctoral student; email: tbrown48@my.nl.edu. If you have any concerns or questions before or during participation that you feel have not been addressed by the researcher, you may contact my Dissertation Chair: Dr. Karen O’Donnell, email: kodonnell1@nl.edu, National Louis University, or the co-chairs of NLU’s Institutional Research Board: Dr. Shaunti Knauth; email: Shaunti.Knauth@nl.edu; phone: ________, or Dr. Carol Burg; email: CBurg@nl.edu; ________ Co-chairs are located at National Louis University, ________.
Appendix F

Informed Consent

Teacher Classroom Observation and Interview: Individual Participant

You are being asked to participate in a research study conducted by Tia P. Brown, doctoral student at National Louis University, [Redacted]. The study is entitled The Impact of the Next Generation Content Area Reading Program on the Effectiveness of Teaching Literacy Strategies in High School Biology Classes. This study will help the researcher develop a deeper understanding of the effectiveness of Next Generation Content Area Reading (NGCAR-PD-PD) certified Biology teachers in implementing reading strategies with science content.

With your consent indicated by signing the bottom of this form in the space indicated, you will participate in two classroom observations and an interview related to the participants NGCAR-PD-PD experience and current classroom practices. There will be one announced classroom observation and one unannounced classroom observation. The observations will last 30 minutes and be coded every 30 seconds for effectiveness of comprehension instruction. This data will be kept confidential, as the researcher will use pseudonyms for the participants during the observations, and the identities of the participants will not be attached to the data collected during the observations.

The interview will involve approximately nine questions and will last approximately 30 minutes. Interviews will be recorded using the iPhone app called Voice Recorder and Audio Editor to help ensure accuracy of information collected. This recording will be kept confidential, as the researcher will use pseudonyms for the participants during the interview, and the identities of the participants will not be attached to the data collected during the interview.

Participation is voluntary and may be discontinued at any time without penalty. All identities, including that of the school, will be kept confidential by the researcher and will not be attached to the data. Only the researcher will have access to all interview responses. The researcher will keep all data collected for this project in a locked safe in her home. Only the researcher will have access to it. Participation in this study does not involve any physical or emotional risk to participants beyond that of everyday life. While each person is likely to not have any direct benefit from being in this research study, taking part in this study may contribute to decisions regarding professional development opportunities for teachers and instructional practices to enhance student achievement, as well as expansion and/or adjustments to the program’s structure.

While the results of this study may be published or otherwise reported to scientific bodies, identities of participants will in no way be revealed. Results will be made available upon request by contacting Tia Brown at tbrown48@my.nl.edu.
In the event you have questions or require additional information you may contact the researcher: Tia P. Brown, National-Louis doctoral student; email: tbrown48@my.nl.edu. If you have any concerns or questions before or during participation that you feel have not been addressed by the researcher, you may contact my Dissertation Chair. Dr. Karen O’Donnell, email: kodonnell1@nl.edu, National Louis University, or the co-chairs of NLU’s Institutional Research Board: Dr. Shaunti Knauth; email: Shaunti.Knauth@nl.edu; or Dr. Carol Burg; email: CBurg@nl.edu; Co-chairs are located at National Louis University.
### Appendix G

**Classroom Observation Data Collection Sheet**

Classroom Observation Collection Sheet  
Participant #_________

Announced or Unannounced  
Start:_______  Stop:_________  Date:_________________

<table>
<thead>
<tr>
<th>Category</th>
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</tr>
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<td>Comprehension Monitoring (CI-MO)</td>
</tr>
<tr>
<td></td>
<td>Multiple Strategies (CI-MS)</td>
</tr>
</tbody>
</table>

Unsatisfactory (U): purpose & directions unclear to students, questioning is low cognitive level, few students participating, activities and assignments are poorly aligned, poor pacing, low student engagement

Progressing (P): purpose & directions must be clarified, teacher attempts to ask engaging questions, activities not sufficiently challenging, most students compliant

Effective (E): Purpose & directions are explained clearly, teacher explanation of content invites intellectual engagement, poses questions that creates genuine discussion, activities and assignments challenge student thinking

Highly Effective (HE): Purpose & directions are clear and anticipate student misunderstanding, students explain concepts to classmates, teacher uses a variety of questions to prompt student thinking, students formulate questions, learning activities and assignments are engaging and challenging, students have choice in task completion

<table>
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Appendix H

As-Is Diagram

"As Is" 4 C's Analysis for Next Generation Content Area Reading Professional Development Program

Context
- High School content area literacy instruction is ineffective
- Students literacy skills are not improving as expected

Culture
- Teachers working alone prevents them from implementing strategies effectively
- Administrators lack knowledge about content area literacy practices making them unable support teachers effectively

Conditions
- Lack of teacher and administration support with content area literacy instruction
- Lack of effective feedback in regards to content area literacy instruction

Competencies
- High School Biology teachers lack effective implementation of content area literacy strategies.
- Administrators lack content area literacy skills knowledge making providing meaningful feedback difficult.

Improving high school Biology teachers' implementation of literacy strategies with content area text.
Appendix I

To-Be Diagram:

“To Be” 4 C’s Analysis for Next Generation Content Area Reading Professional Development Program

Context
- High school content area literacy instruction is effective
- Students literacy skills are effective for a collegial career

Culture
- Teachers and school leaders work together to improve implementation of content area literacy strategies.
- School leaders create an all-inclusive, data-driven, collaborative school environment.

Conditions
- Teacher and school leaders support for effective practices improves.
- Effective instructional feedback improves content area literacy instruction.

Competencies
- High school Biology teachers maintain effective implementation of content area literacy strategies.
- School leaders are skilled and knowledgeable when providing effective feedback.

Teachers improve implementation of reading strategies and student reading comprehension improves.
### Appendix J

Strategies and Action Chart

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<th>Action</th>
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<td>Improve science literacy instruction at secondary levels for improved student literacy skills.</td>
<td>• Modify the NGCAR-PD program for secondary science literacy instruction.</td>
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<td>Outline roles and responsibilities for district and school based leaders, teachers, and literacy coaches to create continuity in the program.</td>
<td>• Update the NGCAR-PD program for teachers.</td>
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<td>• Create professional development for administrators and coaches.</td>
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<td>Create a literacy rich instructional environment and teachers working side by side with coaches and administrators.</td>
<td>• Create and deliver professional development to administrators including ongoing support to creating a literacy rich campus culture with teachers, staff and students.</td>
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<td>Improve literacy skills knowledge for improved instructional support in literacy instruction.</td>
<td>• Create professional development for leaders and coaches to guarantee skills knowledge to allow for effective support of teachers.</td>
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