AGRISCIENCE TEACHERS CONCERNS REGARDING CONTENT AREA READING STRATEGIES

By

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To the Glory of God and my Savior Jesus Christ

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AGRISCIENCE TEACHERS CONCERNS
REGARDING CONTENET AREA READING STRATEGIES

By

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Millions of students across America struggle to read and comprehend text. Research has supported the ability of content area reading strategies (CARS) to increase students' ability to read and comprehend text. The purpose of this research was to assess the relationship between CARS professional development and implementation of CARS in the agriscience classrooms. A descriptive, census survey of 371 Florida agriscience was completed using a tailored-design web-based questionnaire. Overall, agriscience teachers' Stages of Concern profiles were *non-user* profiles. The researcher concluded CARS professional development programs are not meeting the needs agriscience of teachers; thus, these teachers are not progressing through the Stages of Concern and are not implementing CARS at a high level. Research should be conducted to identify the barriers which prevent teachers from transferring the knowledge and skills they learn in professional development into the classroom setting. Practitioners should develop and provide a consistent, in-depth professional development program should be implemented to provide ongoing training and support of the innovation throughout a several year process.

CHAPTER 1
INTRODUCTION

Introduction

The College Board (2002) statistics show a 23 point increase in mathematics on the SAT over a 20 year period. During the same period, the verbal scores remained the same. Since 2000, national math achievement scores have steadily increased while reading scores have remained steady or slightly declined (U.S. Department of Education [USDE], 2008). With more than eight million struggling readers in the United States between fourth and twelfth grade (USDE, 2003), U.S. students have ranked toward the bottom of an international comparison of reading proficiency, even below students from developing countries (Snow, 2002). These statistics have prompted a number of state and national reading initiatives.

The No Child Left Behind (NCLB) Act has mandated a major change across the nation in education, and a large section of the NCLB Act has focused on improving student literacy. In a statement by then U.S. Secretary of Education Paige (2001) commended the Senate for the bipartisan support of the No Child Left Behind Act. He noted the ability of this legislation to help meet the needs of America's students and to provide a quality education to all students.

In addition, the Florida Reading Initiative (FRI) has been widely seen as a reform effort which provides "a whole school approach, professional development, continuous assessment, follow-up support, and evaluation" in order to achieve one hundred percent literacy among all school aged children (North East Florida Education Consortium [NEFEC], 2008, para. 2). One of FRI's major teacher professional development components has included content area reading strategies. This program started in the northeast portion of the state and is expanding to new schools each year (NEFEC, 2008).

Mapping America's Educational Progress 2008, a report published by the USDE to measure the accountability of NCLB, highlighted the continuing literacy problems. Only about 30% of fourth and eighth grade students performed at the proficient reading level. Those numbers decreased significantly for students of low socioeconomic status and different ethnicities. Two percent of the same students performed below basic levels. Since 2002 these students have made steady improvements in math scores. However, fourth graders have improved their reading scores minimally and eighth graders' reading scores have slightly declined. The Mapping Florida's Progress 2008 report shows that Florida's students rank below the national average for reading achievement.

Scherer (2002) stated "educators must take a long-range view in balancing student needs as they implement the much needed national initiatives" (p.5). She referred to The College Board's (2002) report on the ten-year trend of SAT scores. She noted an emphasis on mathematics and science aided in increasing math scores; however, the narrow focus limited the improvement of verbal scores. Allington (2002) and observed the focus of reading programs on early literacy with little attention given to reading comprehension beyond primary grades. Researchers underscored the importance reading comprehension and reading in the content area play in communication, education, employment, and citizenship (Meltzer, 2001; Vacca, 2002a). Students will need to be taught new literacy skills so they can learn how to comprehend reading materials "Reading and writing play a crucial role in the ability to 'learn for understanding'" (Meltzer, p. 1).

The idea of reading in the content area is not new. William S. Gray was one of the first prominent reading educators and researchers (Vacca, 2002b). He conceptualized content area

reading in the *Twenty –Fourth Yearbook of the National Society for the Study of Education, Part One* (Whipple, 1925 as cited in Vacca, 2002b). Gray maintained that reading:

> Is essential in every content subject…. In fact, rapid progress in these subjects depends in a large degree on the ability of pupils to read independently and intelligently. It follows that good teaching must provide for the improvement and refinement of the reading attitudes, habits, and skills that are needed in all school activities involving reading (p. 1-2 as cited in Vacca, 2002b, p.186).

Gray underscored content area reading instruction as a characteristic of good teaching regardless of subject.

Today, the issue of adolescent literacy continues to demand attention. The Commission on Adolescent Literacy of the International Reading Association emphasizes the importance of adolescent literacy:

> Adolescents entering the adult world in the 21st century will read and write more than any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct their personal lives. They will need literacy to cope with the flood of information they will find everywhere they turn. They will need literacy to feed their imaginations so they can create the world of the future. In a complex and sometimes even dangerous world, their ability to read will be crucial. Continual instruction beyond the early grades is needed (Moore, Bean, Birdyshaw, & Rycik, 1999, p. 3).

Around fourth grade, students have begun to encounter difficulties with reading, especially in content area reading (Allington, 2002). As students have started reading in the content area, they have encountered new structure and organization (D'Arcangelo, 2002) and a need to activate previous background knowledge (Vacca, 2002a). They also have met more challenging and unfamiliar vocabulary and syntax. As students have encountered these more complex structures, they have been required to use higher level thinking (Allington, 2002; Meltzer, 2001). Students who had been considered fluent readers begin to struggle when confronted with the new demands of reading for comprehension (Vacca). The point in school when students have

encountered the unfamiliar and increased difficulty understanding texts has been the same time they have stopped receiving reading instruction (Allington; Scherer, 2002; Vacca).

D'Arcangelo (2002) stated, "Students are novice learners" (p. 13). She recommended teachers instruct students how to learn within the specific discipline. Scherer (2002) underscored the importance of meeting the middle school and high school students' needs to meet the demands of different reading abilities for reading comprehension. Vacca (2002a) noted competent readers went beyond simply reading material; they utilized appropriate readings skills to develop a comprehension of the topic. When students read in the content area, they needed to interact with reading material before, during, and after reading (Literacy Matters, 2008). Comprehension of text also required students to understand the literal meaning of the text, make inferences, and evaluate the material.

D'Arcangelo (2002) argued that students need to be taught to learn from text sources and suggested helping student realize strategies which would aid them in becoming effective learners. Vacca (2002b) noted the responsibility of reading instruction generally falls on English/ language arts teachers or reading specialists. Students who have encountered the increased demands of content area reading have needed instruction which surpasses that of only the English/language arts teacher (D'Arcangelo; Vacca, 2002a). All content area teachers could help meet the comprehension needs of students by incorporating CARS instruction throughout all content areas (Fisher & Ivey, 2005; Literacy Matters 2002; Scherer, 2002). "Every content area teacher has a responsibility to help students successfully and productively access, read, and understand texts (Literacy Matters, para. 6). This statement supports the ideals of Gray (as cited in Vacca, 2002b). Vacca (2002b) states, "The responsibility for teaching reading is a shared one, belonging to all teachers in all subjects" (p.187).

Teachers who provide their students with appropriate reading level material and instruct students in reading strategies have more successful students (Allington, 2002; Literacy Matters, 2002). Teachers have been able to embed instruction and model reading strategies into their curriculum to help fluent readers become strategic readers (Bryant, Ugel, Thompson, &Hamff, 1999; Vacca, 2002). D'Arcangelo noted embedding CARS can be completed easily. Fisher and Ivey (2005) have stated "literacy [is] a way to engage students in the content" (para. 14). Bryant et al. (1999) have highlighted the increased effectiveness in content area instruction when it has been integrated through the whole school. D'Arcangelo (2002) also underscored the importance of a school-wide effort and sustained approach. Meltzer (2001) identified three aspects which led to successful support of CARS: "(1) careful attention to the social and motivational issues attendant to adolescent learners, (2) explicit teaching and use of cognitive strategies, (3) integration of literacy instruction with content-area learning in ways that support teaching and learning in that discipline" (p. 6).

Student performance data and corresponding initiatives have also led to major research efforts in disciplinary literacy. Snow (2002) noted that reading skills can be learned regardless of age. Forget and Bottoms (2000) indicated that embedding content area reading strategies (CARS) into lessons can help students learn how to read; however, content area teachers have often overlooked the importance of incorporating CARS into content instruction (D'Arcangelo, 2002). In the early period of emphasis on content area reading instruction, O'Brien and Stewart (1990) found that of the pre-service content area teachers included in their study, agricultural educators were the most resistant to classroom reading implementation. Eighty-five percent of the pre-service agricultural educators rejected content area reading (O'Brien & Stewart, 1990). Meltzer (2001) emphasized the importance of implementing discipline-specific CARS. However,

Park and Osborne's (2006b) study on content area reading strategies and textbook use in agricultural education concluded that agriscience teachers cannot identify specific CARS to implement in their curricula. Park and Osborne (2006a) identified teachers' lack of knowledge and confidence in CARS implementation as the main obstacles to incorporating reading into agricultural education programs.

Park (2008), in notes from a roundtable discussion at the National Agricultural Education In-service regarding literacy in agricultural education, emphasized the unique ability agriscience teachers possess to facilitate content area reading: the students have voluntarily enrolled in agriscience courses and have a motivation to learn the content. If agriscience teachers have purposefully introduced reading strategies into instruction, these teachers have the ability to increase student reading motivation and comprehension. These experiences have provided students with opportunities to learn lifelong literacy skills. Fisher and Ivey (2005) also highlighted the benefit teaching content area literacy provides to content area teachers. "Literacy [is] a way to engage students in the content at hand" (Fisher & Ivey, p. 6).

Research has noted the importance of continuing professional development and support for teachers in order to successfully implement and sustain CARS instruction. Vacca (2002a) stated "supports for content-area teachers are crucial" (p. 11). He recommended that schools provide reading specialists, resources, and research to teachers along with continuing development programs. Vacca (2002b) praised the requirement of content area reading courses for teacher certification; however, he realized the importance of providing teachers with long term support in order to sustain the implementation of CARS.

Meltzer (2001) highlighted the importance of a school-wide effort for CARS professional development, which relied on proper organization, leadership, scheduling, and development. She

acknowledged that lack of leadership and organization structure has caused short-term implementation of innovations and has initiated teacher "frustration, stress, and burnout" (p. 7). Meltzer indicated the need for continuing cycles of "(1) examining the outcomes, (2), reviewing and improving program components, (3) seeking practical feedback, and (4) implementing improvements" to ensure successful professional development support for CARS (p.7).

In response to government mandate and the current research, school systems have invested time and money in teacher professional development and reading initiatives in order to help teachers incorporate reading strategies into their classrooms. Park and Osborne (2006b) underscored the need to research the effectiveness of CARS professional development programs and the utilization of CARS in agriscience. An objective evaluation of the success of teacher professional development programs in content area reading in agriscience is needed to validate the continuation of these programs. In order to evaluate the success of an innovation, documentation of implementation must be achieved (Hall & Hord, 2006).

Research Problem

Educators, politicians, and parents have been investigating how to improve student performance in all areas of education. Through government mandates, parent choice of qualified schools, and professional development for teachers with research-based teaching strategies, all parties have been attempting to improve students' academic achievement. The primary impetus behind national and state reading initiatives has been the large population of U.S. students who struggle to read and comprehend. School systems have made large investments in professional development programs which train teachers to utilize CARS. To determine if the investment in these programs has been worthwhile and if these programs have helped to improve students achievement, implementation of CARS must be documented. Have teachers who have completed CARS professional development programs implemented CARS into the classrooms? In the past

agriscience teachers have struggled more than other content areas to incorporate CARS into the classroom (O'Brien & Stewart, 1990). Have these CARS professional development programs met the needs of agriscience teachers? The problem under investigation in this study was, are agriscience teachers implementing CARS into instruction in order to address the low reading performance of students?

Purpose and Objectives

The purpose of this research was to assess the relationship between CARS professional development and implementation of CARS in the agriscience classrooms. This research aimed to determine if CARS professional development programs have effectively increased agriscience teachers' Stages of Concern in order to facilitate the implementation of CARS within the classroom. In order to guide the purpose of this study, the following objectives were investigated:

- Ascertain agriscience teachers' CARS professional development history.
- Determine the Stages of Concern of agriscience teachers who have completed CARS professional development program.
- Determine the Stages of Concern of agriscience teachers who have not completed CARS professional development program.
- Determine the relationship between CARS professional development and Stages of Concern.

Significance of the Study

America's students have been struggling to read during a time when the demand for literacy has been increasing. Students who have been unable to read and comprehend written material have faced challenges receiving information. These students will struggle to learn content, find employment, communicate ideas, and compete with students and employees from

other countries. Additionally, they will have an increased reliance on others in order to compensate and obtain the information they cannot gather through reading.

Content area reading strategies have been a nationally emerging area of research across all educational disciplines to address the reading deficiencies of students. In response to the large amount of research that has shown the benefits of incorporating CARS in order to improve students' reading abilities (Allington, 2002; Bryant et al., 1999; D'Arcangelo, 2002; Forget & Bottoms, 2000; Literacy Matters, 2002; Vacca, 2002a), school systems across the country have made a large investment in professional development programs to train teachers to properly utilize CARS. In order for the research in CARS in agricultural education to progress, research needs to ascertain if teachers are implementing change in their classes based upon their training received in CARS professional development programs. A common practice used by area school districts to determine if teachers are implementing CARS is classroom walk-throughs in which an administrator will observe a class for four minutes. These walkthroughs cannot provide a complete understanding of the strategies implemented.

This research indicated the lack of success of CARS professional development programs in helpings teachers to implement CARS. Researchers need to determine the reasons that teachers have not adopted the skills they have been trained to use. The change facilitator teams will need to address these obstacles so that intended changes may be implemented.

After researchers have documented the implementation of CARS by agriscience teachers, they may test for the effectiveness of the incorporation of CARS on reading scores and content area achievement. Also, professionals can utilize the professional development programs which those teachers completed as a model program from which future training and professional development programs can be modeled. Researcher can use a similar series of studies to evaluate

comparable programs. Researchers may also pursue further investigation into interventions which support the implementation of CARS.

Definition of Terms

For the purpose of this study, the following terms were defined:

Content Area Reading Strategies (CARS) – teaching approaches employed by content area teachers which actively engage students in order to develop a comprehension of reading material and make students responsible for learning from textual material (Bryant, Ugel, Thompson, & Hamff, 1999; Forget & Bottoms, 2000).

Content (disciplinary) literacy – "the level of reading and writing skills that learners need in an academic subject to comprehend and respond to ideas in texts used for instructional purposes" (Vacca, 2002, p. 10).

Implementation – initiating the utilization of an innovation (Hall & Hord, 2006). In this study, Stages of Concern (Hall & Hord, 2006) were used to measure teacher implementation of CARS.

Stages of Concern (SoC) – classifications of people's perception of a specific innovation (Hall & Hord, 2006) for this study Stages of Concern will be measured by the Stages of Concern Questionnaire developed by Hall and Hord (2006).

Limitations

This study has only examined one of the three measures of implementation based on the Concerns Based Adoption Model (Hall & Hord, 2006). In order to achieve a thorough understanding of the implementation of CARS an examination of the Levels of Use and Innovation Configurations will also be needed. In addition, the change facilitator team, resource system, system culture, and other interventions were additional variables which were not factored into this study.

The survey design of this study presented limitations in the validity and reliability of the findings and conclusions. These limitations stemmed from self-reported information and the non-respondents. These limitations have been addressed further in the methodology section of this study.

Results from this census study will not be able to be generalized beyond the state of Florida. This study can only identify correlational relationships and cannot determine cause-effect relationships.

Assumptions

The research will be based on the following assumptions:

1. The participants will have a thorough knowledge of CARS.
2. Participants will answer the survey truthfully.

Chapter Summary

This chapter introduced this study and addressed the need for research on teacher implementation of CARS upon completion of a professional development program. This study stemmed from a need to validate the large investment in CARS professional development training following the start of national and local reading initiatives. This study intended to determine if agricultural educators have implemented the CARS they have been trained to use through a professional development program. To do so, the research reviewed current literature of student reading abilities and CARS. In addition the study was designed around theoretical framework of teacher change.

The chapter identified the research problem: how can agriscience teachers help address the needs of struggling readers? The purpose of this research was to assess agricultural educators' implementation of content area reading strategies in their classrooms. The following objectives were outlined in pursuit of this purpose: (1) ascertain agriscience teachers' CARS professional development history, (2) determine the Stages of Concern of agriscience teachers who have completed a CARS professional development program, (3) determine the Stages of Concern of agriscience teachers who have not completed a CARS professional development program, and (4) determine the relationship between CARS professional development and Stages of Concern.

The chapter highlighted the significance of this research in validating CARS professional development programs and providing needed groundwork for future research. This chapter defined important terms and noted limitations and assumptions of the study.

CHAPTER 2
LITERATURE REVIEW

Content Area Reading Strategies Research

Vacca (2002b) identified three paradigms which have emerged from content area reading instruction and research: (1) "the reading and study skills paradigm," (2) "the cognition and learning paradigm," and (3) "the social constructivist paradigm" (p. 188). During the reading and study skills paradigm, research focused on identifying reading skills for each content area and the effects that these reading skills had on content area learning. Vacca noted, overall, skills could be used in different subject areas, but the effects of the skills on content achievement varied with the subject area. Additionally, research explored the *locus of instruction*, who should teaching reading skills and in what context should they be taught. The cognition and learning paradigm researchers were exploring how reading strategies designed on cognitive and metacognitive activities affected content and reading comprehension. This research identified the importance of schemata, text structure, and metacognition to comprehension. The cognition and learning paradigm research led to the "development and validation of comprehension strategies…and instructional frameworks for comprehension" (Vacca, p. 192). The social constructivist paradigm is a newly emerging paradigm; thus less research exists in this paradigm. The research is examining how students interact with teachers and text to construct comprehension.

Vacca (2002b) compared the visible and invisible aspects of content area reading. Visible aspects of content area reading occurred when teachers clearly instructed students in the use of reading strategies. Invisible aspects occurred when teachers integrated reading strategies into the design of a lesson or activity. Vacca promoted a combination of the two components in order to produce the greatest effect on student comprehension.

After completing a thorough review of literature on teaching reading comprehension strategies to students with learning disabilities, Gersten, Fuchs, Williams, and Baker (2001) discussed the importance that teacher modeling of reading strategies plays in student comprehension. In addition, teachers need to provide students with extensive feedback while students are learning the strategies. Teachers should also demonstrate how the strategies can be transferred to other readings. The authors note that since expository text is more complex and less engaging, multiple reading strategies are necessary for comprehension.

Bryant, Ugel, Thompson, and Hamff (1999) discussed some areas of content area reading strategies: word identification, vocabulary, and comprehension. The authors emphasized the importance of being able to identify the meaning of unfamiliar words to reading fluency and comprehension. Three strategies for word identification are: contextual analysis, phonetic analysis, and structural analysis. Understanding vocabulary is essential for comprehension. Students need to interact with vocabulary in order to fully understand the meaning of words. Students should define technical vocabulary and understand its meaning within the content area in more general contexts. Comprehension is the ability to interact with the text and make meaning of it throughout the reading process. The authors identify four comprehension monitoring processes: "(a) understanding the purpose, (b) distinguishing important information from less important information, (c) engaging in self questioning about what is being read, and (d) recognizing and correcting problems when comprehension is inadequate" (Bryant et al., p. 5).

Vacca (2002b) and Bryant et al. (1999) highlighted the importance of incorporating CARS into the three stages of reading: pre-reading, during reading, and after reading. Students who participate in all three stages of reading build a stronger comprehension. Prior to reading, students should activate their prior knowledge, determine their purpose for reading, review the

text, and make predictions. During reading, students should monitor their reading and ask questions, analyze the frameworks and organization, and summarize. After reading, students should answer questions, reorganize the text or ideas, relate information to their experiences, and share with others.

Theoretical Framework

The Concerns-Based Adoption Model (CBAM) (Hall & Hord, 2006) (Figure 2-1) was chosen as the theoretical base of this study for several reasons. The model has been based on thirty-five years of research which has been focused primarily on educational change, but also included research on the change process in businesses and government agencies. Furthermore, the research has been continually verified and extended to a variety of settings (Hall & Hord). Anderson (1997) stated "The Concerns Based Adoption Model (CBAM) is a widely applied theory and methodology for studying the process of implementing educational change by teachers and by persons acting in change-facilitator roles" (p. 331). He also noted, "The Concerns Based Adoption Model … is arguably the most robust and empirically grounded theoretical model for the implementation of educational innovations to come out of educational change research in the 1970s and the 1980s" (p. 331). For these reasons, the researcher has chosen this model to examine the implementation of CARS by agricultural educators in Florida.

Concerns-Based Adoption Model

The Concerns-Based Adoption Model, a research-based model, was designed to help facilitate change and provide diagnostic means of measuring implementation of an innovation (Hall & Hord, 2006). The model consists of the environment, the user system culture, resource system, change facilitator team, interventions, users and nonusers, and three diagnostic measures: stages of concern, levels of use, and innovation configurations (Hall & Hord).

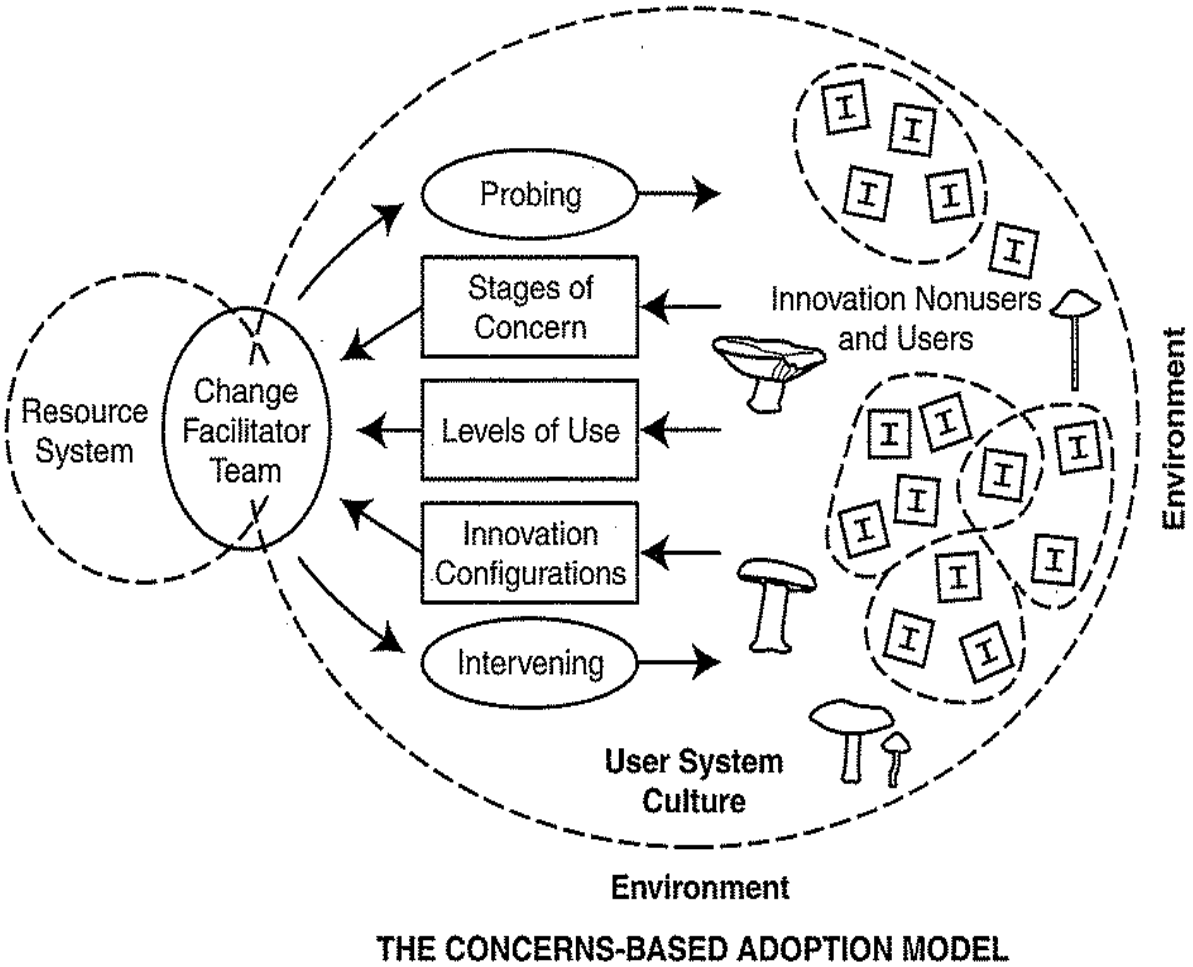

Figure 2-1. Concerns Based Adoption Model (Hall & Hord, 2006, p. 252)

Environment

A dotted line separates the organizational culture from the surrounding environment (Hall & Hord, 2006). This broken boundary illustrates that external forces from the environment surrounding the organization can greatly affect changes which take place within the organization. For example, the No Child Left Behind Act (NCLB) of 2001 mandated changes within schools throughout the country (Hall & Hord). The implementation of CARS was one change which grew from the mandates of NCLB (2001) and state initiatives like the Florida Reading Initiative.

User System Culture

Hall and Hord (2006) defined culture as "the individually and socially constructed values, norms, and beliefs about an organization and how it should behave that can be measured only by observation and qualitative methods" (p. 20). They underscored the influence which culture has on individuals and collective groups within the organization and their work. Culture and situational variables join together to create a context which influences the change process (Boyd, 1992, as citied in Hall & Hord, 2006). Various interactions and combinations of individuals and groups occur within the user system culture (Hall & Hord).

Hall and Hord (2006) promoted 'professional learning communities' (PLC) as an ideal culture for implementing change. Hall and Hord (2006) explained PLC as, "The norms of collaboration and democratic participation in decision making, as well as sharing power and authority, contribute to a culture in which the staff grows in professionalism and efficacy" (p. 25-26). Hord (1997) identified the five dimensions of professional learning communities: "(1) supportive shared leadership, (2) collective creativity, (3) shared values and vision, (4) supportive conditions, and (5) shared personal practice"(p.iii).

Resource System

Hall and Hord (2006) identified the resource system as any external source of resources. Resources may include: innovations, expertise, support, staffing, money, facilities, materials, and equipment. The change facilitator team acts as a vital agent in communicating and mediating between the resource system and the user system resource system, change facilitator team, interventions, users and nonusers, and three diagnostic measures: stages of concern, levels of use, and innovation configurations.

Change Facilitator Team

The change facilitator team provides leadership for the change process and acts as an agent to interact between the resource system and the user culture system (Hall & Hord, 2006). The change facilitator team needs to take a strategic approach to the facilitation of change. Probing and intervening provide systematic ways to facilitate change. Different leadership approaches to change have been identified and classified by change facilitator style: the initiator, the manager, and the respondent. (Hall & Hord, p 213). Hall and Hord underscored "Everyone who is engaged in change has a responsibility to assist in facilitating the process" (p. 208). They noted that anyone, regardless of position, has the potential to play a role as a change facilitator. Change facilitators, whether appointed leaders or emerging leaders, must know how to best work with people from all of the leadership styles (Hall & Hord).

Interventions

Hall and Hord (1987) defined an intervention as "any action or event that influences the individuals involved or expected to be involved in the process" (p. 143). Hall and Hord (2006) noted that actions are consciously planned while events are not. Either type of intervention can positively or negatively influence the change process. Interventions can range from training workshops to short conversations about the innovation called one-legged interviews. When positive interventions have been implemented coherently, change has proven to be more successful. Any person who assumes a change facilitator role may administer an intervention (Hall & Hord, 2006).

'Mushroom' Interventions

Mushroom interventions are unique because they are not purposefully initiated and are unpredictable (Hall & Hord, 2006). The authors used a mushroom analogy to highlight the key characteristics of these interventions. Like a mushroom these interventions grow in the shadows

of the change process, can nurture or deter the change process, come in many varieties, grow on individuals' interpretation of actions and events, require an expert to sort the good and bad interventions. Mushrooms are dependent upon change facilitator style and Stages of Concern of each participant (Hall & Hord).

Diagnostic Instruments

The Concerns-Based Adoption Model presented by Hall and Hord (2006) contains three diagnostic instruments to measure implementation of an innovation. Each instrument addresses a different aspect of the change process. Innovation Configurations (IC) clarify what full implementation should look like. Levels of Use (LoU) chart an individual's behaviors in regard to the change. Stages of Concerns (SoC) measure people's feelings and perceptions of change. These three diagnostic instruments can be used separately or in combination with others to assess the status and success of implementation of an innovation (Hall & Hord, 2006)

Innovation Configurations (IC)

Innovation Configurations (IC) describe what the change should look like when it is properly implemented (Hall & Hord, 2006). They note that often two teachers claiming to use an innovation may be engaged in very different activities which also differ from how the developer expected implementation to look. This problem affects the quality and reach of an implementation as well as hinders the ability of evaluators in determining the effects of a given innovation. IC can be utilized to develop a common understanding of what is expected and to measure how an innovation has been implemented.

Hall and Hord (2006) noted, "The innovation in action can take on many different operational forms or configuration;" in addition, "the tendency to adapt, modify, and/or mutate aspects of innovations is a natural part of the change process" (p. 113). To address these naturally occurring aspects of change, the authors developed IC to help prevent and measure

changes in how the implementation appears. Hall and Hord stated, “The focus in the IC diagnostic dimensions is on developing and applying word-picture descriptions of what the use of an innovation can look like” (p. 112).

The development of IC maps is a very time consuming and laborious process (Hall & Hord, 2006). It requires developers to develop a clear description of the appearance of the desired implementation as well as various differing configurations which may occur. Developers must decide what the most desirable implementation is and how much fidelity to that conception is required for implementation to be satisfactory. Throughout the process all parties should be able to view and contribute to the IC map. However, an IC map requires all parties to decide on a consensus and operationally defines an innovation. Once the IC map is completed, it provides a valuable tool in identifying what components are being implemented well and which components need additional work. The IC map makes implementation more effective and efficient. It also documents the extent and quality of implementation for evaluation studies.

Levels of Use (LoU)

Levels of Use (LoU) address individual behaviors associated with change (Hall & Hord, 2006). LoU go beyond asking whether individuals are using the innovation and determines “how is he or she using it?” (Hall & Hord, 2006, p. 158). Loucks, Newlove, and Hall (1975) identified eight categories of LoU (Figure 2-2) (Hall & Hord, p. 160). The levels of use begin at the nonuser levels of Nonuse, Orientation, and Preparation and progress through the user levels of Mechanical Use, Routine, Refinement, Integration, and Renewal. Facilitators or evaluators can use the definitions of each level to assign individuals in the change process (Hall & Hord). Assessing individuals LoU is a complicated process which requires long-term observation or use of a specific interview protocol and specialized training (G. Hall, personal communication, June

19, 2008; Loucks et al., 1975). Hall and Hord noted that LoU can be used to aid in the facilitation of change or to guide evaluation and research on change.

Users	VI	**Renewal:** State in which the user re-evaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.
	V	**Integration:** State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
	IVB	**Refinement:** State in which the user varies the use of the innovation to increase the impact on clients within their common sphere of influence.
	IVA	**Routine:** Use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use of its consequences.
	III	**Mechanical Use:** State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.
Nonusers	II	**Preparation:** State in which the user is preparing for first use of the innovation.
	I	**Orientation:** State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and it depends upon user and user system.
	0	**Nonuse:** State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.

Figure 2-2. Levels of Use of the innovation (Hall & Hord, 2006, p. 160).

Stages of Concern (SoC)

Whereas Levels of Use deals with peoples behaviors in connection with change, Stages of Concern (SoC) address the affective side of change (Hall & Hord, 2006). The feelings and perceptions of participants are known as *concerns*. Research on the evolution of concerns throughout the change process has led to the development of the Stages of Concern. The Stages of Concern define a progression of concerns which people move through as they implement an

innovation. A knowledge of SoC can help judge implementation of change or facilitate change by addressing concerns of participants more effectively through the development of focused workshops, individual coaching sessions, and strategic plans.

Stages of Concern

Concern

Fuller (1969) introduced the construct of *concerns*. Fuller (1969) found that concerns changed with the level of experience of subjects. Hall and Hord (2006) summarized the four levels of concern which emerged from Fuller's research: "unrelated, self, task, and impact" (p. 135). Unrelated concerns occurred when participants had no direct, related experiences; concerns were not focused on the innovation. Self concerns can be identified when students have initial contact with an experience. Participants focus on how the new experience will affect them. Task concerns appear once participants begin using the innovation or new experience. These individuals pondered how they can incorporate the new activity in terms of specific, challenging tasks. Finally, the ultimate goal should be impact concerns where participants are concerned with how the innovation is affecting their clients or students and how they can use the innovation more effectively to better serve their clients. Individuals may have concerns at various levels at the same time; however, one level of concern will be overshadowing.

Defining Stages of Concern

Based on Fuller's (1969) identification of concerns, Hall and Hord (2006) have developed seven Stages of Concern (p. 139) (Figure 2-3). Stage 0, Awareness, is an unrelated concern. Stage 1, Informational, and Stage 2, Personal, are self concerns. Stage 3, Management is a task concern. Finally, Stage 4, Consequences; Stage 5, Collaboration; and Stage 6, Refocusing are impact concerns (Hall & Hord, 2006). Anderson (1997) explains, "CBAM theory idealizes the Stages of Concern as a developmental progression in which teachers implementing a change

have concerns of varying intensity across all seven stages at different points in the change process" (p. 334). However, teacher concern may not progress through all stages in the suggested order.

	Stages of Concern	Expressions of Concern
IMPACT	6 Refocusing	I have some ideas about something that would work even better.
IMPACT	5 Collaboration	I am concerned about relating what I am doing with what my co-workers are doing.
IMPACT	4 Consequence	How is my use affecting clients?
TASK	3 Management	I seem to be spending all of my time getting materials ready.
SELF	2 Personal	How will using it affect me?
SELF	1 Informational	I would like to know more about it.
UNRELATED	0 Awareness	I am not concerned about it.

Figure 2-3. Stages of Concern and common expression of the concern (Hall & Hord, 2006, p. 139)

George et al. (2006) offered the following definitions for each of the Stages of Concern:

0 Awareness: Little concern about or involvement with the innovation is indicated.

1 Informational: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner, such as general characteristics, effects, and requirements for use.

2 Personal: [The] individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision-making, and consideration of potential conflicts with existing structures of personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3 Management: Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organization, managing, scheduling, and time demands are utmost.

> **4 Consequences:** Attention focuses on impact of the innovation on clients in his or her immediate sphere of influence. The focus is on relevance of the innovation for clients, evaluation of outcome including performance and competencies, and changes needed to increase client outcomes.
>
> **5 Collaboration:** The focus is on coordination and cooperation with others regarding use of the innovation.
>
> **6 Refocusing:** The focus is on the exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. [The] individual has defined alternatives to the proposed or existing form of the innovation (p. 8).

Hall and Hord (2006) noted that research has shown "there is a quasi-developmental path to the concerns as the change process unfolds" (p. 141). Although, they stated that neither the flow of concerns nor the direction of the flow is guaranteed. When proper conditions exist (i.e. appropriateness of change, proper involvement from leaders, and effective facilitation) participants move from self concerns to task concerns during the first couple years, and ideally they will move to impact concerns around three to five years into implementation. Undesirable conditions can cause participants to remain stuck in a particular SoC or even progress backwards. Hall and Hord (2006) highlighted, SoC "reflect the idealized, developmental approach to change" (p. 142).

Using Stages of Concern

Stages of Concern help monitor the change process (Hall & Hord, 2006). SoC need to be addressed by change facilitators to encourage more effective and efficient implementation of an innovation. Individual teachers may have varying levels of concerns at multiple stages at any given time; however, a dominant stage will emerge. Concerns profiles can be developed to represent a "conglomeration or array of concerns of varying intensities" (Hall & Hord, 2006, p. 142). "The crucial step is in using it to make *concerns-based interventions* that will be able to

solve the concern and move the person toward more advanced use of the innovation" (Hall & Hord, 2006, p. 142).

Assessing Stages of Concern

Hall and Hord (2006) recommended ongoing assessment to establish the SoC for all participants. Three methods for assessing SoC exist: one-legged interview, open-ended concern statement, Stages of Concern Questionnaire (SoCQ). Each of these methods has its own strengths, weaknesses, and suitable applications.

One-legged interviews

Although one-legged interviews have been noted for their importance in interventions, they prove effective in assessing individuals' SoC (Hall & Hord, 2006). By asking how the use of a particular innovation is progressing or how the individual feels about the innovation, trained facilitators can probe for and identify emerging concerns. When using one-legged interviews to assess the concerns of teachers, facilitators should immediately address these concerns during the one-legged interview. The one-legged interview provides several advantages. It may occur whenever an opportunity for a brief conversation exists. This form of assessment is not obtrusive and demonstrates an interest in what the participant is doing. On the other hand, the accuracy of the one-legged interviews is a major disadvantage. Different interpretation can be drawn from the same comments (Hall & Hord, 2006).

Open-ended concern statement

The original method for assessing concerns, the open-ended concerns statement requires participants to write a descriptive paragraph or statement of their concerns (Hall & Hord, 2006). An appropriate prompt is, "When you think about [the innovation] what concerns do you have? Please be frank, and answer in complete sentences" (Hall & Hord, 2006, p. 146). Open-ended concern statements are beneficial because the concerns are stated in the participant's own words

and they can be completed at any time. However, this assessment has the downfalls of receiving different amounts of information from each participant (i.e. some may hand in a bulleted list or a blank sheet of paper which cannot be assessed) and the reliability of the analysis is questionable. Open-ended concerns statements are particularly useful to estimate the concerns of participants before and after professional development workshops.

Stages of Concern Questionnaire

The Stages of Concern Questionnaire (SoCQ) is the most rigorous and reliable form of SoC assessment (Hall & Hord, 2006). A new version of the SoCQ has been developed to address some of the concerns of the previous instrument and to reestablish its validity (G. Hall, personal communication, June 19, 2008). The assessment consists of 35 Likert type questions (Hall & Hord, 2006). It is noted for being psychometrically sound and easy to take. Hall and Hord (2006) also recommend adding an open-ended concerns statement to the end of the questionnaire to ensure that all possible concerns have been covered. SoC profiles can be developed from the completed SoCQ. The authors identified the strong reliability and validity of the instrument as its greatest strength. They also noted the ability to develop concerns profiles as another strength. The main disadvantage of the SoCQ is the lack of willingness of participants to complete it. Hall and Hord (2006) encouraged facilitators and evaluators to use this technique two to three times a year at a maximum. They recommended this assessment for formal evaluation efforts.

Principles of Change

Hall and Hord (2006) identified twelve principles of change which have emerged from research. These principles have been supported with enough evidence that they can be considered valid in all cases of change. The individual principles are not mutually exclusive and only cover certain aspects of change. Hall and Hord outlined the following principles of change:

Change Principle 1: Change is a process, not an event.

Change Principle 2: There are significant differences in what is entailed in development and implementation of an innovation.

Change Principle 3: An organization does not change until the people within it change.

Change Principle 4: Innovations come in different sizes.

Change Principle 5: Interventions are the actions and events that are key to the success of the change process.

Change Principle 6: There will be no change in outcomes until new practices are implemented.

Change Principle 7: Administrator leadership is essential to long-term change success.

Change Principle 8: Mandates can work.

Change Principle 9: The school is the primary unit for change.

Change Principle 10: Facilitating change is a team effort.

Change Principle 11: Appropriate interventions reduce resistance to change.

Change Principle 12: The context of the school influences the process of change (p. 4-14). These principles must be understood to comprehend the different components of CBAM (Hall & Hord).

Change Principle 1: Change Is A Process, Not An Event.

Change requires more than an announcement or one time training (Hall & Hord, 2006). Change requires time for participants to understand, adjust, and develop skills which will help them successfully implement the change. Hall and Hord note educational change typically takes three to five years to be implemented at a high level. Each new unit adopting a change requires the same three to five year period starting when that particular unit begins the change process. Since change is a process, it requires a strategic plan which allocates resources and training throughout a three to five year period and requires yearly progress updates.

Change Principle 2: There Are Significant Differences In What Is Entailed In Development And Implementation Of An Innovation.

Hall and Hord (2006) emphasize the different yet equally important aspects of development and implementation of innovations. “Development includes all the steps and actions involved in creating, testing, and packaging the innovation, whereas implementation includes all of the steps and actions involved in learning how to use it” (Hall & Hord, p. 6). Hall and Hord highlight the common mistake of investing large amounts of time, money, and human resources into the development of an innovation only to provide limited resources during the implementation phase. In order for change to be successful and timely, equal amounts of resources should be allotted to the implementation of an innovation.

Change Principle 3: An Organization Does Not Change Until The People Within It Change.

Hall and Hord (2006) underscore the individual aspect of organizational change. All members of an organization must progress through the change and do so at different rates and with different needs. Change facilitators need to consider ways to “anticipate and facilitate change at the individual level” (Hall & Hord, p. 7). Interventions should be completed at the organizational, subgroup, and individual levels to meet the needs of all individuals within the organization (Hall & Hord).

Change Principle 4: Innovations Come In Different Sizes.

According to Hall and Hord (2006), each innovation has unique characteristics and sizes. These unique size and characteristics require different amounts of resources and levels of support. When addressing an innovation, change facilitators should consider several factors. First, is the innovation a product or process innovation? In other words, is the final product of the innovation a new product or is it the use of a new technique? Secondly, the change facilitator should consider if the innovation is a single innovation or a bundle of smaller innovations.

Finally the change facilitator should consider if the innovation is relatively small and simple, or if it is a large scale or a systematic reform innovation which will require a greater amount of resources and support (Hall & Hord).

Change Principle 5: Interventions Are The Actions And Events That Are Key To The Success Of The Change Process.

Hall and Hord (2006) define interventions as "various actions and events that they and others take to influence the [change] process" (p. 8). Interventions can take many forms from workshops to short conversations about the intervention which Hall and Hord call *one-legged interviews*. Often change facilitators overlook the importance of interventions in the change process, especially the small ones such as the one-legged interviews. However, research has found the greater the amount of small interventions, the more successful the change process (Hall & Hord).

Change Principle 6: There Will Be No Change In Outcomes Until New Practices Are Implemented.

Often performance on a change is measured by end results (Hall & Hord, 2006). However, when end results are emphasized, often, little support will be provided for the implementation process. Handling a change in this manner does not teach the participants how to implement the innovation, leaving them to make a *giant leap* from their current practices to the desired outcomes. Instead, the change facilitator team should provide participants with the support they require to change their traditional procedures. Without learning how to implement new practices, participants will fail to achieve new results (Hall & Hord).

Change Principle 7: Administrator Leadership Is Essential To Long-Term Change Success.

Although the people closest to the action may have the necessary knowledge to implement a change, they cannot succeed alone (Hall & Hord, 2006). Administrators at all levels need to provide the necessary support for the change in order for it to survive long term. In a school

situation, these administrators include: policy makers, school boards, principals, and other administrators. Participants and change facilitators cannot sustain a change without support (Hall & Hord).

Change Principle 8: Mandates Can Work.

Many people think that mandated change does not work; however, Hord and Hall (2006) state that mandates can work if utilized properly. Mandates provide clear goals and priorities as well as an expectation for implementation. In order for a mandated change to take place, support must be provided with proper interventions throughout the change process, not just at the beginning.

Change Principle 9: The School Is The Primary Unit For Change.

Although change of all individuals is required for organizational change, the unit for implementing change is the school (Hall & Hord, 2006). School leaders and staff play a vital role in the success of the innovation; however, they need support from the larger systems of the district, state, and federal school systems. The school may make progress on its own, but must also rely on the expertise and resources of external facilitators. If a widespread change is being made, each school, much like individuals, is going to move at a different pace; therefore, observations of and interventions for each school must be made independently (Hall & Hord).

Change Principle 10: Facilitating Change Is A Team Effort.

Hall and Hord (2006) highlight the importance of collaboration among all of those involved in the change process. They note that those involved in the change process include all of those in the 'Policy-to-Practice Continuum' (Hall & Hord, p. 13) (Table 2-1) ranging from policymakers at the federal level to teachers in the classroom. The principal should not be the only individual providing leadership for the change process; teachers can also provide valuable leadership (Hall & Hord).

Table 2-1. 'Policy-to-Practice Continuum' (Hall & Hord, 2006, p. 13)

Federal	State	District	School	Classroom
President	Governor	Superintendent	Principal	Teacher
Secretary of Education	Commissioner of Education	Board of Education	Site Council	
Congress	Legislature			

Change Principle 11: Appropriate Interventions Reduce Resistance To Change.

Resistance is common in most change effort (Hall & Hord, 2006). The change facilitator must establish the cause of this resistance. Resistance may stem from dealing with the loss of a previous practice, questioning the quality and worthiness of the change (the questioning may come from limited knowledge or strong reasoning and evidence), and reacting to the 'pain' of change. Once a cause has been identified, the change facilitator can address the resistance through personalized interventions which attend to the cause (Hall & Hord).

Change Principle 12: The Context Of The School Influences The Process Of Change.

Hall and Hord (2006) noted that since the school is the unit of change, the context of the school affects the change process. Two dimensions within the school combine to create this context: physical features and people factors. Physical features include: size, facility layout, resources, schedules, policies, and structures. People factors address: social norms, relationships, attitudes, values, and beliefs of the people involved. Organizational conditions have been identified to help increase the success of the change process. One of these conditions is the development of 'professional learning communities' in which staff address their needs in order to better meet the needs of students (Hall & Hord).

Conceptual Framework

Based on a review of literature, the researcher has developed a conceptual model for the study of agriscience teachers concerns for the implementation of CARS. Each of the variables in

the conceptual framework and related research has been discussed below. The variables have been categorized as *internal variables* and *external variables*.

Conceptual Model

Based on the conceptual framework variable identified through the literature review, the researcher created a conceptual model pictured in Figure 2-4. The conceptual model depicts the internal and external variables related to agriscience teachers concerns regarding the implementation of content area reading strategies.

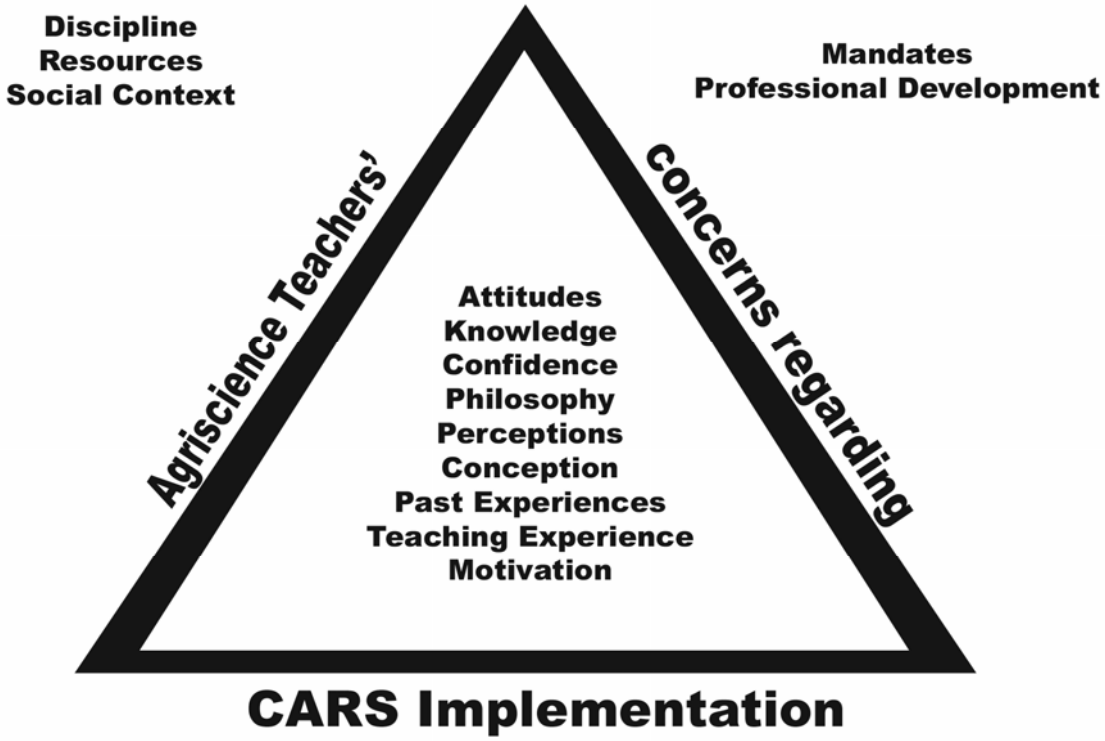

Figure 2-4. Conceptual model

Internal Variables

The researcher identified the internal variables of teacher attitudes, confidence, knowledge and experience, motivation, perceptions and conceptions, and teaching philosophy from the literature.

Teacher attitudes

Park and Osborne (2006a) used long interviews of four participants in order to understand agricultural educators' "construction of reality regarding the use of CARS" (p. 42). They identified motivation, pressures, and barriers related to implementation of CARS. Motivation to use CARS stemmed from a need for students to establish baseline information. Pressures included the diversity of students and their reading abilities and the documentation of reading for administrators. Park and Osborne's findings identified that although teachers had a fundamental knowledge of CARS, the following barriers: teachers' knowledge on the proper use of these strategies varied; teachers were not confident in their abilities to incorporate CARS; teachers had not received the necessary development or support; negative attitudes of the teachers and low motivation of the students to use CARS were reflected in students attitudes. However, the researchers found that positive teacher attitudes could also be passed to the students. Park and Osborne concluded that the main barriers agriscience teachers faced when implementing CARS and reading were their lack of knowledge and confidence. They also recommended that agriscience teachers realize the importance of their role in teaching reading skills and agriscience teachers should attend CARS professional development.

Confidence

A study on the implementation of information and communication technologies highlighted the role teacher confidence and comfort with the innovation played in its

implementation (Granger, Morbey, Lotherington, Owston, & Wideman, 2002) Park (2005) acknowledged agriscience teachers' limited confidence in the use of CARS. He noted their lack of practice with CARS made them tentative in their use. In assessing agriscience teachers' attitudes towards implementation of CARS, Park and Osborne (2006a) identified a lack of confidence in incorporation of CARS as a major barrier.

Knowledge and experience

Park and Osborne (2006a) found that lack of knowledge on the proper use of CARS hindered implementation of content literacy strategies. Baker, Gertsen, Dimino, and Griffiths (2004) studied the sustained use of an innovation in the teaching of mathematics. From this study, the authors were able to identify factors which led to successful, sustained use of an innovation in the educational setting. The researchers emphasized the importance of developing a balance of "procedural and conceptual knowledge of an innovation" (p. 20). They recommended meeting this need through ongoing professional development.

Although Aneke and Finch (1997) note that levels of teacher education and years of teaching experience did not affect teachers' SoC, they identified reform-related experience and reform-related training as important factors in determining SoC. Teachers without experience with the innovation had higher levels of concerns at the awareness, information, and personal stages. Teachers with one, two, and three years of experience with the innovation followed behind the teachers with no experience respectively. The researchers found no significant difference in the levels of personal concerns of teachers with no experience with the innovation and those with one year of experience. However, consequences and collaboration concerns were higher for teacher who had one year of experience over teachers with no experience. In addition, teachers with two years of experience with the innovation had higher consequences and collaboration concerns than teachers in their first year of innovation experience. They also

established that no significant difference existed between teacher with two years experience with the innovation and teachers with three years experience at the consequence level. The authors generalized that as years of experience with the innovation increased concerns moved from higher levels at stages 1 through 3 (awareness, informational, personal) to higher levels at stages 4 and 5 (consequences & collaboration).

Motivation

Park and Osborne (2006a) addressed agricultural educators' motivation to utilize CARS. They found that none of the teachers "consciously implemented reading or CARS" (p. 43). The teachers saw the incorporation of reading as a way to establish baseline information. They relied on the assignment of a chapter and subsequent questions to structure reading and usually used these assignments for substitute plans. Some of the participants did understand the importance of CARS.

Teachers in a comparison group of a CARS study implemented twice the strategies as teachers in the treatment group because the teachers knew they were in a reading study (Park 2005). Park concluded "with proper motivation, agriscience teachers may be willing to alter their preferred teaching methods and adopt new CARS."

Baker et al. (2004) identified two sources of motivation for teachers to sustain use of the Peer Assisted Learning Strategies teaching innovation. One of the motivations was understanding the benefits of the innovation to the students. Since the innovation required students to work with their peers, teachers recognized cognitive and social benefits students gained.

A second motivation Baker et al. (2004) reported was the benefit to the teachers. Teachers received ongoing professional development which helped them develop sophisticated strategies for working with student teams, providing feedback, prompting problem solving, increasing

student engagement and learning outcomes, and use of formative assessment. As a result, teachers benefited from “enhancing their repertoires as teachers” (p. 19).

Perceptions and conceptions

Bryant, Ugel, Thopson, Hamff, and Hougen (2001) used pre-and post- interviews to determine the effectiveness of professional development for content area implementation for struggling readers. During the pre-interviews, Bryant et al. identified the following four themes: 1.) “teachers were concerned about the reading and reading related problems of the struggling students” (p. 256); 2.) teachers felt “overwhelmed by issues such as the effects of low socioeconomic status on students’ learning and the academic needs of English language learners” (p. 256); 3.) “competing needs and related pressures of teaching struggling readers (particularly students with disabilities), teaching curriculum, and getting students reading for high stakes assessments” (p. 256); and 4.) “many of them [teachers] found time to provide adaptations for struggling students and acknowledged the importance of doing so” (p. 256). Content teachers did not view themselves as reading teachers; however, they noted the importance of teaching comprehension skills for the content area.

Teaching philosophy

Bean (1997) studied the factors affecting preservice teachers’ use of CARS. He concluded that personal teaching and learning philosophies played a major role in the selection and use of CARS. Bean noted the role that the cooperating teachers played in this selection as well and suggested that development of a cohesive view of Content Area Literacy between preservice teachers and cooperating teachers could have altered the results of the research and provided preservice teachers with more confidence in selecting and using a larger variety of CARS.

Moje (1996) detailed the importance of teaching philosophy to the implementation of CARS. The teacher she studied in her ethnography used a very personal teaching philosophy to

support her utilization of CARS. The teacher in this study was very committed to helping her students become successful learners. She developed a close rapport with her students which also helped her deliver important materials to her students. Moje noted, “Her commitment to success also shaped her literacy practices” (p. 181). The teacher enthusiastically incorporated CARS into her classroom practices because the practices matched her teaching philosophy. Moje stated, “choices of literacy events were shaped by her [the teacher in the study] philosophy” (p. 190).

Bryant et al. (2001) noted that content teachers realized the importance of teaching comprehension skills for the specific content area. Park and Osborne (2006b) confirmed this statement in agriscience. They used a survey design to identify agriscience educators’ use of CARS and textbooks. They found that agriscience teachers felt that reading was important for learning in agriscience; however they were not in agreement on the amount of time which should be devoted to reading or their roles in reading instructions. Teachers use appropriate criteria to select textbooks and allot up to 25% of class time to textbook learning. However, many teachers fail to assign individual texts to students which may “hinder reading development” (p. 11). Park and Osborne recommend using trade journals and electronic texts in the agriscience classroom. Teachers also need to focus more efforts on activities during the pre- and during-reading periods, and not just on post-reading period. Finally, Park and Osborne recommended, “agriscience teachers should be encouraged to model reading for their students, as well as incorporate CARS in classroom instruction” (p. 10).

External factors

From the literature, the researcher identified discipline, mandates, professional development, and social context as external variables.

Discipline

When Aneke and Finch (1997) compared SoC based on teaching areas, they found no significant difference. However, they only compared vocational and academic areas and did not make comparisons with specific disciplines. Conversely, Bean (1997) found that preservice teachers selected CARS based on their judgment of what worked well for the discipline. He noted the views of the preservice teachers' cooperating teachers played a role in the selection and the importance of their role in teaching reading skills, and agriscience teachers should attend CARS professional development.

Park and Osborne (2005) also underscored the importance of all content area teachers to contribute to students' academic success. They contend "agricultural teachers can impact the reading performance of students" (p. 177). Moje's (2006) ethnography supported Park and Osborne. She studied a teacher who believed that literacy was important in her discipline. "Because Landy [the teacher in the study] saw science as organization and literacy as a tool for organization, she used literacy as one strategy for helping students be successful learners" (p. 181). The teacher believed that literacy practices were important for students to succeed in science, thus, she willingly incorporated CARS.

Moje (19966) found that students did not transfer CARS to other classrooms. She indicated that these findings supported the notion of teaching domain specific content literacy methods in each discipline. If content area teachers address CARS in their discipline, students will develop social practices and knowledge necessary to apply them to that specific domain.

Mandates

One variable, defined by Baker et al. (2004), affecting the sustained use of an educational innovation was "alignment…with district and state mandates" (p. 18). From the beginning, the innovation was carefully paralleled with the core curriculum for the specific discipline,

mathematics. This alignment ensured that as teachers and students devoted time to the innovation, that time was being devoted to the core curriculum and preparation for the state test simultaneously. Park (2005) noted that agriscience teachers were under pressure to utilize CARS. They increased their use of CARS in their classrooms due to pressures from both local and state school administrators and standardized testing.

Professional development

Bryant et al. (2001) used pre-and post interviews to determine the effectiveness of professional development for content area implementation for struggling readers. Based on the response of teachers, the researchers identified the following areas of needed professional development for CARS: word identification, partner reading, collaborative strategic reading, modeling, supporting meetings, and teams. The researchers recommended developing a shared understanding of content literacy goals which will guide professional development.

Miller, Stark, and Bergeron (2001) prepared a report as an outside evaluation of the Florida Reading Initiative (FRI). The study focuses on the inputs (training educational professionals) of the FRI. Principal orientation was evaluated ex post facto due to timing through structured interviews. Positive responses, 80% or greater, were given in all three categories of program training, reading knowledge, and leadership skills. Three methods were used to evaluate the summer reading academy: a pre-and posttest of teachers' reading techniques knowledge, a survey of attitudes and feelings of self efficacy, and presenter evaluation surveys assessing instructional effectiveness and participants' perspectives on the knowledge gained. Knowledge gain based on the pre-posttests showed a significant gain in scores of 73%. In addition pre-and posttest attitudinal measures from the survey also showed a significant gain. According to Miller et al. response to the presenter evaluation surveys suggested that the training sessions were "well organized, effective, and left participants feeling competent to use the strategies" (p. 23).

However, opinions on whether participants required additional information were mixed. Miller et al. concluded that overall “the summer training sessions were effective” (p. 25).

Masten, Stacks, Priest, Scott, and Vitale (1999) investigated the effects of reading comprehension strategy training on middle school teachers implementation of these strategies. Teachers in the experimental group completed a three hour training on various CARS, while the control group attended a three hour training on behavioral principles. Teachers who had completed the CARS professional development session utilized significantly more textbook comprehension strategies.

Aneke and Finch (1997) found, “the intensity and stages of the teachers’ concern profiles changed when teachers were grouped according to hours of reform-related training” (p. 10). They suggested that teachers with minimal training in an innovation be identified and enrolled workshops to gain exposure to the training. They noted, “reform-related in-service training has great potential to serve as an effective method of exposing teacher to the reform experience” (p. 11-12). The researchers underscore that such training should help move teachers from informational and personal concerns to management, consequences, and collaboration concerns. They highlighted the importance of these development workshops addressing personal concerns of the teachers first.

One variable Baker et al. (2004) identified as influential for sustained use of an educational innovation was professional development and ongoing support. The researchers felt that the professional development model used for this innovation provided three key components which led to its success. The first component was an initial training at the university which allowed teachers to develop the *big picture*, which they note other researchers have identified as an aspect to maintain teacher satisfaction with an innovation beyond the first year.

The second component Baker et al. (2004) identified was the use of graduate student support. During the first five years of the implementation, graduate students who knew the innovation provided on-site support. These students were able to provide teachers with effective knowledge, implementation strategies, and procedures to help the teachers implement the new program. The authors emphasize the importance of this support during the first year of the innovation.

The final component of successful professional development which Baker et al. (2004) identified was investment. The school system invested its Title I funds to continue support of the innovation. These funds helped to provide logistical support. The researchers credited the initial professional development a "level of practice mastery" (p. 19).

Baker et al. (2004) made several conclusions about professional development and success of an innovation. First, they noted the importance of using professional development to "[enhance] teaching rather than asking teachers to substitute radically new teaching methods for current ones" (p. 20). This approach allows teachers to maintain autonomy in their teaching and promotes the success of change. The researchers highlight the importance of providing ongoing professional development to the individual teachers. Part of the professional development program should be a system to provide logistical support. Finally, both teachers' procedural and conceptual knowledge on an innovation must be developed.

Park and Osborne (2005) found that agriscience teachers wanted further professional development in CARS. Even though teacher had some professional development experience which addressed content area reading, they "wanted to know where, how and why to use CARS in their agriscience courses" (p. 138-139). The teachers wanted to learn how to effectively incorporate CARS. They realized they needed further professional development and time to

adapt. Park recommended that professional development on CARS should provide teachers with the opportunity to practice using the strategies.

Social context

Moje (1996) presented findings from a two-year ethnography of a long-time content teacher regarding teachers' beliefs about and utilization of literacy. In approaching this study, Moje defined literacy, "Literacy… is more than reading, writing, speaking, and listening; literacy involves the practices in which these processes are embedded" (p. 175). She continued to identify "reading, writing, speaking and listening as tools for engaging in and making sense of social practices" (p. 175). Thus, Moje believed "each act of literacy is embedded in a network of social relations" (p. 175). Moje described that the teacher viewed her job to help her students succeed, and she viewed literacy as a way to help students succeed and organize the content matter. At the same time, the students viewed literacy as a way their teacher, who cared about them, helped them learn and succeed, so they willingly participated. Moje states, "In this chemistry classroom, literacy was practiced as a tool for organizing thinking and learning in the context of a relationship built between the teacher and her students" (p. 180). The findings from this study reinforce the social context in which literacy occurs to help students learn and understand. It also supports the idea that personal teaching and discipline philosophies affect the implementation of various literacy activities. Moje concluded, "students hold socially constructed assumptions about the nature of knowledge and the purpose of literacy in different content areas" (p. 190). To address this issue, she suggested that students need to be taught literacy skills in all content areas and taught how to apply these literacy skills to different domains.

Bean (1997) examined preservice teachers' selection and use of CARS used in a microteaching situation and in subsequent practicum assignments (5-day or student teaching).

All of the participants were enrolled in a mandatory CARS course in a previous semester. As required, students participated in a 1-day per week observation-participation practicum in their respective content areas. Bean concluded that sociocultural context played a major role in the preservice teachers' selection and use of CARS. Students used a larger variety of CARS during micro teaching when CARS were supported and encouraged. During their extended practicum, they felt certain constraints from their content area and classroom management issues which limited the strategies implementation. For the preservice teachers, the views of their cooperating teachers also played a major role in their decision to select and use specific CARS.

O'Brein, Stewart, & Moje (1995) completed a literature review of current content literacy research. They discuss the paradox which has emerged from the goals of content literacy. In addition they identify and review three complexities of secondary schools: curriculum, pedagogy, and school culture. The authors offer alternatives to current content literacy practices in both courses and research. They contend content literacy has not been fully effective because the research has been conducted outside of the school setting and thus has eliminated the vital role of sociocultural contexts. They recommend the involvement of experienced, school-based colleagues in the development of future research and strategies.

Chapter Summary

This chapter identifies Concerns-Based Adoption Model as the theoretical framework. All aspects of this model were defined and explained. The researcher gave an explicit description of the Stages of Concerns and the Stages of Concern Questionnaire since this measure was utilized to assess the implementation of CARS in this study. A thorough review of literature was completed to identify variables for the conceptual model of this study. The following internal variables were explained in detail: teacher attitudes, confidence, knowledge and experience, motivation, perceptions and conceptions, teaching experience, and teaching philosophy. In

addition the researcher addressed the following external variables: discipline, mandates, professional development, and social context. Previous research in content literacy and Stages of Concern has identified and supported these variables for the conceptual model.

CHAPTER 3
METHODOLOGY

Introduction

This study was designed to assess agriscience teachers' implementation of CARS based on their Stages of Concern for the innovation. Additionally, agriscience teachers' professional development history was to be ascertained. The researcher intended to determine if a relationship existed between professional development history and the teachers' progression through the Stages of Concern. In order to achieve the purpose of this study, the following objectives were investigated:

- Ascertain agriscience teachers' CARS professional development history.
- Determine the Stages of Concern of agriscience teachers who have completed CARS professional development program.
- Determine the Stages of Concern of agriscience teachers who have not completed CARS professional development program.
- Determine the relationship between CARS professional development and Stages of Concern.

This chapter describes the descriptive survey design used to complete this research. The researcher identifies and describes the population. Additionally, the instrumentation is discussed in detail. Factors which affected the validity and reliability of the research are identified and addressed. The procedures used for the completion of the survey are detailed. The chapter concludes with a discussion of data analysis techniques used for the study.

Research Design

This study was a descriptive survey census of intangibles. Ary, Jacobs, Razavieh, and Sorensen (2006) defined descriptive survey research as the use of questionnaires or instruments to collect information which can be used to "summarize characteristics" or "measure attitudes and opinions" of a group of subjects (p. 31). A census of intangibles is a study that addresses the

interests of an entire population and measures operationally defined constructs (Ary et al., 2006). The researcher used a web-based questionnaire to collect the concerns of Florida agriscience teachers towards the implementation of content area reading strategies (CARS).

Population

The population for this study was Florida agriscience teachers. The researcher obtained a list of current Florida agriscience teachers (N= 371) from the 2008 Florida Agricultural Education Directory which served as the population frame (Myers & Warner, 2008). The 2008 Florida Agricultural Education Directory was chosen as the population frame because it functioned as the only updated, comprehensive list of Florida agriscience teachers in the state.

Instrumentation

The researcher utilized the Stages of Concern Questionnaire (SoCQ) developed by George, Hall, and Stiegelbauer (2006). This questionnaire was composed of 35 Likert-type questions that assessed the concerns of the individuals involved in the educational innovation change process – the integration of Content Area Reading Strategies (CARS). This questionnaire allowed respondents to indicate the relevance and intensity of their concerns towards CARS. In addition to the Likert questions, a free-response question allowed participants to express their concerns in their own words, as recommended by Hall and Hord (2006) and G. Hall, personal communication (2008).

The SoCQ was chosen for several reasons. First, the survey was developed and revised through a 35-year research effort focused on educational change (Hall & Hord, 2006). The survey was also chosen for its high levels of established reliability and internal consistency. Also, the questionnaire was designed to be easily modified for a specific educational innovation. In addition, the SoCQ affords the ability to create SoC profiles. SoC profiles plot the level of

concern for each category of concern and allow researchers to interpret these concerns (Hall and Hord, 2006).

In addition to the SoCQ, the researcher included several questions to determine the CARS professional development history of the teachers. Teachers were asked to answer whether they had completed different levels of training, give the numbers of hours spent in each training, and provide a brief description of the training. Lastly, demographic questions were included to better understand the population. The instrument distributed for this study can be located in Appendix A.

Validity and Reliability

George, Hall, and Stiegelbauer (2006) stated that validity testing of the SoCQ has been performed by testing the relationship of the states to one another and to variables from other concerns theories. George et al. utilized correlational matrices and factor analysis to determine "the seven scales[in the SoCQ] tapped seven independent constructs that could be identified readily with the seven Stages of Concern proposed by the Concerns-Based Adoption Model (CBAM)" (p. 14). George et al. reported coefficients of internal reliability for each of the seven Stages of Concern (Figure 3.1), which ranged between an alpha of .64 and .83, for the Stages of Concern Questionnaire (Figure 3.2). Santos (1999) stated an alpha score of .7 or greater is acceptable. George et al. also reported test-retest correlations for the SoCQ, which ranged between r = .65 and r = .86. These reported reliability scores fall within the acceptable range of reliability estimates as stated by Santos with the exception of Stage 0. Stage 0 has been under revision to help improve the reliability (Hall & Hord, 2006; George et al., 2006).

Table 3-1. Coefficient of internal reliability for the Stages of Concern (Hall & Hord, 2006, p.20)

Stage	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Alpha	.64	.78	.83	.75	.76	.82	.71

Table 3-2. Test-retest correlations for the Stages of Concern (Hall & Hord, 2006, p.20)

Stage	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
r	.65	.86	.82	.81	.76	.84	.71

The SoCQ was revised by the original research team to address issues in Stage 0 (George et al., 2006). The original Stage 0 measured lack of knowledge and lack of interest; however, the survey did not differentiate between the lack of interest of nonusers and longtime users who felt they had learned enough about the innovation. The Change Facilitator Stages of Concern Questionnaire was utilized as a model and in 2005 an estimated reliability of .66 was determined for Stage 0. George et al. noted that the alpha coefficients varied with different groups which meant “reliability estimates depend on the sample of respondents as much as the items on a scale” (p. 22).

Dillman (2007) identified four sources of error that commonly affect the quality of survey research. These errors are sampling error, coverage error, measurement error, and nonresponse error. Since this survey was a population census, sampling error was not applicable. Coverage error occurs when the list used for the sample or population frame does not include all members of the population. When this occurs, certain elements of a population may not be included in the survey (Dillman). In this study, the researcher addressed coverage error by using the latest available edition of the official directory of Florida Agriscience teachers. This directory was assumed to contain everyone in the population, not contain the names of persons not in the population, be up to date, not include multiple listing for the same person, and provide other useful information as recommended by Dillman.

Dillman (2007) described that measurement error resulted from poorly worded questions and poorly constructed questionnaires. Measurement error can lead to inaccurate or unusable responses. Dillman noted that measurement error is a larger issue for self-administered surveys when respondent feedback is limited. In the study, measurement error was addressed by using an instrument which has been designed, tested, and updated through 35 years of research.

According to Dillman (2007), nonresponse error occurs when a significant number of participants fail to complete the survey and possess different characteristics which affect the study. Thus, these characteristics may not be reflected in the results. Efforts were made to increase response rate by following the Tailored Design Method of Dillman (2007). This effort included multiple contacts. The procedures the researcher entailed can be found in detail in the procedures section of this chapter. Ary et al. (2006) outline three methods for addressing nonresponse error: "(1) compare respondents to population, (2) compare early to late respondents, and (3) compare respondents and nonrespondents" (p. 438-439). The researcher chose to compare early and late respondents. In order to compare concern profiles and the primary Stage of Concern of participants, the researcher needed the responses from 35 questions. It would have been extremely difficult to get enough teachers to agree to answer that many questions over the phone to obtain that information from nonrespondnets, so the researcher compared early and late respondents.

Procedure

Since the instrument has been tested, and reliability and validity have been determined, no pilot test was performed for this study. A proposal to conduct this study was submitted to the University of Florida Institutional Review Board (IRB-02) preceding the collection of any data. Appendix B provides a copy of the IRB approval letter. The researcher developed an informed consent form for participants, which described the purpose of the study, procedures for the study,

and voluntary nature of participation and also informed participants of any potential risks and/or benefits associated with the study.

Survey Monkey, a web-based survey program, was chosen as the method to deliver the questionnaire. Dillman (2007) identified limitations to web-based surveys. These limitations included: (1) respondents' potential lack of access to computers, (2) respondents' potential lack of access to the Internet, (3) respondents' potential lack of and confidence in necessary computer skills, and (4) difficulty in obtaining appropriate e-mail addresses. However, all Florida agriscience teachers had work assigned e-mail addresses which were listed in the population frame, the researcher assumed that the teachers would possessed the necessary access and skills needed to complete an Internet questionnaire. The researcher chose the web-based survey method for the following benefits: minimized cost, ease of distribution, and ease of submission.

Upon IRB approval, the researcher proceeded with the survey using Dillman's (2007) Tailored Design Model for survey collection. A brief, pre-notice email (Appendix C) was delivered to the population on October 30, 2008 to initiate contact. The e-mail notified the participants that a link to a questionnaire would be e-mailed to them shortly and that their participation would be appreciated. This pre-notice was sent to 371 agriscience teachers.

On November 3, 2008, a cover letter with a hyperlink to the questionnaire and a personal password was e-mailed to participants. The cover letter explained the study and why the response of the teachers was important. One week, November 10, 2008, after the questionnaire and cover letter were delivered, a thank-you e-mail was sent to all respondents. This e-mail thanked respondents for their participation and reminded those who had not completed the survey that their participation would be appreciated.

On November 24, 2008, four weeks after the original hyperlink to the questionnaire was sent, another reminder e-mail was sent to participants who had not responded with the hyperlink included again. Final contact was made on December 10, through a final reminder e-mail with hyperlink to the survey. January 20, 2009 was the final day for survey submissions. After this date, the researcher began analyzing data.

As recommended by Ary et al. (2006), the researcher defined two groups to categorized early and late respondents. Early respondents (n=66) were participants who responded to cover letter with the initial link to the survey before the reminder e-mail was sent. Late respondents (n=42) were participants who responded after the final contact. Based upon the responses of early respondents and late respondents concern profiles were developed compared to account for nonresponse error.

Data Analysis

In order to analyze the data from this study, the researcher used Statistical Package for the Social Sciences (SPSS) 17.0 for Windows. Descriptive statistics, including frequencies, central tendencies, and correlations were used to analyze the concerns of agriscience teachers towards CARS and the association between the level of CARS professional development and the teachers' Stages of Concerns. In addition to the statistical analysis, Stages of Concern profiles were created for participants. Sub-groups were identified with these profiles.

The researcher used frequencies and central tendencies calculated with SPSS to report the demographics of the population. Additionally, the Microsoft Excel SOCQ-075 Graph and Print program was used to create an overall concerns profile for the group (Scott & Persichitte, 2006). To address objective one, assessing the teachers' CARS professional development history, SPSS was utilized to calculate frequencies and central tendency statistics. To address objectives two and three, the researcher used the Microsoft Excel SOCQ-075 Graph and Print program to

determine the concern profiles for teachers with CARS professional development training and those without training. To address objective 4, the researcher used the Microsoft Excel SOCQ-075 Graph and Print program to create group concern profiles based on the number of hours spent in CARS professional development and SPSS to calculate frequencies of participants' primary Stage of Concern and correlations between demographic variables and the primary Stage of Concern. Finally, Weft QDA version 1.0.1 was utilized to analyze the concerns statements and provide more detailed explanation of the participants concerns (Fenton, 2006).

Summary

This chapter described the census of intangibles descriptive survey which was completed for this research. The population of Florida agriscience teachers was described. The researcher described the SoCQ which was used of the instrumentation for the study. This questionnaire has been designed, tested, and modified through 35 years of research and was used to assess the concerns of agriscience teachers in regards to implementing CARS in their classrooms. The internal reliability of each stage of the instrument ranged between .66 and .83. The test-retest reliability scores ranged between an alpha of .65 and .86. These reliability scores were within the desirable range.

In addition, the researcher addressed the threats of coverage error, measurement error, and nonresponse error; sampling error was not a factor in this census survey. This chapter detailed the procedures followed in conducting this web-based survey from obtaining IRB approval through a series of five contacts with respondents to the collection and comparison of nonrespondents' data. The researcher modeled these procedures after the Tailored Design Method developed by Dillman (2007). Finally the author discussed the descriptive statistics, the SoC profiles, and concern statements that have been used to analyze the data gathered.

CHAPTER 4
RESULTS

Introduction

The purpose of this research was to measure implementation of content area reading strategies (CARS) by agriscience teachers. This research aimed to determine if a relationship existed between CARS professional development programs and agriscience teachers' progression through the Stages of Concern in regards to implementation of CARS. In order to meet the purpose of this study, the following objectives were investigated:

- Ascertain agriscience teachers' CARS professional development history.
- Determine the Stages of Concern of agriscience teachers who have completed CARS professional development program.
- Determine the Stages of Concern of agriscience teachers who have not completed CARS professional development program.
- Determine the relationship between CARS professional development and Stages of Concern.

This chapter presents the findings of the study from the results of the questionnaires. The chapter discusses the response rate and measures taken to address non-response error. Additionally it presents the demographic characteristics of the population studied. Finally, the chapter addresses the findings in regards to each objective.

Response Rate, Nonrespondents, and Reliability

A total of 371 online questionnaires were sent to the population via a web link sent in an e-mail to agriscience teachers in the state of Florida. Two hundred fourteen questionnaires were completed for an overall response rate of 57.7% (n=214).

Dillman (2007) recommended addressing nonresponse error in all survey-based research studies because the potential for this type of error exists in all survey research. Since it would be challenging to address the Stage of Concern variable in a brief phone survey with

nonrespondnets, concern profiles were created for early respondents and late respondents. Ary et al. (2006) stated that research has shown that similarities usually exist between late respondents and nonrespondents. Pace (1939) found that nonrespondnets and respondents are similar. These similarities allow for researchers to estimate the responses of nonrespondents based upon late respondents. Thus, early and late respondents were compared to address nonresponse error. Early respondents (n=66) were defined as the participants who responded to the cover letter with the first link to the survey, before the reminder e-mail was sent. Late respondents (n=42) were defined as participants who responded after the final contact was made. Both of the profiles were non-user profiles. The early responders had higher intensity concerns than the late responders across all stages.

The profile of the early responders (Figure 4-1) was a non-user profile with a *negative one-two split*. This profile had higher Stage 2 concerns than Stage 1, which indicates that these responders were more concerned about how CARS would affect their job position and security than about learning more about the innovation. These concerns can cause resistance to the innovation and need to be addressed before this group can learn more about the innovation or consider it objectively (George et al., 2006). The Stage 3 score indicated strong management concerns as well. Consequence and collaboration scores were low. The *tailing-up* at Stage 6 also indicated that the teachers have different ideas which they view as more worthy than the innovation. It also suggests that these teachers may be resistant to change.

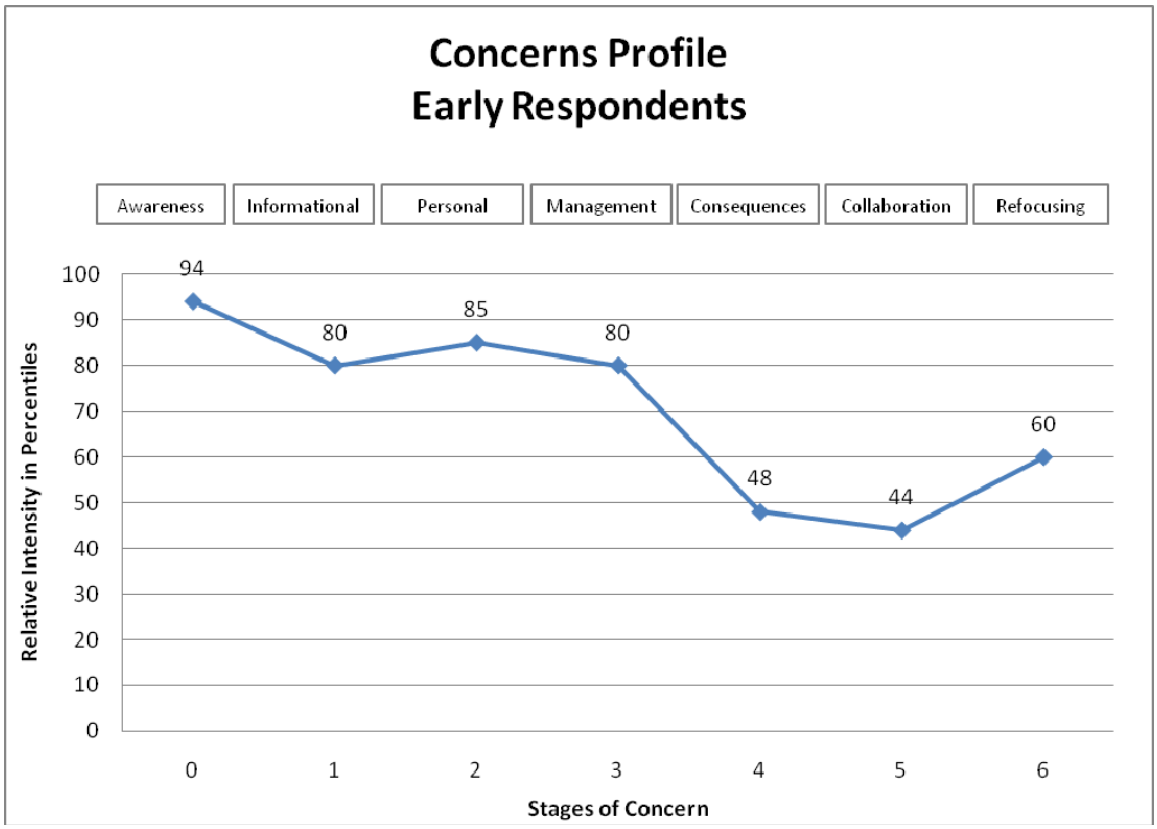

Figure 4-1. Concerns profile for early respondents (n=66)

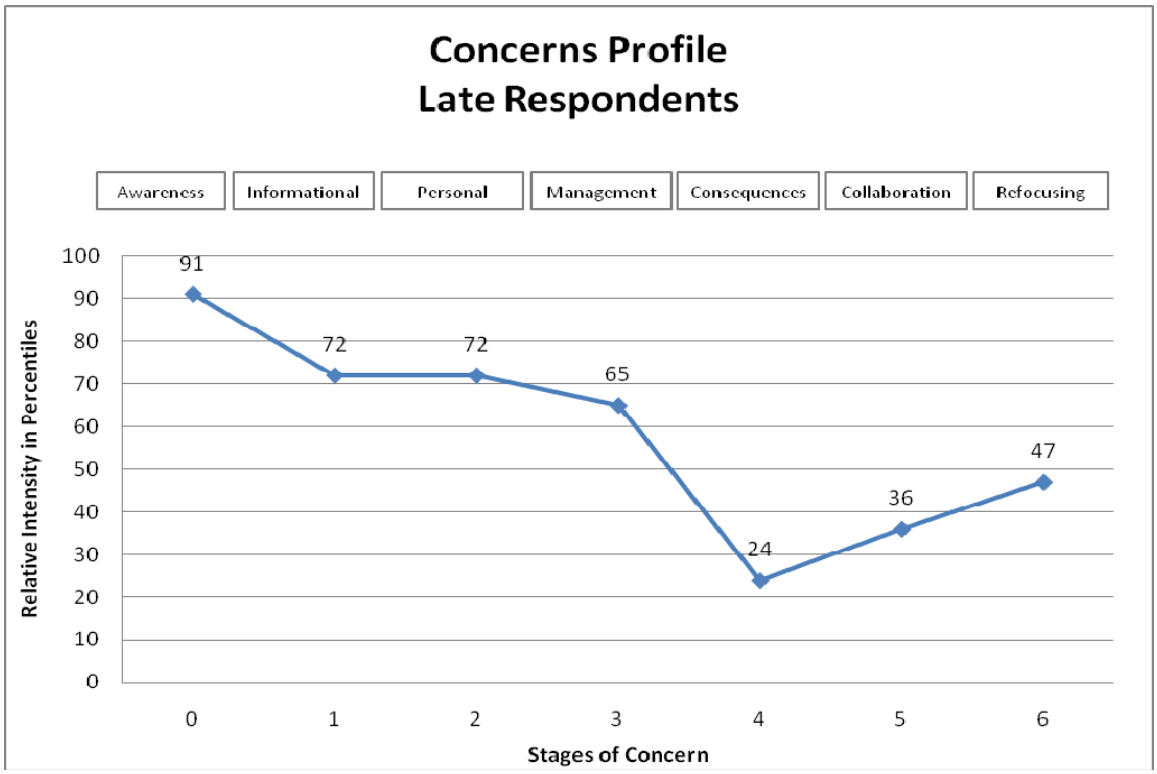

Figure 4-2. Concerns profile for late respondents (n=42)

The high Stage 0 score on the late respondents profile (Figure 4-2) indicated late respondents were not completely aware of the innovation and focused on other responsibilities. They showed some interest in learning more based on their Stage 1 and 2 scores. Management concerns were not great and they were least concerned about consequence. *The tailing-up* at Stage 6 indicated that the participants have ideas they think are superior to the innovation. Since this was a non-user profile with a *tailing-up* at Stage 6, it indicated a resistance to change.

Post hoc reliability was calculated using SPSS. Cronbach's Alpha tests were run for each Stage of Concern. The reliability results are outlined in table 4-1. Santos (1999) stated an alpha score of .7 or greater is acceptable. Although the reliability scores are a little low in Stages 0 and 1, the reliability scores are similar to other studies as illustrated in Table 4-2. Also, Stage 0 has been under revision to help improve the reliability (Hall & Hord, 2006; George et al., 2006).

Table 4-1. Post hoc reliability scores for each stage of concern (N=214)

Stage	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Alpha	.57	.67	.78	.78	.71	.78	.71

Table 4-2. Post hoc reliability scores for each stage of concern (George et al., 2006, p. 20)

		Stages of Concern						
Authors	n	0	1	2	3	4	5	6
Hall, George, & Rutherford, 1979	830	.64	.78	.83	.75	.76	.82	.71
Van den Berg, & Vandenberghe, 1981	1585	.77	.79	.86	.80	.84	.80	.76/ 73*
Kolb, 1983	718	.75	.87	.72	.84	.79	.81	.82
Barucky, 1984	614	.60	.74	.81	.79	.81	.79	.72
Jordan-Marsh, 1985	214	.50	.78	.77	.82	.77	.81	.65
Martin, 1989	388	.78	.78	.73	.65	.71/ 81	.83	.76
Hall, Newlove, Rutherford, & Hord, 1991	750	.63	.86	.65	.73	.74	.79	.81

Note, * In these studies, the authors proposed two subscales in place of the original SoC scale.

Demographics

The questionnaire contained 11 demographic questions. These demographic questions addressed age and gender, teacher experience, and innovation involvement.

Gender and Age

Of the respondents, 55.6% (n=85) were male and 44.4% (n=68) were female. Respondents were asked to report their age in the following categories: 21-30, 31-40, 41-50, 51-60, and > 60. Table 4-3 illustrates the age breakdown of the population. The age range with the greatest number of participants was 51-60 with 29.4 % (n=45). The age range with the least amount of participants was >60 with 5.9% (n=9).

Table 4-3. Ages of participants (n=153)

Age Range	*f*	%
51-60	45	29.4
21-30	38	24.8
41-50	33	21.6
31-40	28	18.3
> 60	9	5.9

Note. *f*=frequency.

Teaching Experience

Teachers reported their number of years teaching to be between 0 and 40 with a mean of 15.17 years. When teachers were asked if they have taught any subjects in addition to agriculture, 53.2% (n=82) responded yes, while 46.8% (n=72) responded no. Teachers who had taught other subjects specified the areas in which they had taught. Table 4-4 outlines the general subject areas in which teachers have taught in addition to agriculture. Science was the subject area which teachers had taught the most 96.2% (n=77).

Table 4-4. General subject areas agriscience teachers have taught (n=80)

Subject Area	*f*	%
Science	77	96.2
Math	14	17.5
Electives	12	15.0
Reading, English, and language arts	12	15.0
Social sciences	10	12.5
Health and physical education	8	10.0
Other	6	7.5

Note. *f*=frequency. % = > 100 due to teacher teaching in more than one area.

Teachers were also asked to identify the areas in which they have received certification. The highest number of certifications was in agricultural education and specialized agriculture with 29.5% (n=44), closely followed by science with 22.8% (n=34). Table 4-5 shows the areas of teacher certification.

Table 4-5. Teacher areas of certification (n=149)

Area	*f*	%
Agricultural education and specialized agriculture	44	29.5
Science	34	22.8
Special education and ESOL	10	6.7
Administration	7	4.7
Middle school integrated curriculum	7	4.7
Social sciences	6	4.0
Elementary	4	2.7
Health and physical education	4	2.7
Others	4	2.7
Math	3	2.0
Reading	2	1.3

Note. *f*=frequency. % = > 100 due to teacher holding multiple certifications.

Involvement in the Innovation

Participants were asked how long they have been involved with content area reading strategies, not counting this year. Of the responses, 48.4% (n=74) responded they had never been

involved with the innovation and 15.7% (n=24) responded they have been involved for five or more years. Table 4-6 illustrates the length of involvement in the innovation.

Table 4-6. Participants' length of involvement in the innovation (not counting current year) (n=153)

Number of Years	*f*	%
Never	74	48.4
1 year	14	9.2
2 years	17	11.1
3 years	13	8.5
4 years	11	7.2
5 or more years	24	15.7

Note. *f*=frequency.

When asked at which level of expertise the participant considered himself/herself to be, over 60% of the participants considered themselves to be non-users or novice users. Almost 40% considered themselves intermediate users or old hands. None of the respondents considered themselves to be a past user of the innovation. Table 4-7 indicates teachers' perception of themselves in their level of expertise with the innovation.

Table 4-7. Teachers perceptions of their expertise with CARS (n=153)

Perception	*f*	%
Non-user	51	33.3
Novice	45	29.4
Intermediate	43	28.1
Old hand	14	9.2
Past user	0	0.0

Note. *f*=frequency.

Participants were asked how often they have been incorporating CARS into their lesson. They could chose from the following options: 3-4 times a week, 1-2 times a week, 3-4 times a month, 1-2 times a month, or <1 per month. Respondents' replies indicated 16.3% (n=24) incorporated CARS 3-4 times a week. A third of the respondents (n=49) reported incorporating

CARS< 1 per month. Table 4-8 highlights the frequency with which teachers incorporated CARS into their lessons.

Table 4-8. Frequency teachers incorporate CARS into their lessons (n=147)

Frequency	*f*	%
3-4 times a week	24	16.3
1-2 times a week	46	31.3
3-4 times a month	15	10.2
1-2 times a month	13	8.8
< 1 per month	49	33.3

Note. *f*=frequency.

Concern profiles were developed based on teachers' frequency of use of CARS. Three profiles were created: weekly users (Figure 4-3), monthly users (Figure 4-4), and seldom and non users (Figure 4-5). Each of these profiles were *nonuser* profiles with a slight *negative one-two spilt*. The *negative one-two split* occurs when personal concerns are higher than informational concerns. This idicated that teachers were more concnerend about how the use of CARS would affect their position and job security than they were about learning more about the concern. Teachers with a *negative one-two spilt* may demonstrate resistance to the change. Their personal concerns need to be addressed for them to continue to progress through implementation. Weekly and monthly users had slightly higher instensity concerns than seldom and nonusers.

The major difference in these three profiles, was the direction of the tail of the graph at Stage 6. The weekly users score for Stage 6 was the same as their score for Stage 5, thus the profile neither tailed up or down. Monthly users had only a slight *tailing-up* of three points, which indicated that they have other ideas which may be competing with the innovation, but these ideas have not caused much resistance to the innovation. Seldom and nonusers have a *tailing-up* of 9 points. This indicated a resistance to the implementaiton of CARS.

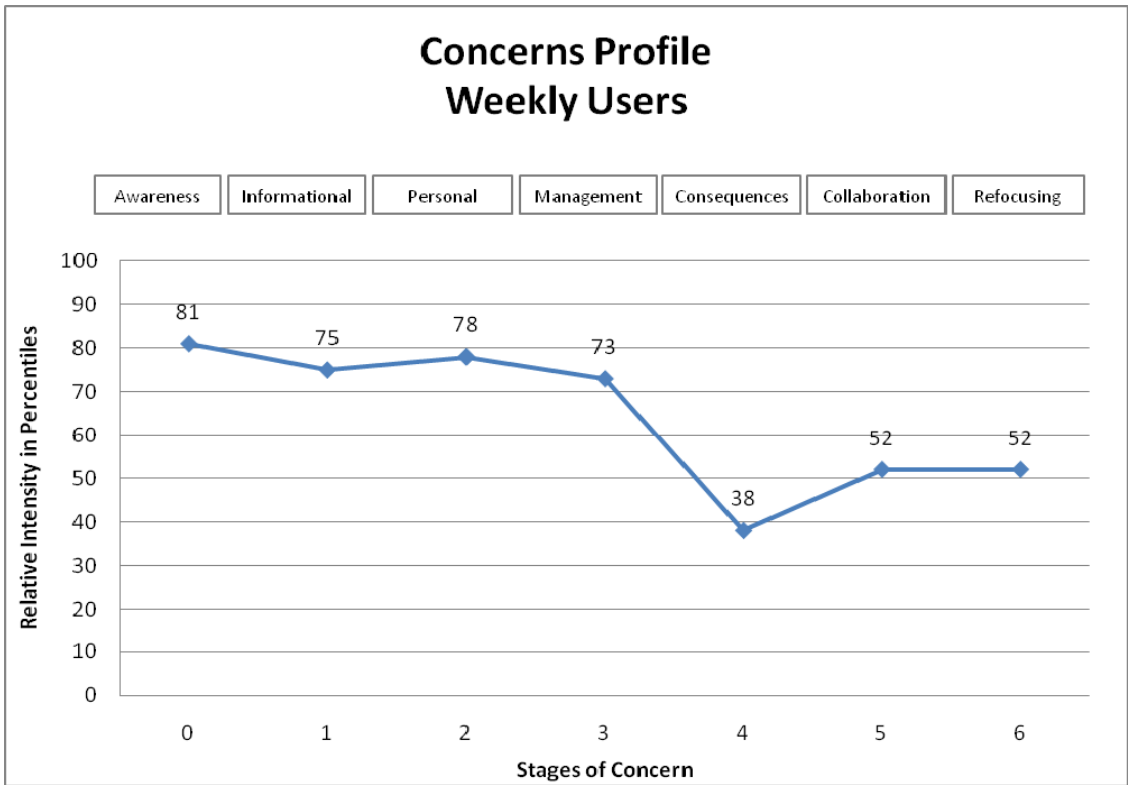

Figure 4-3. Concerns profile for teacher incorporating CARS into lessons on a weekly basis (n=83)

The weekly users profile (Figure 4-3) illustrated the highest concners were in Stage 0, awarness. Informational, personal, and management concerns were close and moderately high, between 73 and 78, with a very silght *negative one-two split*. Consequences concerns were the lowest. Both collaboration and refocusing concerns scored 52 in relative intensity.

The monthly users profile (Figure 4-4) illustrated the highest concerns were in Stage 0, awarness. Informational, personal, and management concerns were close and moderately high, between 72and 83. This profile showed the most darastic (11 percentile points) *negative one-two split* of the three frequency of use profiles. Consequences concerns were the lowest follwed by collaboration concerns and refocusing.

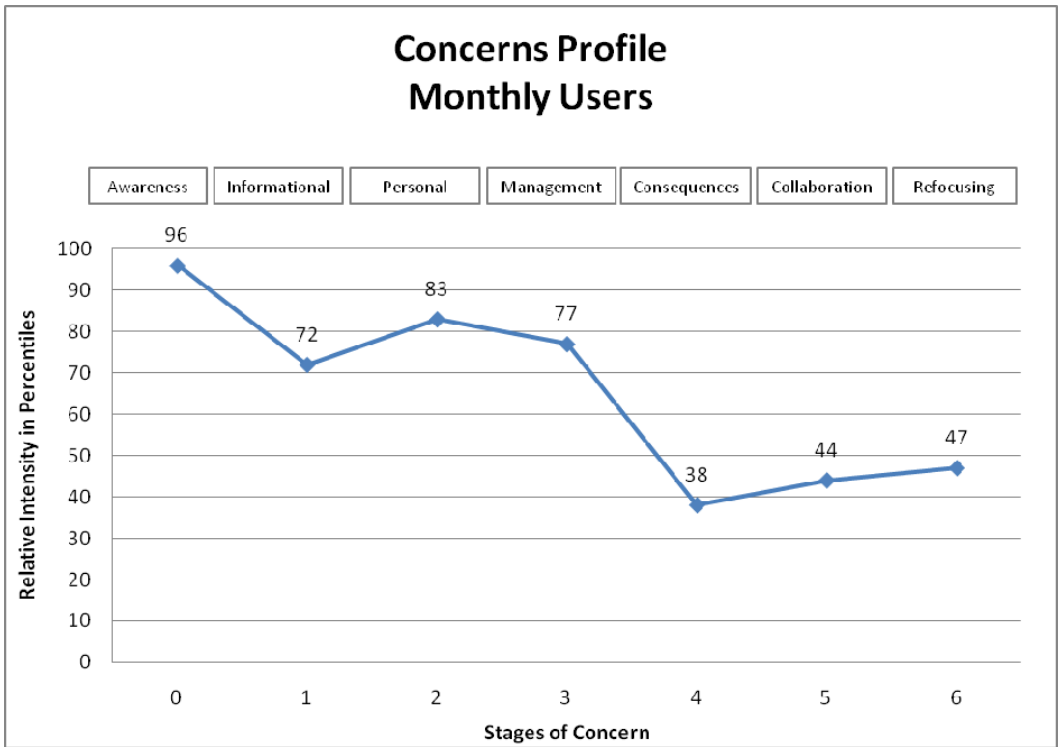

Figure 4-4. Concerns profile for teacher incorporating CARS into lessons on a monthly basis (n=30)

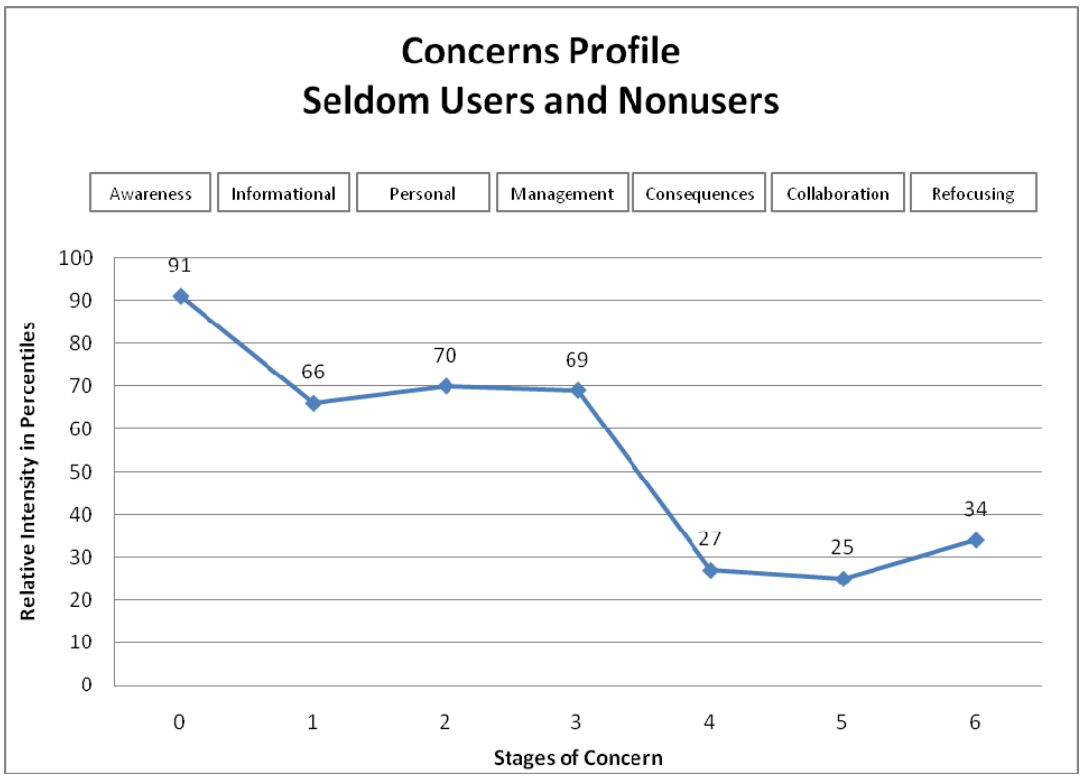

Figure 4-5. Concerns profile for teacher incorporating CARS into lessons on a seldom to never basis (n=50)

The seldom and nonusers profile (Figure 4-5) illustrated the highest concners were in Stage 0, awarness. Informational, persoanl, and management concners were close and somewhat high, between 66 and 70, with a very silght *negative one-two split*. Consequence and collaboration conserns were the lowest followed by refocusing concerns.

Participants were asked to rate their working relationship with the reading coach from their school on a scale from 1-5, where 1= very weak and 5= very strong. One-third of respondents indicated they had a weak or very weak relationship with the reading coach. Only about 26% (n = 39) or respondents considered their relationship to be strong or very strong, but two-thirds rated their relationship average or higher. Table 4-9 underscores agriscience teachers' relationship with their reading coach.

Table 4-9. Agriscience teachers' relationship with their reading coach (144)

Relationship	*f*	%
Very weak	26	18.1
Weak	22	15.3
Average	57	39.6
Strong	23	16.0
Very strong	16	11.1

Note. *f*=frequency.

Participants were asked if they have been currently involved in the first of second year of another major innovation or program. In response to this question, 55.6% (n=85) of the respondents indicated they were involved in the first or second year of another major innovation and 44.4% (n=68) of the respondents indicated they were not involved in the first or second year of another major innovation. These innovations focused on incorporating reading, science, math, technology, active learning strategies, and differentiated instruction in the classroom.

The teachers were asked what they believed to be the biggest barriers to CARS implementation in their school. Of the respondents, 5.4% (n=6) were unsure what barriers

existed. The number one barrier identified by the respondents was time (33.9%; n=38). Other barriers recognized included: other demands, training needs, planning and preparation, materials and resources, student interest and motivation, knowledge and confidence, paperwork, teacher motivation, financial burdens, lack of commitment/leadership, large class size, reading coach (or lack of), school policies/electives, curriculum, few certified, and lack of collaboration. Table 4-10 highlights the barriers the respondents identified.

Table 4.10. Teacher perceived barriers to school-wide CARS implementation (n=92)

Barrier	*f*	%
Time	38	41.3
None	15	16.3
Other demands	10	10.9
Training needs	8	8.7
Unsure	6	6.5
Planning and preparation	5	5.4
Materials/resources	4	4.3
Student interest and motivation	4	4.3
Knowledge and confidence	3	3.3
Paperwork	3	3.3
Teacher motivation	3	3.3
Financial burdens	2	2.2
Lack of commitment/leadership	2	2.2
Large class size	2	2.2
Reading coach (or lack of)	2	2.2
School policies/electives	2	2.2
Curriculum	1	1.1
Few certified	1	1.1
Lack of collaboration	1	1.1

Note. *f*=frequency. % = > 100 due to teachers identifying multiple barriers.

An overall concerns profile was developed to illustrate the concerns of the population as a whole regarding implementing CARS into the agriscience classroom. Figure 4-6 shows the overall concerns profile. The primary stage of concerns was *unconcerned* with a percentile score

of 91. Informational, personal, and management concerns were relatively high as well. The lowest SoC was consequences, followed by collaboration and refocusing respectively.

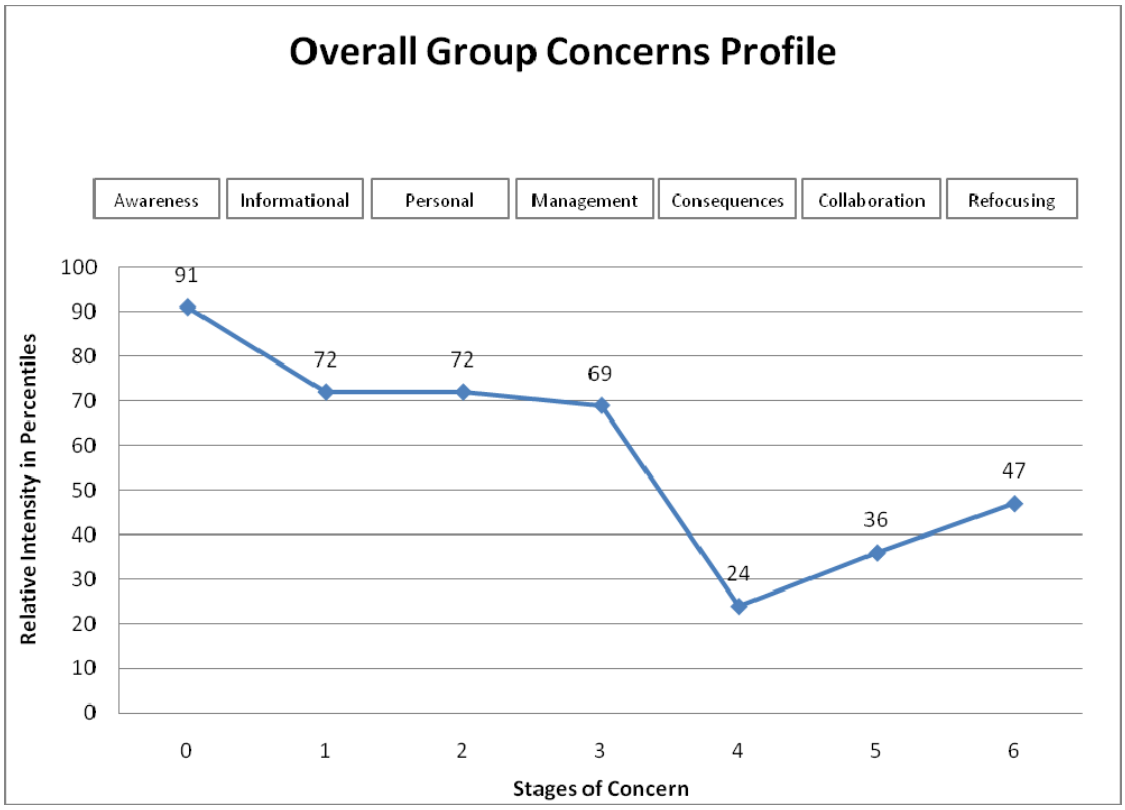

Figure 4-6. Overall CARS concerns profile (N=214)

Results by Objective

Objective 1

Objective: Ascertain agriscience teachers' CARS professional development history.

Teachers were asked to indicate their participation in a range of CARS professional development experiences, which included: pre-professional, continuing education, training with reading coach, school training, county training, Florida Reading Initiative training, or other training. Table 4-11 indicates the frequencies with which each type of professional development training was attended. The majority of teachers surveyed (75.9 % n=104) had participated in school training for CARS and at least half of the respondents had participated in continuing

education course work, pre-professional course work, county training, and personal reading coach training regarding CARS. Only about one fourth of the respondents had participated in Florida Reading Initiative training or other CARS professional development.

Table 4-11. Teacher participation in CARS professional development

Training	n	f	%
School	137	104	75.9
Continuing education	140	88	62.9
Pre-professional	144	81	56.3
County	133	73	54.9
Reading coach	142	75	52.8
Florida Reading Initiative	104	28	26.9
Other	96	26	27.1

Note. *f* = frequency.

Teachers were also asked to specify how many total hours they had devoted to each of the professional development experiences in which they had participated. Table 4-12 summarizes the range, mean, and standard deviation for the hours spent in each type of professional development. On average, teachers devoted the highest number of hours (M= 24.06, SD=13.00) to Florida Reading Initiative training. Teachers spent the fewest number of hours (M=14.43, SD=11.838) training with their reading coach.

Table 4-12. Number of hours teacher devoted to CARS professional development

Training	n	Min.	Max.	M	SD
Florida Reading Initiative	35	0	>30	24.06	13.00
Pre-professional	73	0	>30	22.51	12.75
Continuing education	88	0	30	21.30	11.65
Other	22	0	>30	20.14	13.28
County	72	0	>30	16.44	11.39
School	99	0	30	14.58	10.95
Reading coach	77	0	>30	14.43	11.89

Note. Min.=minimum; Max.=maximum.

The total number of hours participants reported in the different types of professional development programs were added to determine the total number of professional development hours. The mean total number of CARS professional development hours completed was 60.56 with a standard deviation of 52.20. The range was 312.

Objective 2

Objective: Determine the Stages of Concern of agriscience teachers who have completed a CARS professional development program.

A group concerns profile was developed for teachers who had reported receiving CARS professional development. Figure 4-7 illustrates the group concerns profile for teachers receiving professional development training. The primary SoC for the group concerns profile was Stage 0, *unconcerned*, with a 96 percentile score. The secondary SoC for this group was *management*, Stage 4, with an 80th percentile score. These teachers also had high concerns in the informational and personal stages. Their lowest SoC was consequences with a 33rd percentile score. Collaboration and refocusing scores for this group were around the 50th percentile.

One of the questions on the questionnaire asked participants to provide a concerns statement to the prompt: “Please briefly describe the concerns you have regarding the use of content reading strategies in your agriscience class.” The concern statements of teacher with CARS professional development training were analyzed to provide additional details of their concerns. From the participants who completed professional development, 104 concerns statements were completed.

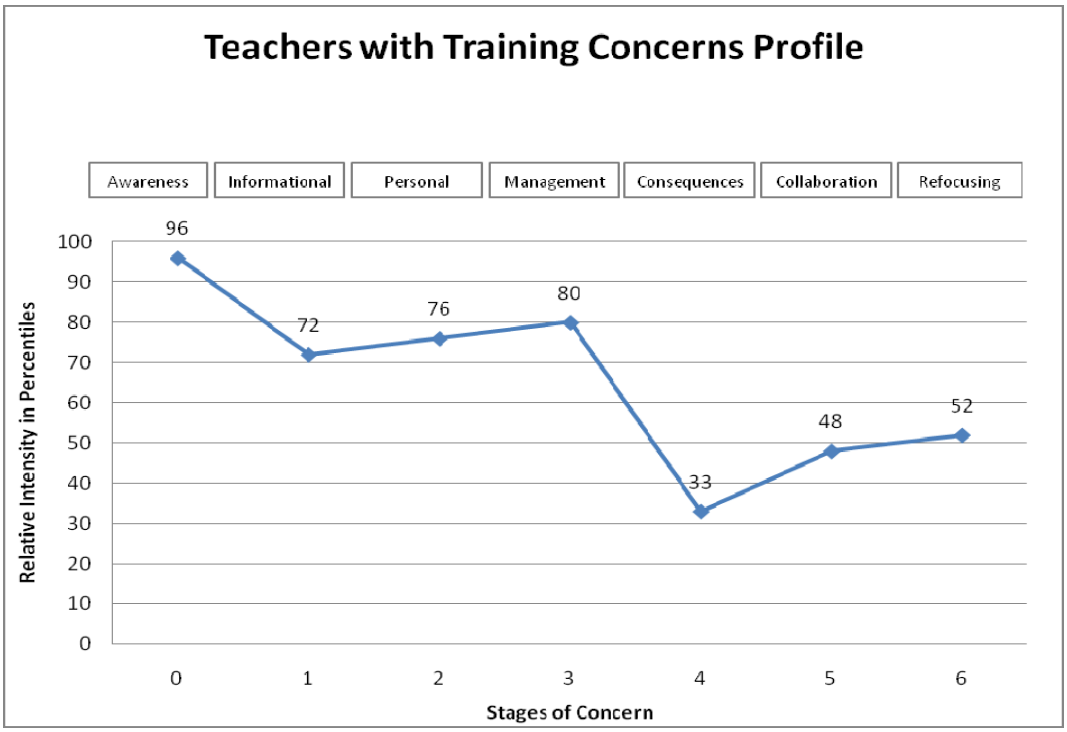

Figure 4-7. Group concern profile for teachers with CARS professional development experience (n=134)

Three concern statements simply said *none*. Twenty of these concern statements included awareness concerns. Five teachers indicated a lack of knowledge. One teacher admitted, “I am not familiar with them.” Another teacher responded, “...I have no idea what CARS [are].” Fifteen of the concerns statements indicated that teachers were focused on other obligations. For example, a teacher emphasized, “In today's classroom, we are shuffling from one innovation to another so quickly….” One teacher noted, “Being a busy teacher, I am concerned how much time implementing this new strategy will take from my other responsibilities.” Another teacher noted he/she had “other requirements and copious amounts of paper shuffling.” Yet another teacher wrote, “I am struggling to have time to do everything and a life too! SPS, FFA, Land Lab, Reading, etc.” Similarly, another teacher stated, “… I spend so much time preparing for teaching the other aspects of my classes.”

Fifteen of the concerns statements highlighted concerns in the informational stage in the areas of learning more information and receiving necessary training. Some teachers noted the desire and need to gain more information about CARS. One teacher said, “I think I have used types of the program, but I'm not sure what this all entails.” Another teacher’s statement read “No concerns, just want more definition, etc.” From the teachers who wanted to learn more, several expressed a need to learn about and find resources to help them. “Getting resources to implement it,” was one teacher’s concern. Another teacher wanted help, “finding appropriate materials for them to read concerning agriscience.” One teacher noted three resource related concerns, “where to find information, who to ask for help, [and] agriculture lesson plans with reading strategies.”

Some teachers highlighted concerns about training. A teacher stated, “I am concerned that we will not get enough in-service training and re-training to use this strategy properly.” One teacher stated, “I would like to know how to better use them in my classes.” Another teacher was more specific, “I would like some examples of how I could use this approach in my class.” Yet another teacher observed, “With any staff development, it is one thing to go through the training and quite another to implement. Many teachers have set ways of doing things and realistic time and training is needed.”

Only 6 concerns statements underscored personal concerns. One teacher admitted, “I do not feel that I understand how to use them well enough in my agriscience classes.” Another teacher expressed uncertainty over the roles he/she had in incorporating CAR into career and technology education courses.

> Usually the examples that are given in trainings do not relate to CTE courses. It sometimes is difficult to figure out how to use some strategies. I think a group of CTE teachers needs to put together examples of how to use the strategies in their courses.

Two teachers shared concerns about their status. For example one teacher was afraid if he or she focused on implementing CARS, “That my class will be used to dump students that have no interest in ag[riculture]. The school might use my class for all its discipline problems.”

Fifty-four concern statements addressed management concerns. These concerns were broken into smaller categories: scheduling and organizing, efficiency, other responsibilities, and time. Fifteen statements expressed scheduling and organization concerns. Planning was a common theme emerging from these concerns. Another teacher stated, “I am more concerned with variety of strategies than anything else. I don't want my students to get bored, but at the same time I want them to be able to count on the consistency of routine.” One teacher declared, “freedom to organize the content area reading myself.” One teacher expressed a need for “time to organize and implement strategies in between all of the other interruptions and expectations.” Finally another teacher said, “I know we all need to help with the reading scores, but the strategies need to be doable within the frameworks [of my goals for the agriculture program].”

Five teachers focused on the efficiency of instruction and resources in their concern statements. From the instructional standpoint, one teacher felt, “We need a standard that can be accepted by a majority of the state and county programs. This would simplify reading programs. Too many programs [exist,] and everyone is different.” Another teacher noted, “I have too many students (157) [with] too broad of a range of abilities. One size will not fit all.” From the resources perspective, one teacher wrote, “It is difficult to find non-textbook reading material that does not need to be printed. My school is currently in a severe paper shortage and any extra printing is difficult.”

Managing CARS with other responsibilities was discussed by four teachers in their concern profiles. One teacher mentioned, “These strategies take away from the class/lab time

devoted to a topic or a specific project." Similarly another teacher commented, "My time and energy are directed to teaching my subject area, that does include reading strategies, but, not to take away from what I do best."

Time was a major management concern underscored in 28 concern statements. Generally, teachers expressed concerns about time for implementation, training, creating lesson plans, course content, hands-on experience, and all other responsibilities. Specifically, teachers stated:

- "[My concern is] the excessive amount of time/training required to be CARS certified by our school district."
- "It does seem to use more time."
- "I find that a lot of time is required to formulate reading strategies that fit the ag[riculture] program in my classroom."
- "Time is my primary concern since I spend so much time preparing for teaching the other aspects of my classes."
- "There are times when it feels like we do not have enough time to cover our content. When you use reading for information and other reading strategies it increases time needed to teach a unit."
- "I am concerned about the continued increase in the amount of time spent on documentation that should be used preparing students for a career."

Forty four statements focused on consequences concerns. These concerns were distributed between the following categories: outcome, students' needs and interests, and effects on the agriscience program. Teachers highlighted both negative and positive outcomes. One teacher said, "In today's classroom, we are shuffling from one innovation to another so quickly that it is impossible to evaluate the effects and affects of each innovation." Another teacher commented, "Some strategies are used too often and the students become 'num[b]' to the effects." On the other hand, a teacher explained that CARS, "further enhanced the relevancy of my instruction for all students enrolled." One teacher noted, "…once a strategy is taught a teacher can rely on it for the duration of the term."Another teacher commended, "The strategies

mixed with hands-on student engagement and presentation activities allow reading to occur with a tangible and interesting end result for the students." One teacher describes how CARS have enhanced her class.

> I have found that by using reading strategies my students understand the material at a deeper level. If was difficult to make the change at first and determine what was going to work, but now using reading strategies is part of every lesson.

Twenty-six teachers emphasized concerns of students' needs and interests. The majority of statements concerning student needs discussed the challenge of reaching and engaging students on variety of reading levels. For example, "Classes are too diverse in academic achievement." Another teacher noted, "I have a mixture of highs and lows and I am worried that my high will lose interest when we use strategies that help the lows and vice versa." Another student need concern expressed, "My kids are not college bound and will rebel…at any approach that lessens hands on or the practical approach to learning." However, one teacher stated,

> Students come into our programs to enjoy and have fun in learning. I feel if we can use these strategies and innovations to further help and advance our students that they will be more receptive of the strategies since they will be used in an area of their interest. Anything we can do to help our students will be a step in the right direction.

One teacher noted the importance of reading, but was concerned about how the students would react, "Without a doubt, reading is the key to developing our students' ability to advance in the present age of technology. Selling this to the students is another thing." Another teacher shared, "Students are not motivated to read; period." One teacher stated, "The higher level readers have a negative attitude towards them." A teacher worried, "This may turn [agriculture] students off because this may take some enjoyment out of the agriculture class." Another teacher commented, "So many students are getting reading strategies in all their classes that they groan when talking about them. I want fun strategies that make life easier not more difficult."

Teachers had concerns about the effects CARS had on their programs. One teacher stated, “Too much emphasis [is] on CARs instead of the goals set for my program.” Another teacher said CARS were, “taking away even more time that the students could be learning hands on.” One teacher said, “Students see my class as too much like their core academic classes and don't sign up for it in as large of numbers because of the larger [amount] of ‘reading’ and strategies.” One teacher discussed the consequences of incorporating CARS and the consequences of not having students in the agricultural classes.

> I am slightly concerned with the fact that we will be accountable for the learning gain and feel this may take additional time from the curriculum to monitor, but the alternative is not to have the students in the very programs that make them productive citizens.

However, one teacher noted, “I have adapted the reading strategies to enhance comprehension and retention of the agriscience content.”

Seven concerns statements addressed collaboration concerns. Teachers discussed the importance of coordination and cooperation. One teacher explained, “We need to focus on getting everyone on the same exact page….” Another teacher suggested, “I think a group of CTE teachers needs to put together examples of how to use the strategies in their courses.” One teacher explained how she coordinated the use of CARS to meet her course content and structure. “I use them in daily lessons as they apply to what I am teaching. I do not use them just to do reading, it applies enough on a regular basis.”

Six teachers expressed refocusing concerns. One teacher who was actively implementing CARS said she was concerned about, “what lies ahead for content area reading instruction.” Three teachers discussed alternatives. One teacher noted, “Increasing student's interest in the material presented, industry journals with related curriculum topics seem to work better.” The second teacher called attention to the ever-changing innovations. “It seems to me every time we

turn around there is a new approach. If we stay around for any length of time there will be another one to use." The third teacher explained his/her experience with an alternative plan,

> A few years ago I submitted a plan to improve our students' reading and before I was able to begin to implement my plan, I was being "encouraged" to obtain all types of reading endorsements. I would have liked it much better if I would have been able to implement my reading plan.

Two teachers recommended major changes. One suggested, "With all the emphasis being on reading, I think students need other strategies to keep them focused. Reading will become a burden to them if used so frequently." The other teacher proposed, "an approach to enhance a seamless integration of CARS into content area instruction rather than as an add-on," be developed.

Objective 3

Objective: Determine the Stages of Concern of agriscience teachers who have not completed a CARS professional development program.

A group concerns profile was created for teachers reporting having no CARS professional development. Figure 4-8 shows the group concerns profile for teachers who reported not completing any professional development training. The primary SoC for this group was *unconcerned*, Stage 0, with a 91st percentile score. This concern was followed by *informational*, Stage 1, and *management*, Stage 4, both with an 88th percentile score.

The concern statements for this group of individuals were reviewed to provide more explanation of their concerns. Of the 11 teachers who had no CARS professional development training, only 6 completed concern statements. One of the teachers with no training identified "none" in the concerns statement. Two teachers identified informational concerns. One teacher noted, "I don't feel that I have enough information to make any comments." Another teacher

provided greater explanation of how he/she was incorporating reading in the content area, but admitted that he/she did not have know specifically what CARS were.

> We utilize newspaper clippings, Aged.net handouts, Land in the Sunshine (alumni book), small group reading with an aide and other items to work on reading in the content area. My apology, I really do not know anything specific about CARS and would read about it if you direct me to some items easy to research. It is hard to be negative or positive about cars with the limited knowledge I have. Again, we do work with students on reading...we also are pretesting each area we study, retesting and reviewing with anyone that does not make at least a "C" on a test.

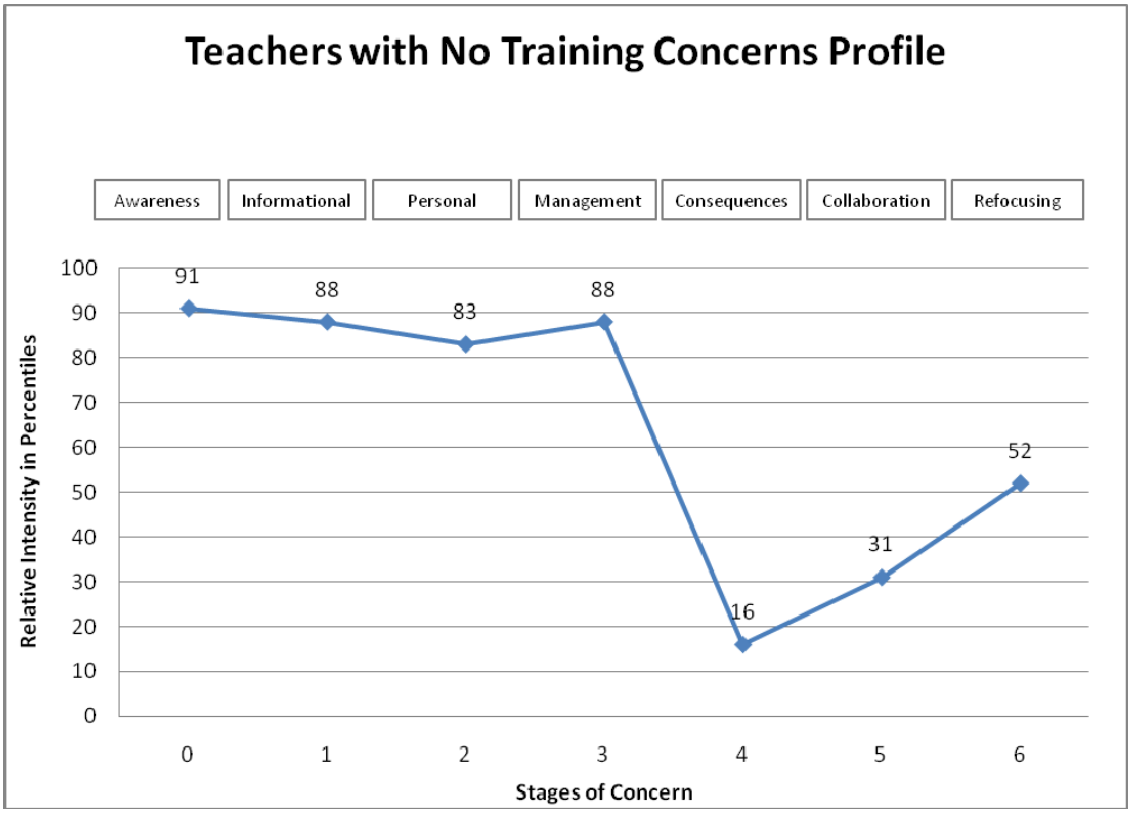

Figure 4-8. Group concerns profile for teachers without CARS professional development experience (n=12)

Two teachers highlighted management concerns in their concern statements. One stated, “Being a busy teacher, I am concerned how much time implementing this new strategy will take from my other responsibilities.” The other teacher mentioned that CARS “takes away hands on time.” One teacher identified consequence concerns of the innovation. When asked what concerns the individual had regarding CARS this teacher responded, “that my class will be used

to dump students that have no interest in ag[riculture] The school might use my class for all its discipline problems."

Objective 4

Objective: Determine the relationship between CARS professional development and Stages of Concern.

Stages of Concern Profiles were developed based on the number of professional development hours completed. The participants were broken into the following groups based on total number of CARS professional development hours: 0 (Figure 4-9), 1-10 (Figure 4-10), 11-20 (Figure 4-11), 21-30 (Figure 4-12), 31-40 (Figure 4-13), 41-50 (Figure 4-14), 51-60 (Figure 4-15), 61-70 (Figure 4-6), 71-80 (Figure 4-7), 81-90 (Figure 4-18), 91-100 (Figure 4-19), 101-110 (Figure 4-20), 111-120 (Figure 4-21), 121-130 (Figure 4-22), >130 hours (Figure 4-23), of CARS professional development.

Overall, a general pattern did not emerge from the profiles based on the amount of professional development they received. Each profile was characterized by a high relative intensity (88-99) in Stage 0, Awareness, with the exception of teachers with 81-90 hours of professional development. Of the 14 profiles developed, between 1 and >130 hours of professional development, 9 of them *tail-up*. The *tailing-up* indicates that teachers have other ideas which compete with the innovation. From the 9 profiles which *tail-up*, 6 of them increase more than 10 percentile points. Some of the profiles identified strong peaks, such as those with 61-70 hours of research (Figure 4-10) in management and those with > 130 hours (Figure 4-17) in collaboration.

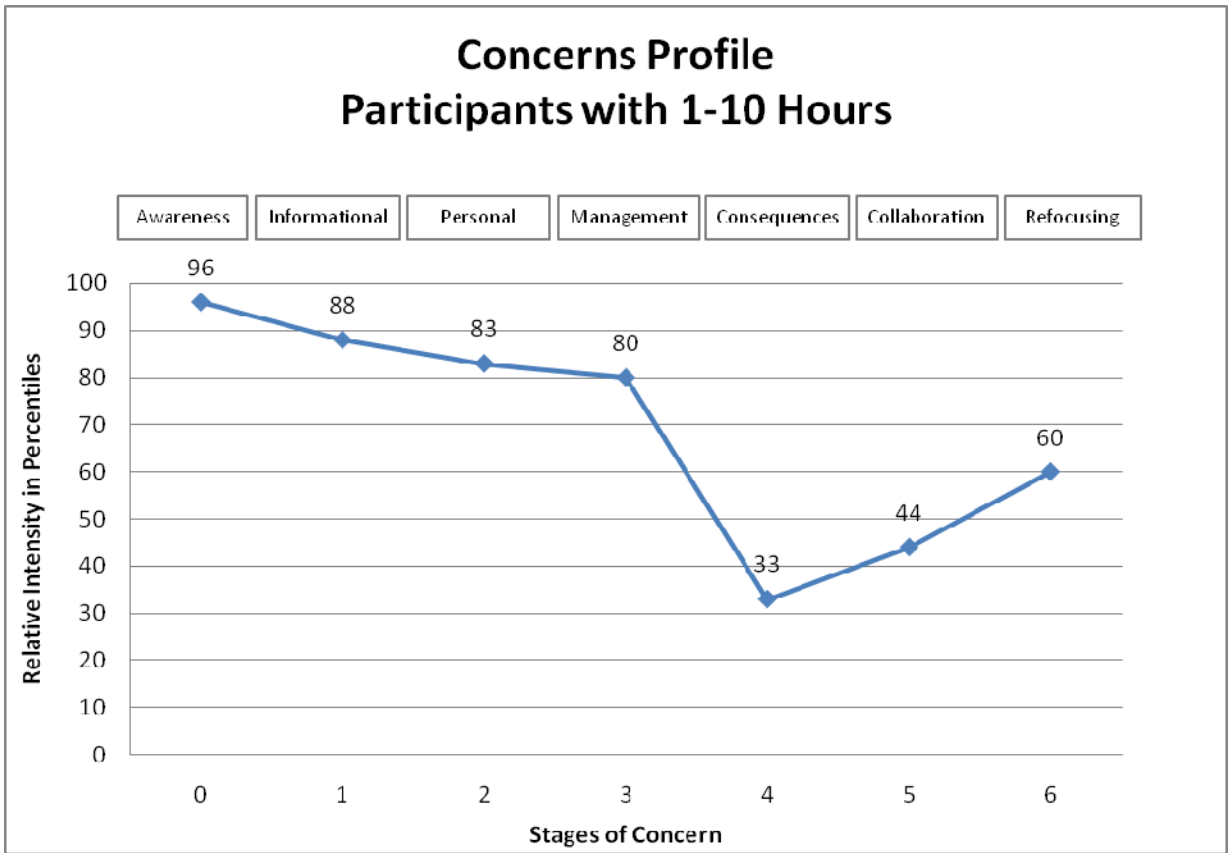

Figure 4-9. Concerns profile for teachers with 1-10 hours of CARS professional development (n=7)

The profile for teachers with 1-10 hours of professional development training (Figure 4-9) was a *nonuser* profile. Awareness concerns were highest. Informational, personal, and management concerns were high with relative intensity percentiles of ranging from 88-80 respectively. Consequence concerns were the lowest followed by collaboration concerns which were also relatively low. This profile showed a *tailing-up* of 16 percentile points at Stage 6. These teachers have other ideas which they consider more important, thus indicating resistance towards CARS.

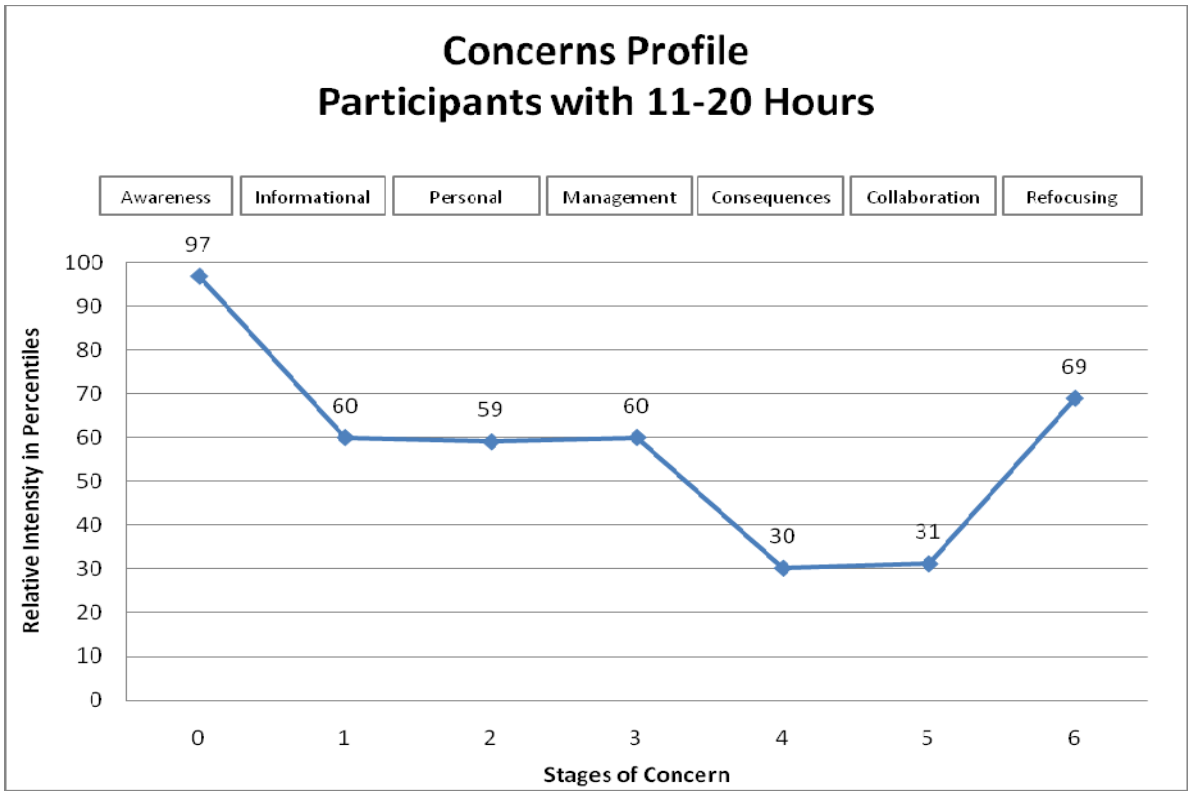

Figure 4-10. Concerns profile for teachers with 11-20 hours of CARS professional development (n=14)

The profile for teachers with 11-20 hours of professional development training (Figure 4-10) was a *nonuser* profile. Awareness concerns were highest. Informational, personal, and management concerns were essentially equal at the 60th, 59th, and 60th percentiles respectively. These scores were also comparatively low in reference to other profiles. Consequence and collaboration concerns were the lowest concerns with percentile scores of 30 and 31 respectively. This profile showed a *tailing-up* of 38 percentile points at Stage 6. These teachers have competing ideas which they consider to have more merit than CARS, thus indicating severe resistance towards CARS.

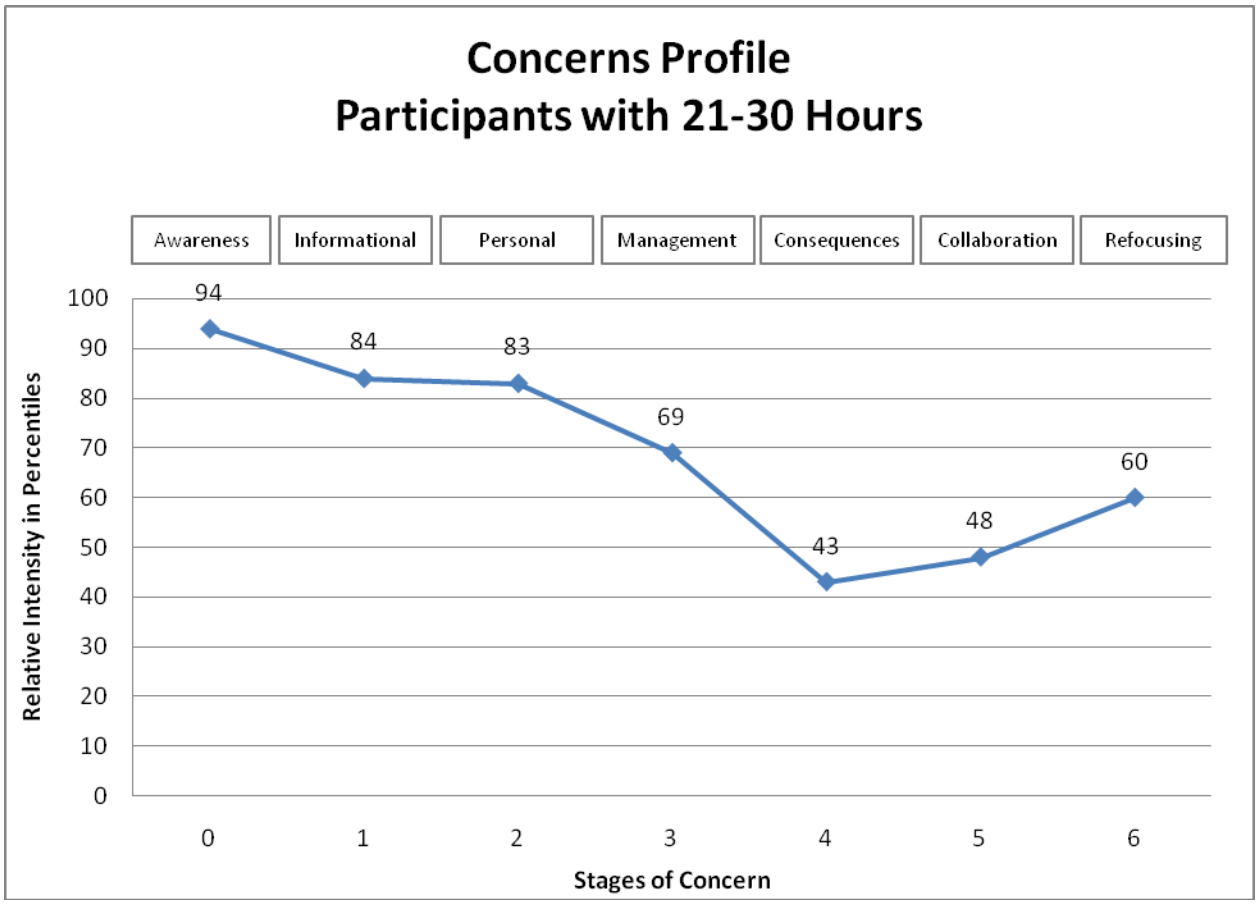

Figure 4-11. Concerns profile for teachers with 21-30 hours of CARS professional development (n=12)

The profile for teachers with 21-30 hours of professional development training (Figure 4-11) was a *nonuser* profile. Awareness concerns were highest. Informational and personal concerns were relatively equal around the 84th percentile level. These teachers only had somewhat high management concerns at the 69th percentile. Consequence concerns were the lowest closely followed by collaboration concerns. This profile showed a *tailing-up* of 12 percentile points at Stage 6. These teachers have other ideas which they consider to have greater merit, thus indicating strong resistance towards CARS.

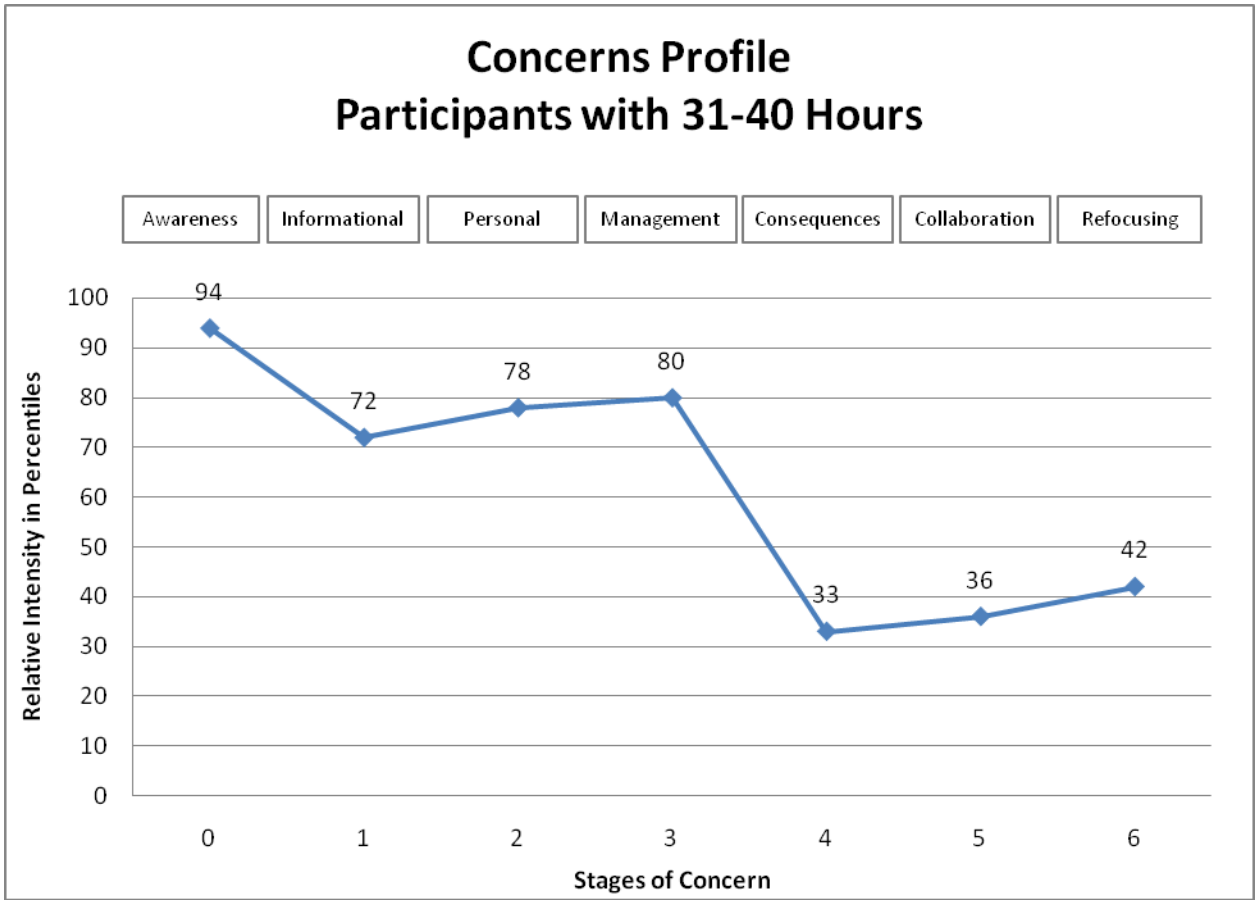

Figure 4-12. Concerns profile for teachers with 31-40 hours of CARS professional development (n=16)

The profile for teachers with 31-40 hours of professional development training (Figure 4-12) was a *nonuser* profile. Awareness concerns were highest. Informational and personal percentile scores were 72 and 78 respectively. This profile had a second peak at Stage 3 with an 80th percentile score for management concerns. A steep drop to the 33rd percentile score of consequences was represented. Collaboration concerns followed closely behind consequence concerns. This profile showed a *tailing-up* of 6 percentile points at Stage 6. These teachers have other ideas which they consider more important, thus indicating resistance towards CARS.

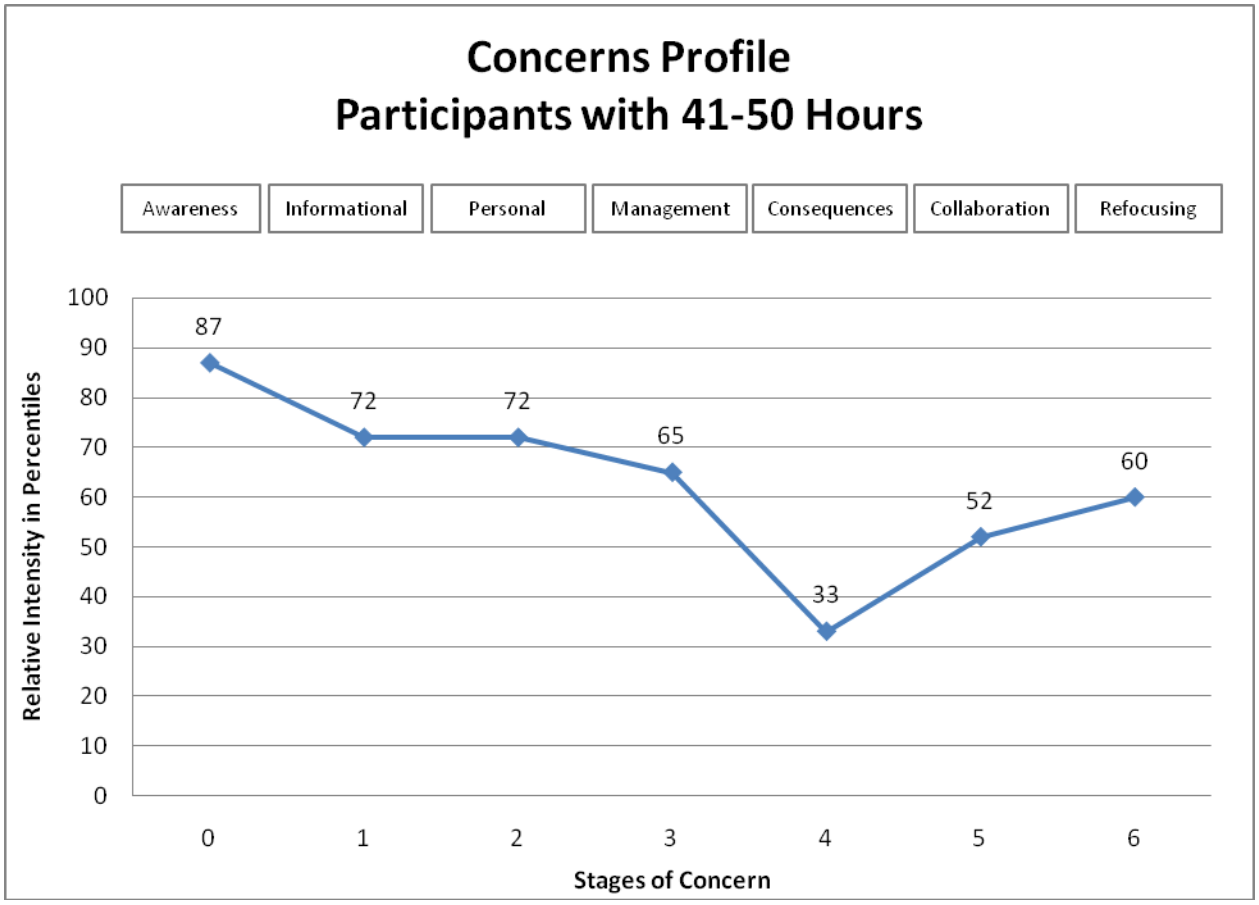

Figure 4-13. Concerns profile for teachers with 41-50 hours of CARS professional development (n=10)

The profile for teachers with 41-50 hours of professional development training (Figure 4-13) was a *nonuser* profile. Awareness concerns were highest. Informational and personal concerns were the second highest stages, each with a percentile score of 72.The management concerns were moderate at the 65th percentile. The consequence scores dropped to the 33rd percentile, but the collaboration scores climbed to the 52nd percentile. This profile showed a *tailing-up* of 8 percentile points at Stage 6. These teachers have other ideas which they consider more important, thus indicating resistance towards CARS.

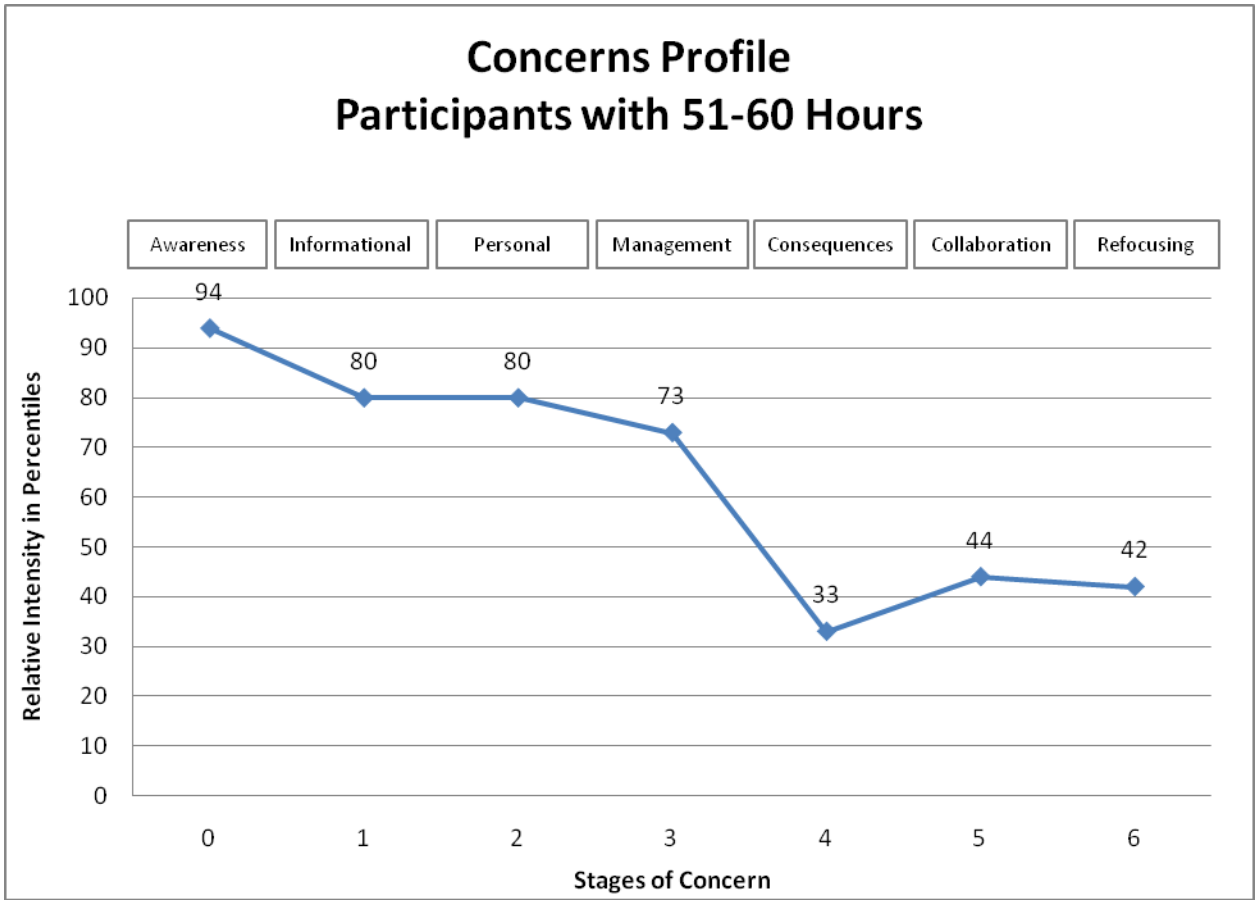

Figure 4-14. Concerns profile for teachers with 51-60 hours of CARS professional development (n=16)

The profile for teachers with 51-60 hours of professional development training (Figure 4-14) was a *nonuser* profile. Awareness concerns were highest. Informational and personal concerns were the second highest stages, each with a percentile score of 80. The management concerns were moderately high at the 73rd percentile. The consequence scores dropped to the 33rd percentile, but the collaboration scores climbed to the 44th percentile. This profile showed a *tailing-down* of 2 percentile points at Stage 6. These teachers do not have competing ideas which interfere with the implementation of CARS.

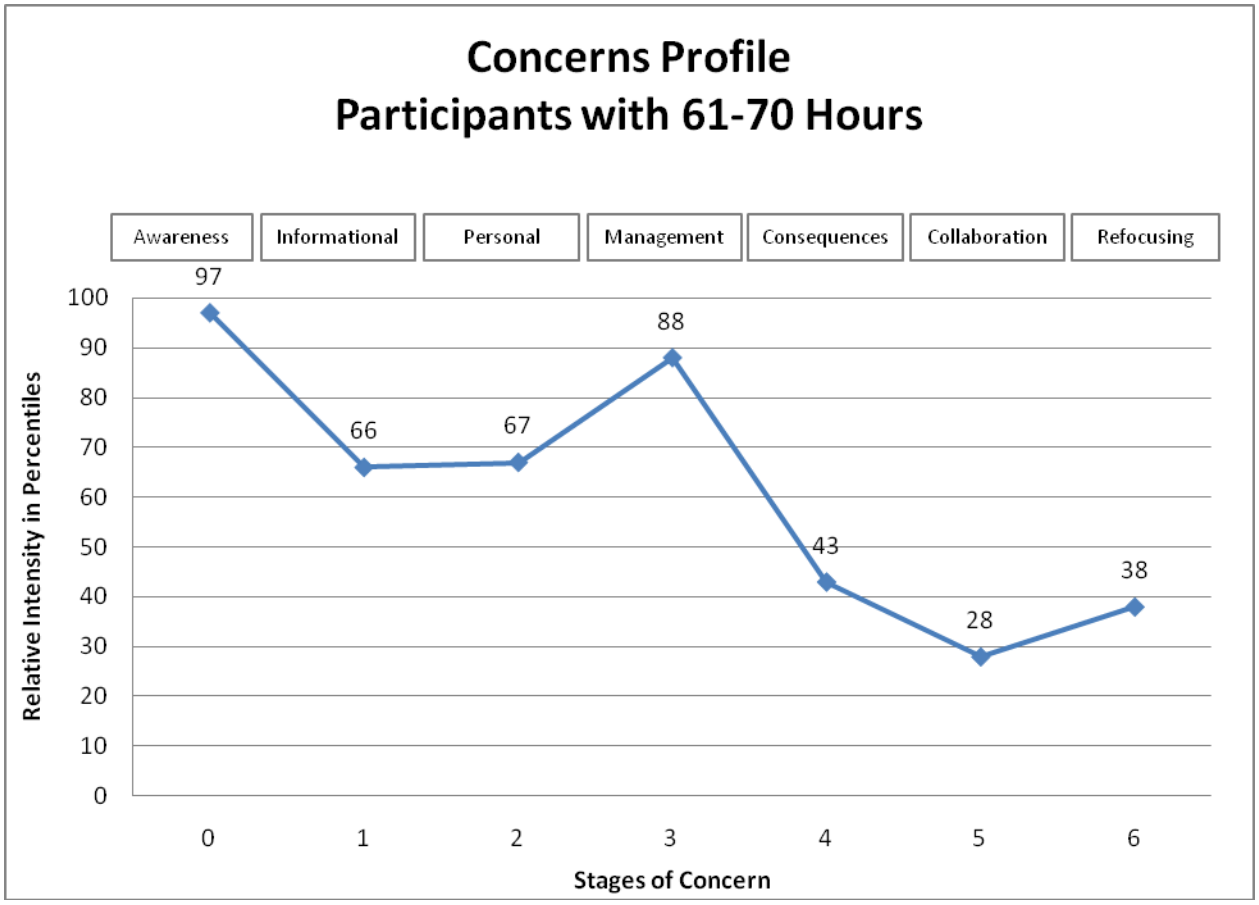

Figure 4-15. Concerns profile for teachers with 61-70 hours of CARS professional development (n=13)

The profile for teachers with 61-70 hours of professional development training (Figure 4-15) was a *nonuser* profile. Awareness concerns were highest. Informational and personal percentile scores were essentially equal at 66 and 67 respectively. This profile had a second peak at Stage 3 with an 88th percentile score indicating strong management concerns. A steep drop to the 43rd percentile score of consequences was represented. Collaboration concerns were the lowest at the 28th percentile. This profile showed a *tailing-up* of 10 percentile points at Stage 6. These teachers have other ideas which they consider more important, thus indicating resistance towards CARS.

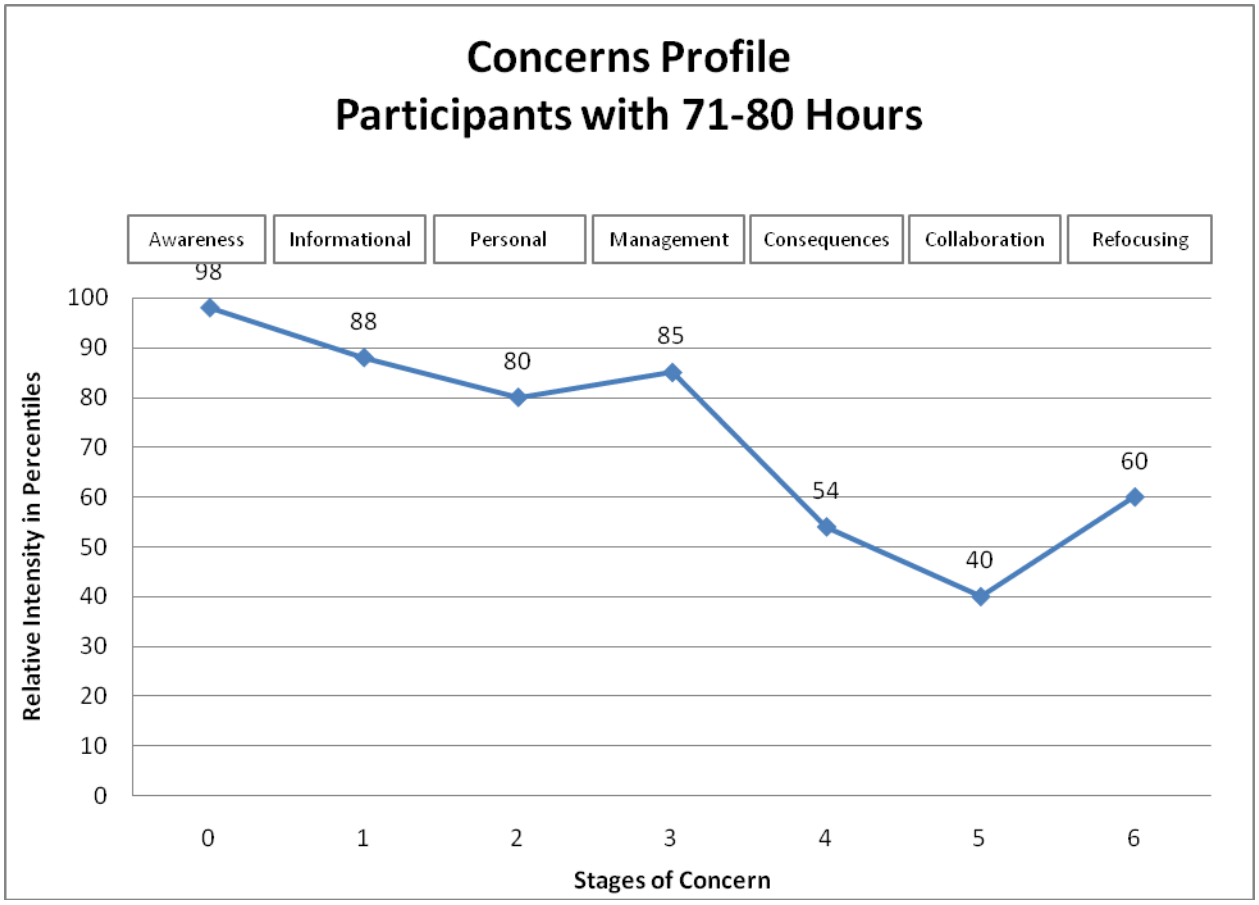

Figure 4-16. Concerns profile for teachers with 71-80 hours of CARS professional development (n=8)

The profile for teachers with 71-80 hours of professional development training (Figure 4-16) was a *nonuser* profile. Awareness concerns were highest. Informational, personal, and management concerns were high with relative intensity percentiles, 88, 80,and 85 respectively. Scores dropped to a 54th percentile score for consequences and a 40th percentile score for collaboration. This profile showed a *tailing-up* of 20 percentile points at Stage 6. These teachers have competing ideas which they consider more important, thus indicating a strong resistance towards CARS.

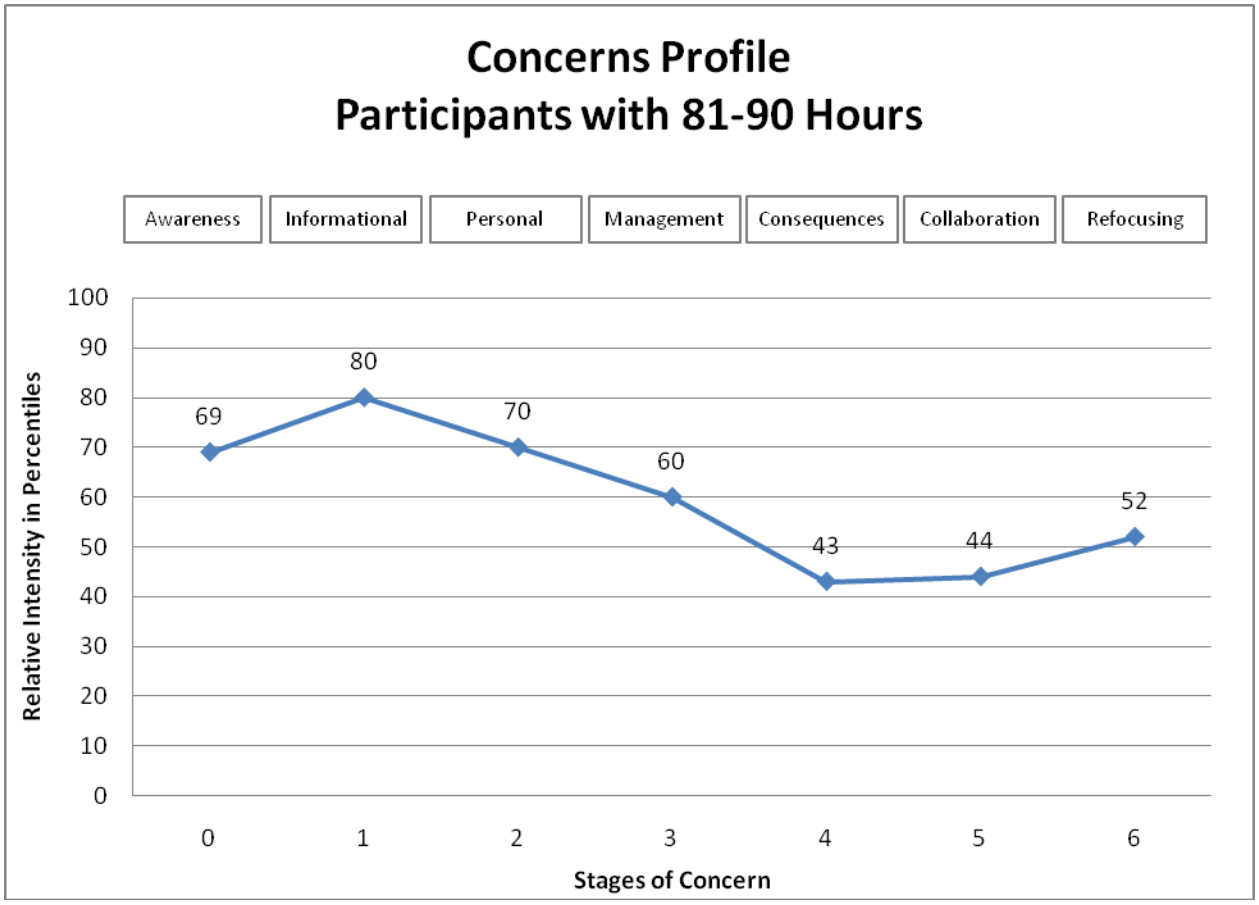

Figure 4-17. Concerns profile for teachers with 81-90 hours of CARS professional development (n=8)

The profile for teachers with 81-90 hours of professional development training (Figure 4-17) was a *nonuser* profile. Awareness concerns were moderately high; however, this is one of two profiles where Stage 0 is not the highest stage. Informational concerns are the highest at the 80th percentile. A steady decline of approximately 10 percentage points exists through personal, management, and consequence concerns. Collaboration concerns increase slightly from consequence concerns. This profile showed a *tailing-up* of 8 percentile points at Stage 6. These teachers have other ideas which they consider more important, thus indicating resistance towards CARS.

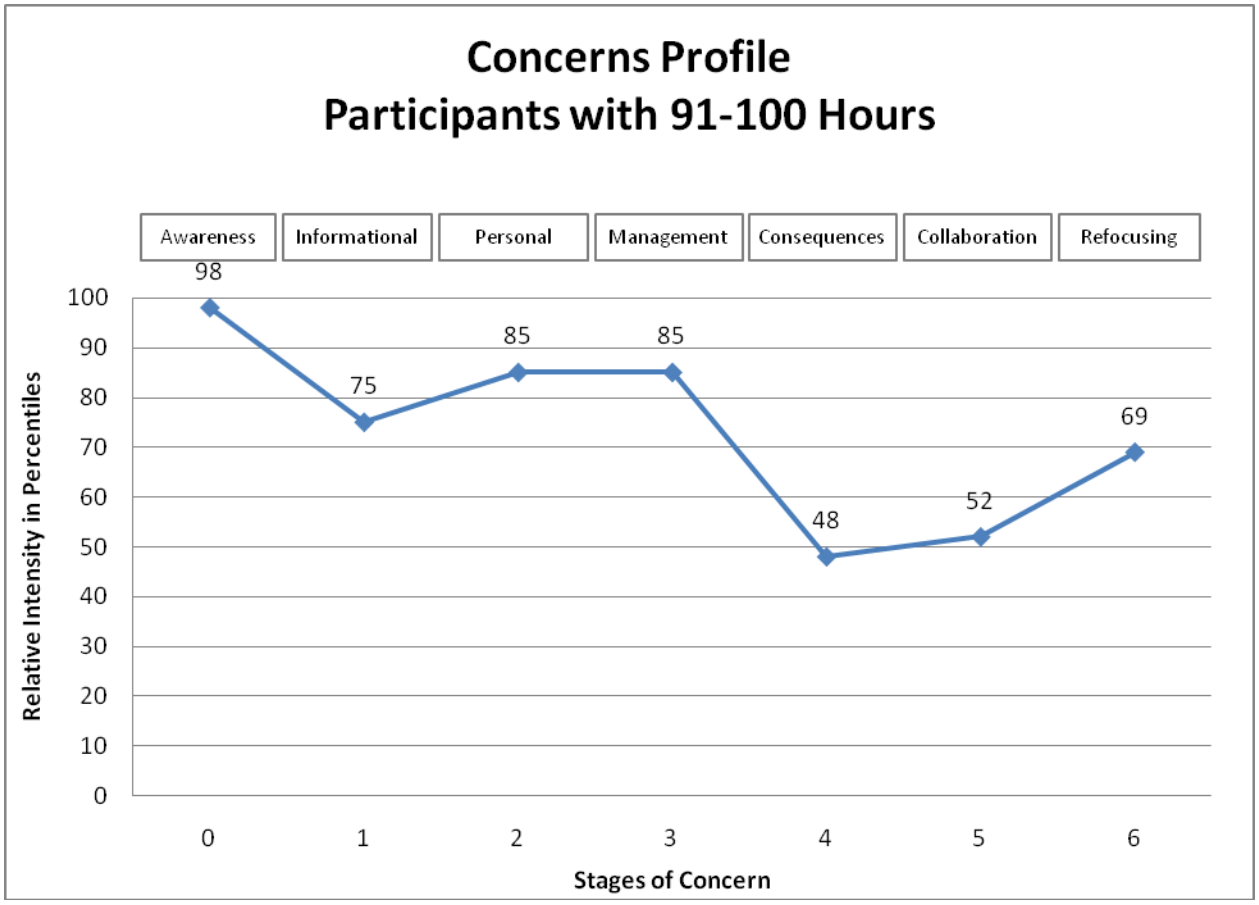

Figure 4-18. Concerns profile for teachers with 91-100 hours of CARS professional development (n=9)

The profile for teachers with 91-100 hours of professional development training (Figure 4-18) was a *nonuser* profile. Awareness concerns were highest (98th percentile). Informational concerns dropped 23 percentile points. Personal and management concerns tied for the second highest Stages of Concern at the 85th percentile. Consequence concerns were the lowest followed by collaboration concerns which were also relatively low. This profile showed a *tailing-up* of 17 percentile points at Stage 6. These teachers have other ideas which they consider to have more merit, thus indicating strong resistance towards CARS.

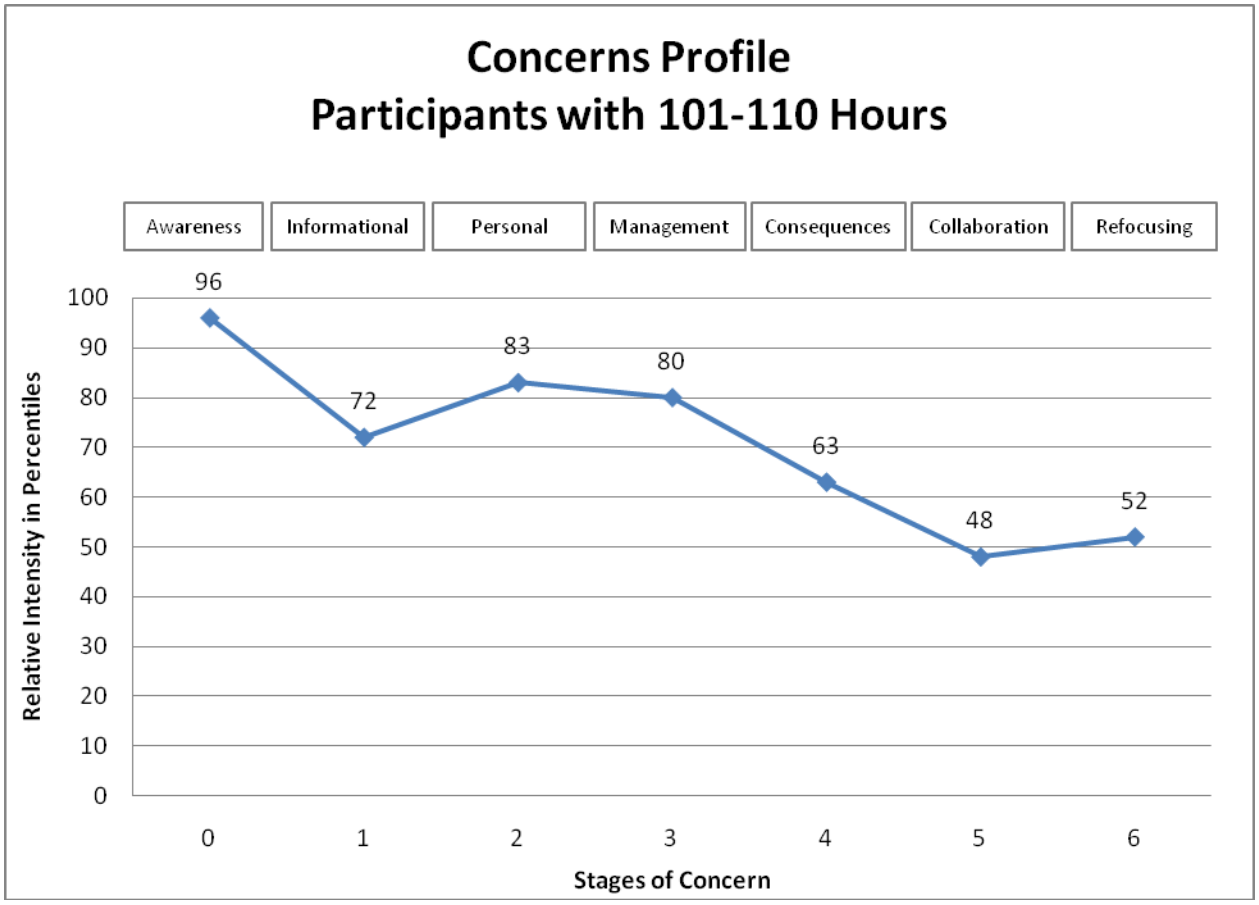

Figure 4-19. Concerns profile for teachers with 101-110 hours of CARS professional development (n=4)

The profile for teachers with 101-110 hours of professional development training (Figure 4-19) was a *nonuser* profile. Awareness concerns were highest. This profile had a slight *negative one-two split*. Personal concerns (83rd percentile) score above informational (72nd percentile) and management (80th percentile). Consequence concerns were moderate (63rd percentile) and collaboration scores were the lowest (48th percentile). This profile showed a *tailing-up* of 4 percentile points at Stage 6. These teachers have other ideas which may compete with CARS, thus indicating a possible resistance towards CARS.

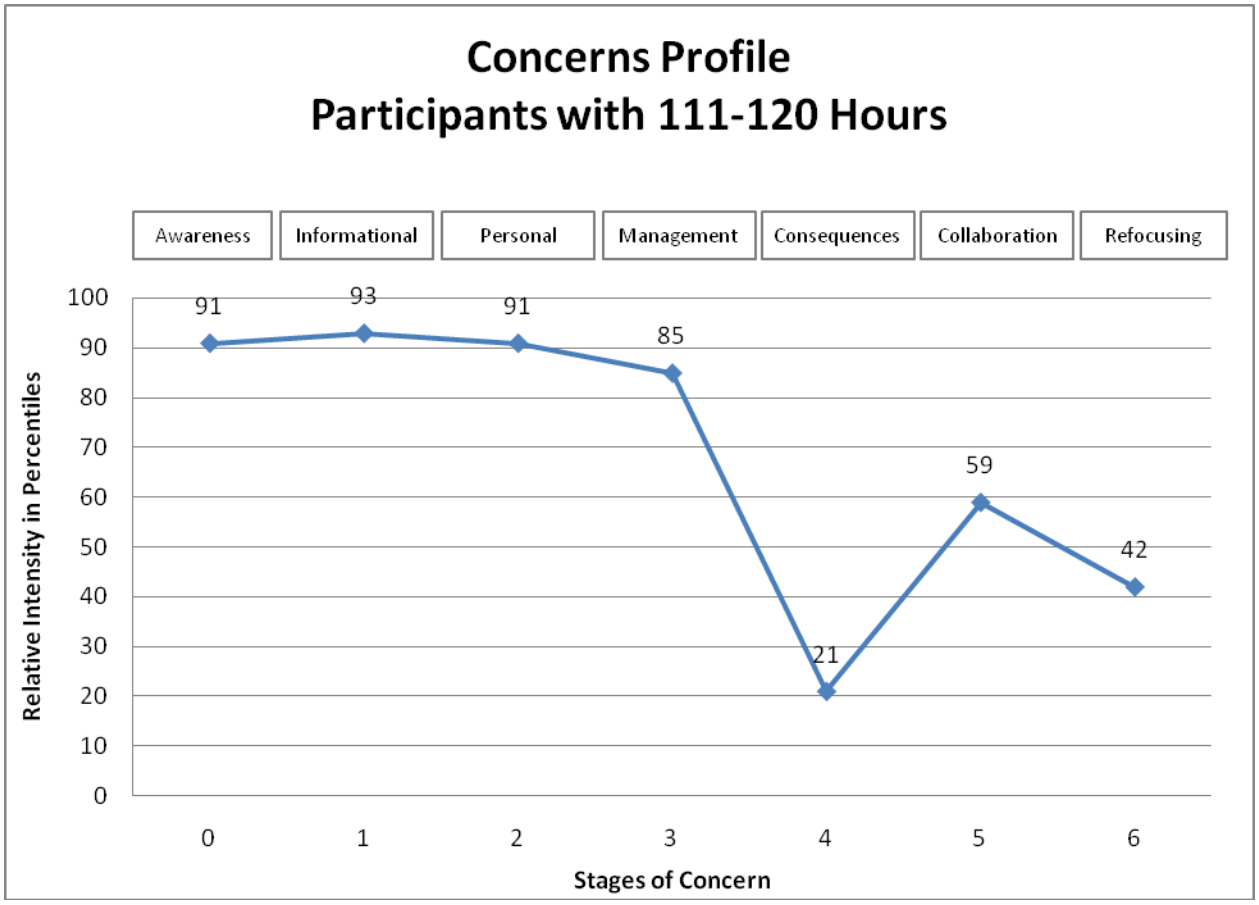

Figure 4-20. Concerns profile for teachers with 111-120 hours of CARS professional development (n=3)

The profile for teachers with 111-120 hours of professional development training (Figure 4-20) was a *nonuser* profile. Although awareness concerns were high, this is one of two profiles where Stage 0 was not the highest Stage of Concern. Informational, personal, and management concerns were high with relative intensity percentiles of ranging from 93-85 respectively. Consequence concerns were the lowest (21st percentile). Collaboration concerns increased to a moderate lever (59th percentile). This profile showed a *tailing-down* of 17 percentile points at Stage 6. These teachers do not have competing ideas which interfere with the implementation of CARS.

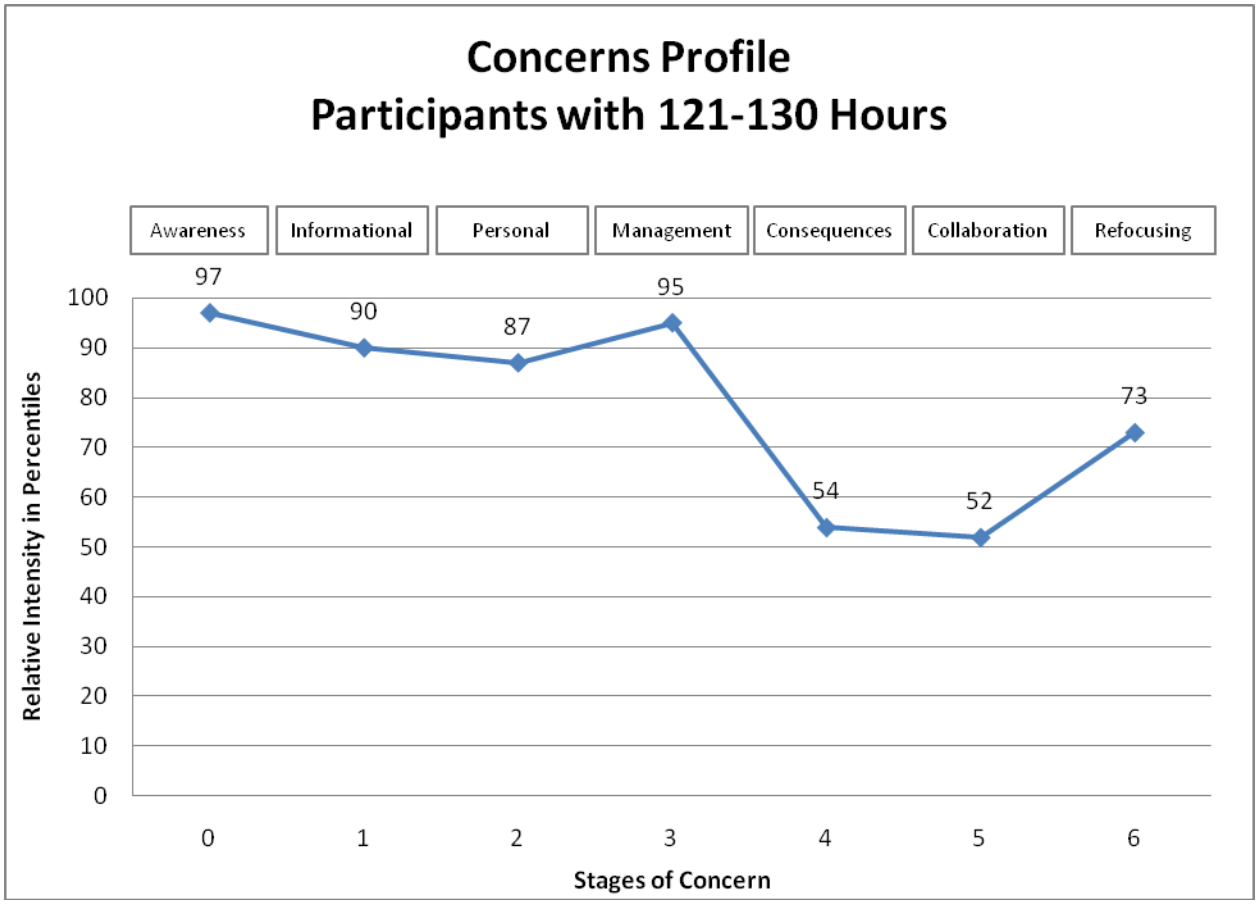

Figure 4-21. Concerns profile for teachers with 121-130 hours of CARS professional development (n=6)

The profile for teachers with 121-130 hours of professional development training (Figure 4-21) was a *nonuser* profile. Awareness concerns were highest. Informational, personal, and management concerns were all high with a second peak (95th percentile) at Stage 3.Consequence concerns were moderate (54th percentile) and collaboration scores were the lowest (52nd percentile). This profile showed a *tailing-up* of 21 percentile points at Stage 6. These teachers have competing ideas which may compete with CARS, thus indicating a strong resistance towards CARS.

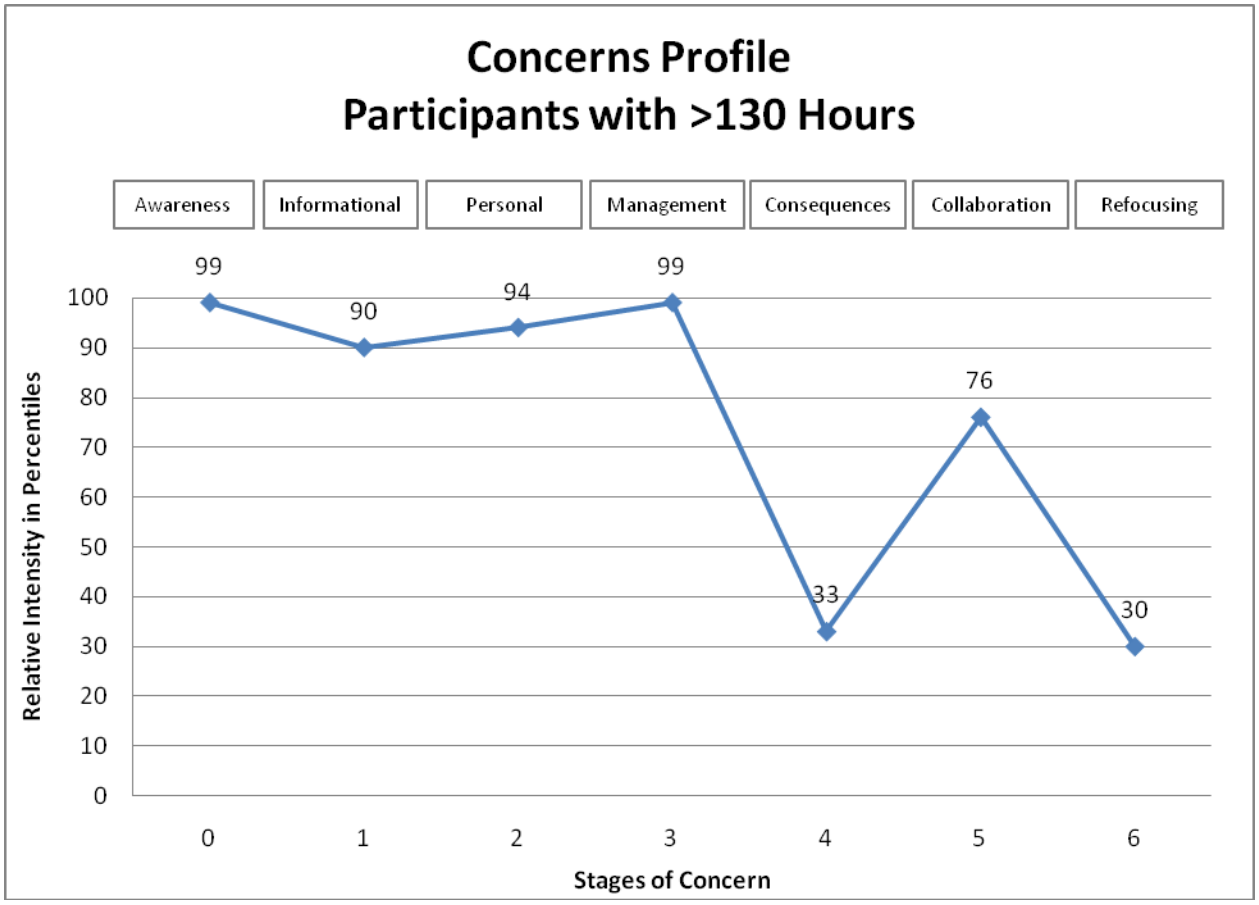

Figure 4-22. Concerns profile for teachers with >130 hours of CARS professional development (n=12)

The profile for teachers with >130 hours of professional development training (Figure 4-22) was a *nonuser* profile. Awareness and management concerns were highest. Informational concerns were also very high in relative intensity. An extreme drop to consequence concerns, the lowest(33rd percentile) stage, existed. Collaboration concerns were moderately high (76th percentile). This profile showed a *tailing-down* of 46 percentile points at Stage 6. These teachers do not have competing ideas which interfere with the implementation of CARS.

Primary Stage of Concern

George, Hall, and Stiegelbauer (2006) suggested analyzing the primary Stage of Concern of participants. Frequencies were run on the primary Stage of Concern. Additionally, correlations

were calculated to identify the degree of the relationship between demographic variables and the primary Stage of Concern.

Frequencies

Frequencies were calculated on the primary Stage of Concern for participants. Table 4-13 summarizes the frequencies of the primary Stage of Concern. The majority of participants' (51.3%, n=96) primary Stage of Concern was in the awareness stage, Stage 0. Stage 2, personal, was the second primary stage of concern for the group with 15.5% (n= 2). Stage 3, management, followed closely with 15.0% (n=28). Stage 1, informational, was also close with 12.3% (n=23). Stage 5, collaboration, (3.7% n=7) and Stage 6, refocusing, (1.9% n=4) were the primary stages of concern for the least amount of participants. Zero percent (n=0) of the participants had a primary stage of concern in Stage 4, consequences.

Table 4-13. Primary Stage of Concern frequencies (n=187)

Primary Stage of Concern	*f*	%
Stage 0 – Awareness	96	51.3
Stage 2 – Personal	29	15.5
Stage 3 – Management	28	15.0
Stage 1 – Informational	23	12.3
Stage 5 – Collaboration	7	3.7
Stage 6 – Refocusing	4	1.9
Stage 4 – Consequences	0	0.0

Note. *f* = frequency.

Correlations

Correlations were calculated to determine the magnitude and direction of the relationship between demographic variables and the primary Stage of Concern. Correlations between variables with ordinal data were calculated using Spearman's rho. Table 4-14 provides each variable and its correlation coefficient. All of the correlations were determined to be positive with the exception of frequency of incorporating CARS, past teaching experiences, and current

involvement in other innovations which were determined to be negative correlations. Table 4-5 defines Davis's categories for describing a magnitude of a correlation which have been used to describe the correlations in this study.

Teachers perceived level of expertise had a moderate correlation coefficient above 0.30. Frequency of incorporating CARS and relationship with the reading coach had low correlation coefficients between 0.10 and 0.29. Current involvement in other innovations, number of years teaching, and gender had negligible correlation coefficients between 0.01 and 0.09.

Table 4-14. Spearman's rho correlation coefficient between demographic variables and primary Stage of Concern

Demographic	n	r
Perceived level of expertise	153	.30
Frequency of incorporating CARS	147	-.29
Length of involvement with CARS	153	.26
Relationship with reading coach	144	.20
Age	153	.18
Past teaching experiences	154	-.14
Current involvement in other innovations	148	-.09
Number of years teaching	152	.09
Gender	153	.07

As the perceived level of expertise, relationship with the reading coach, age of the participant, and number of years teaching increase, the primary Stage of Concern tended to increase. The primary Stage of Concern decreased as the frequency of incorporating CARS tended to increase. Dummy code was used to code nominal data to run correlations. Teachers were asked if they had taught subjects other than agriculture, those who responded yes (1), were more likely to have a higher primary Stage of Concern for CARS than those who replied no (2). Teachers who were currently involved in other in the first or second year of another major innovation (1) tended to have a lower primary Stage of Concern than those who were not

involved in the first or second year of another innovation (2). Males (1) tended to have a higher primary Stage of Concern than females (2).

Table 4-15. Davis's categories for describing a magnitude of a correlation.

r	Adjective
1.0	Perfect
0.70-0.99	Very High
0.50-0.69	Substantial
.030-0.49	Moderate
0.10-0.29	Low
0.01-0.09	Negligible

Summary

This chapter presented the results gathered from the online survey of agriscience teachers' concerns regarding CARS. The research reported frequency statistics calculated with SPSS to provide demographic information which explained the population in terms of age and gender, teaching experience, and involvement with the innovation. Both males and females were equally represented in this population. The population was evenly distributed throughout the ages of 21-60 with few teachers in the > 60 age category.

The agriscience teachers averaged 15 years of experience. Nearly half of them had taught subjects other than agriscience. Although a variety of other subjects were reported, science was the other subject area reported most often. The teachers also reported being certified in a diverse field of certifications.

Frequency statistics were reported on teachers' length of involvement with the innovation, perceived level of expertise, frequency of use, relationship with the reading coach, involvement with other innovations, and barriers of implementation. Nearly half of the teachers reported never being involved with the innovation previous to the current year, while only about 16 %

reported being involved for 5 or more years. One third of the respondents rated themselves as a non-user of CARS, but none of the reported themselves as past users. Almost half of the teachers reported using CARS on a weekly basis; however a third of them reported using CARS less than once per month. A third of the respondents reported having weak or very weak relationships with their reading coach, about a quarter considered their relationship to be strong or very strong, and the remainder reported an average relationship with the reading coach. Over half of the participants reported currently being involved in the first two years of another innovation. Time, other demands, and training needs emerged as the top three barriers for school-wide implementation of CARS.

Additionally, an overall group Stages of Concern profile was developed. This profile showed a high primary Stage of Concern in Stage 0, awareness. Concerns in the informational, personal, and management stages also scored relatively high. Consequence concerns were the lowest.

The findings of each objective were addressed separately. Agriscience teachers' CARS professional development history was reported with frequency and central tendency statistics. At least one quarter of the participants had completed each type of CARS training. Over three quarters of the participants attended professional development programs delivered by the school. In total, teachers spent an average of 60.56 hours in CARS professional development. A concerns profile was developed and concerns statements were analyzed to provide information on agriscience teachers' Stages of Concerns for teachers who had completed CARS professional development and for those who had not completed CARS professional development. Both profiles resembled non-user profiles. Concern profiles were also developed for groups based on the number of hours of professional development they had completed. No patterns to these

profiles emerged. Finally, frequencies of the Primary Stage of Concern and correlations between the Primary Stage of Concern and demographic variables were calculated.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Introduction

Purpose and Objectives

The purpose of this research was to assess agricultural educators' implementation of content area reading strategies (CARS) in their classrooms. This research aimed to determine if a relationship existed between CARS professional development programs and agriscience teachers' Stages of Concern. In order to meet the purpose of this study, the following objectives were investigated:

- Ascertain agriscience teachers' CARS professional development history.
- Determine the Stages of Concern of agriscience teachers who have completed CARS professional development program.
- Determine the Stages of Concern of agriscience teachers who have not completed CARS professional development program.
- Determine the relationship between CARS professional development and Stages of Concern.

Methodology

The study was a descriptive census survey as described by Ary, Jacobs, and Razavieh (2002). The researcher delivered a web based questionnaire to 371 agriscience teachers across the state of Florida. The 2008 Florida Agricultural Education Directory (Myers & Warner, 2008) was used as the population frame.

The researcher used the Stages of Concern instrument developed by George, Hall, and Stiegelbauer (2006). An additional section on professional development was added by the researcher as well as a demographic section.

The researcher used Statistical Package for the Social Sciences (SPSS®) 17.0 for Windows to analyze the data. The researcher calculated frequencies, central tendencies, *t*-tests, and Spearman's rho correlations. In addition the SOCQ-075-Graph-and-Print (Scott & Persichitte, 2006) program for Excel was utilized to calculate Stages of Concern percentiles and graph concern profiles. Weft QDA was utilized to analyze concern statements.

Summary of Findings

The following is a summary of findings presented in chapter 4.

Demographics

Demographic findings were reported on age and gender, teaching experience, and involvement with the innovation. Findings of each objective were reported individually.

Gender and Age

Participants in this study were fairly equally distributed in regards to gender. Males accounted for 55.6% and females accounted to 44.4% of the respondents. Participants responding were dispersed evenly between the five age groups with the exception of the > 60 category which accounted for only 5.9% (n=9) of the respondents. The age category with the largest number of participants was the 51-60 range with 29.4% (n=45).

Teaching Experience

Teachers average 15.17 years teaching with a range of 40 years. Eighty-two (53.2%) of teachers acknowledged they had taught subjects other than agriculture. The majority of these teachers (96.2%; n=77) taught science. Only 12 of the 82 teachers (15.0%) had taught reading, English, or language arts.

Involvement in Innovation

Even though 92.7% (n=141) of participants reported attending one or more types of CARS professional development, nearly half (48.4%; n=74) of the participants reported they had not

been involved in the innovation. However, 15.7% (n=24) of participants indicated being involved with the innovation for five or more years. A positive correlation (r = .26) existed between length of involvement with the innovation and the participants' primary stage of concern.

Teachers were also asked to rate their expertise level of the innovation. One third of the participants (33.3%; n=51) rated themselves as non-users. However, 57.5 % (n=88) rated themselves as novice and intermediate users. Additionally, 9.2% (n=14) rated themselves as old hand in their expertise of the innovation. None of the respondents viewed themselves as a past user of the innovation. The teachers' perceptions of their expertise level had a moderate positive correlation (r =.30) to their primary stage of concern.

Agriscience teachers' relationship with the reading coach was positively correlated to their primary Stage of Concern at a low magnitude (r =.20). Although 39.6 % (n=57) of respondents identified their relationship with the reading coach as average, only 27.1% (n=39) believed they had a strong or very strong relationship with their reading coach. The remaining 33.4% (n=48) ranked their relationship weak or very weak.

Current involvement with other innovations had a negligible negative correlation (r = -.16) to the primary stage of concern. Approximately half (55.6%; n=85) of respondents reported being in the first or second year of another innovation.

Teachers were asked to identify the biggest barriers to CARS implementation at their schools. *Time* was the barrier which emerged the most frequently; 33.9% (n=38) of respondents identified time as a major barrier. In addition, 13.4% (n=15) identified *other demands* as a barrier. However, teachers also identified sixteen other barriers they perceived interfered with school-wide implementation of CARS.

The overall concerns profile (Figure 4-1) indicated that the primary Stage of Concern with the highest relative intensity of concern was Stage 0, awareness. In addition, informational, personal, and management concerns were relatively high with percentile scores between 69 and 72. Consequence concerns were the lowest at the 24 percentile. Collaboration and refocusing concerns were also low.

Objective 1

Objective: Ascertain agriscience teachers' CARS professional development history.

Teachers had participated in a wide variety of professional development experiences including training from: pre-professional courses, continuing education courses, reading coach, school, county, Florida Reading Initiative, and others. However, a substantial variance existed between the total number of hours devoted to CARS professional development. The mean total number of professional development hours was 60.56 with a standard deviation of 52.203. The range was 312.

Objective 2

Objective: Determine the Stages of Concern of agriscience teachers who have completed CARS professional development program.

A group concerns profile was developed for teachers who had reported receiving CARS professional development. Figure 4-2 illustrates the group concerns. The concerns profile for this group of teachers indicated the primary Stage of Concern was Stage 0, awareness. Although informational, personal and management scores were relatively high, Stage 3, management, emerged as the secondary Stage of Concern for this group. Consequences, collaboration, and refocusing concerns were low; Stage 4, consequences, was the lowest SoC.

Objective 3

Objective: Determine the Stages of Concern of agriscience teachers who have not completed CARS professional development program.

A group concerns profile was created for teachers reporting having no CARS professional development. Figure 4-3 shows the group concerns profile for teachers who reported not completing any professional development training. This profile showed that teachers had very high concerns as shown by the relative intensity percentile scores in the awareness (91), informational (88), personal (83) and management stages (88). A drastic drop was taken to the lowest stage, consequences (16). Concerns climbed through the collaboration (31) and refocusing stages (52).

Objective 4

Objective: Determine the relationship between CARS professional development and Stages of Concern.

The majority of the profiles were characterized with high concern levels in the awareness stage. Concerns in the informational personal and management stages also tended to score relatively high. The profiles developed did not show a high relative intensity of concern for consequences and rarely showed high relative intensity of concern for collaboration. Nine of the 14 profiles *tailed up* at the refocusing stage. The total number of hours devoted to CARS professional development had a correlation coefficient of .20 to the primary Stage of Concern.

Conclusions

Based on the comparison of early and late respondents concern profiles, the findings and conclusions can be generalized to the entire population. Although some differences were present, both profiles were nonuser profiles. The differences were determined to be not significant

enough to affect generalizability. The following conclusions were drawn from the results of this study.

1. The demographic variables of gender and teacher experience (number of years teaching, other subjects taught, and area of certification) have no relation to participants' primary Stage of Concern.

2. The variable of age had a low magnitude positive relationship to agriscience teachers' primary Stage of Concern regarding CARS.

3. The longer the teacher has been involved in the innovation, the further their concerns have progressed and the closer they are to a higher level of implementation.

4. A clear, consistent definition of CARS implementation does not exist.

5. The stronger the teacher's relationship is with the reading coach, the more likely the teacher is to progress through the CARS implementation process.

6. Teachers' involvement in multiple innovations limits their implementation of CARS.

7. A relationship exists between teachers' perceived level of expertise and their primary Stage of Concern.

8. The overall concerns profile for agriscience teachers is a non-user profile.

9. In general, agriscience teachers show resistance to the CARS innovation.

10. Agriscience teachers are not focused on the consequence of implementing CARS or the potential for collaboration.

11. The number of hours of professional development did not have a relationship to the implementation of CARS.

12. CARS professional development programs are not meeting the needs of agriscience teachers; thus, these teachers are not progressing through the Stages of Concern and are not implementing CARS at a high level.

Discussion and Implications

Conclusion 1: The demographic variables of gender and the variables of teacher experience (number of years teaching, other subjects taught, and area of certification) have no relation to participants' primary Stage of Concern: Gender of the participants did not have a significant relationship to their primary Stage of Concern. Furthermore, nhis study

confirmed the Aneke and Finch's (1997) conclusion that years of teaching experience did not affect teachers' SoC. Teachers with different areas of certification and various levels of teaching experience can learn to implement the innovation. One aspect of teaching experience which should be studied in greater depth is whether teachers who have more experience with classroom management and the content find it easier to effectively integrate CARS.

Conclusion 2: The variable of age had a low magnitude positive relationship to agriscience teachers' primary Stage of Concern regarding CARS: A positive correlation of r = .17 did existed between age and primary Stage of Concern. This correlation can be interpreted that the older the teacher, the higher his/her primary stage of concern, thus the better the teacher had implemented CARS; however, according to Davis (1971) a correlation of .17 is low in magnitude and only 2.89% of the variance in primary Stage of Concern can be explained by age. Refer to Table 4-15 for Davis's (1971) recommendations for describing a magnitude. Based on the age group with the most participants, the 51-60 age group, one may assume they are approaching retirement. Researchers should consider if they are less motivated to implement change or if they are more likely to have more experience in the classroom and may be able to focus on the innovation better than younger counterparts. The teachers who will be hired to replace these teachers may have very different Stages of Concern than the current teachers.

The teachers who fall in the older age category may be able to provide valuable experience and wisdom in integrating CARS into the curriculum. These teachers should collaborate with teachers who are struggling to understand how to integrate CARS into agriscience curriculum. Research should be conducted to determine the effect of such collaborations.

Conclusion 3: The longer the teacher has been involved in the innovation, the further their concerns have progressed and the closer they are to a higher level of implementation:

The low magnitude correlation (r = .26) between length of involvement with the innovation and participants' primary Stage of Concern indicated as teachers have more experience with the innovation, their concerns had a slight tendency to progress to higher stages. This data reinforces Hall and Hord (2006) statement that it may take 3-5 years for an innovation to be implemented at a high level and *Change Principle 1: Change is a process, not an event* (p. 4). However, the correlation only explains 6.86% of the variance.

The finding also supported Aneke and Finch's (1997) conclusion that the more experience a teacher has with the innovation, the further their concerns progress. However, the correlation between the frequency of CARS incorporation and teachers' primary Stage of Concern (Table 4-14) contradicted this Aneke and Finch's statement. This negative correlation indicated that teachers who incorporated CARS more frequently tended to have lower primary Stages of Concern. When profiles were developed based upon weekly, monthly, and seldom/never use of CARS, not significant differences were found. This finding did not support any of the literature or other findings. Although social desirability bias usually occurs during interviews, it may offer one explanation to this oddity. Social desirability bias occurs when respondents answer the way they think they are supposed to answer, rather than responding with the truthful answer (Ary et al., 2006). If teachers misreported the frequency with which they utilize CARS based on how often they are suppose to use CARS rather than their actual answer, they could have biased the information collected and caused the oddity in the findings. More research should be completed to determine this correlation can be supported or not.

Professional development should be provided throughout the several year processes to continue to support the teachers, develop their skills, and address their concerns so the teachers have the necessary time and experience to progress through the Stages of Concern and

successfully implement CARS. The on-going professional development should provide an opportunity for teachers to demonstrate and practice their CARS skills. This practical component will help all teachers to increase their experience with CARS and it will encourage collaboration and sharing of particular applications of CARS in agriscience curriculum.

Conclusion 4: A clear, consistent definition of CARS implementation does not exist: An unclear understanding of CARS implementation and lack of standardization is evident from excerpts from participants' concern statements. One participant noted, "I'm not sure what this all entails." Another participant stated, "[I] just want more definition etc." One teacher acknowledge, "I use some reading strategies at present, but they are not consistent." Yet another teacher expresses frustration because, "It seems to me every time we turn around there is a new approach. If we stay around for any length of time there will be another one to use." These statements may be summarized by another concerns statement, "We need a standard that can be accepted by a majority of the state and county programs. This would simplify reading programs. [There are] too many programs and everyone is different."

Nearly half of the respondents (48.4%) reported never being involved in the innovation when asked how long they had been involved in the innovation, not counting the current year; however, 92.7% (n= 141) of respondents indicated that they had received one or more types of professional development training. Only 11 (7.24%) respondents indicated they had received no CARS training. Additionally, only 33.3% of participants claimed to be non-users of the innovation. This may indicate that around 20% of those respondents reporting never being involved in the innovation or are in their first year of the innovation.

Of the 92.7 % of agriscience teachers who have attended one or more types of CARS professional development programs, only 47.8% of the participants reported using CARS on a

weekly basis and 33.3% use CARS less than once a month. Not all teachers who have attended CARS training have incorporated CARS into their classrooms; thus, they do not considered themselves involved with the innovation. As one teacher noted in his/her concern statement, “It is one thing to go through the training and quite another to implement [the innovation].” Research should indentify barriers to implementation of CARS from professional development to the classroom. School staff and professional development programs should provide interventions to help teachers overcome these barriers.

Change Principle 2 states “there are significant differences in what is entailed in development and implementation of an innovation” (Hall & Hord, 2006, p. 5). The lack of a clear, consistent definition CARS implementation could stem from ineffective development of the innovation or ineffective communication of the innovation from the change facilitator team to the teachers. In order to address this issue, researcher should be completed to develop an Innovation Configuration (IC) of the implementation of CARS in agriscience. This IC will provide clear description of what implementation should look like, will define involvement with the innovation, and will provide directions for teachers and future professional development.

Conclusion 5: The stronger the teacher’s relationship is with the reading coach, the more likely the teacher is to progress through the CARS implementation process: Participants (33.4%, n = 48) who rated their relationship with the reading coach to be weak or very weak may have an opportunity to progress through the Stages of Concerns by developing a better relationship with their reading coach. A low positive correlation of .20 was determined between the working relationship with the reading coach and the primary Stage of Concern. However, only 4.04% of the variance can be contributed to the working relationship with the reading coach.

The reading coach should be actively involved on the change facilitator team for the CARS innovation. From this position, the reading coach should support the teachers in the implementation of CARS. Reading coaches have an expertise in CARS and can provide valuable information, strategies, instruction, and tips. Teachers with a better working relationship with the reading coach will most likely feel more comfortable to approach the reading coach for support or more confident in the information the reading coach provides them. Additionally, the reading coach should be active in delivering interventions to aid in implementation. Teachers who interact with the reading coach more will receive more interventions. Hall and Hord (2006) underscore the importance interventions play in the change process. They note that significantly more interventions instances leads to greater implementation success.

Agriscience teachers should put forth a conscious effort to develop a strong working relationship with their reading coaches. In turn, reading coaches and school administrations should promote working closely with the reading coach during the implementation of CARS. Research should be conducted to identify the effect of having a close working relationship with the reading coach has on CARS implementation.

Conclusion 6: Teachers' involvement in multiple innovations limits their implementation of CARS: Even though the current level of involvement with other innovations can only account for 2.67% of the variance, one can assume the high number of mandates put on teachers can impede their success in implementation of innovations. Agriscience teachers face various mandates and innovations which promote integrating reading, math, science, technology, and differentiated instruction strategies. In addition, they are expected to prepare students for standardized content area tests and state standardized tests. These expectations are piled on top

of their responsibilities or preparing for classroom and lab activities, advising FFA, supervising supervised agricultural experience (SAE) projects, and their faculty responsibilities such as serving on faculty committees, complete essential paperwork, conferencing, and monitoring student activities.

The top barriers which teachers identified, time (33.9%, n = 38) and other demands (13.4%, n= 15), underscores the stress that teachers have whether it is from other mandates, innovations, or paperwork. Teachers struggle to manage the needs of a particular innovation such as CARS and their other responsibilities.

The concerns profiles consistently illustrated high levels of concerns in Stage 0. George et al. (2006) stated that these high scores can indicate that the teachers do not view the innovation as important or that they are focused on other responsibilities. The questions which assessed this construct concentrated on the teachers focus on CARS as opposed to other innovation. Table 5-1 indicates the questions associated with this construct. Thus, the high scores indicate that the teachers are focused on other responsibilities and less of their attention can be devoted to implementation of CARS. Excerpts from the concern statements reinforce this conclusion. For example, “Implementing reading strategies in the Agriculture classroom are of my top priority.”

Table 5-1. Statements on the Stages of Concern Questionnaire aligned to Stage 0

Statement #	Statement
3	I am more concerned about another innovation.
12	I am not concerned about the innovation at this time.
21	I am preoccupied with things other than this innovation.
23	I spend little time thinking about this innovation.
30	Currently, other priorities prevent me from focusing my attention on this innovation.

In the concerns statements, teachers identified the overwhelming responsibilities they face. “Being a busy teacher, I am concerned how much time implementing this new strategy will take

from my other responsibilities." Another teacher notes, "other requirements and copious amounts of paper shuffling take up an inordinate amount of time." One teacher exclaims, "I am struggling to have time to do everything and a life too! SPS, FFA, Land Lab, Reading, etc." Another teacher expresses the frustration of being asked to implement multiple innovations, "In today's classroom, we are shuffling from one innovation to another so quickly that it is impossible to evaluate the effects and affects of each innovation."

Change Principle 3 states, "an organization does not change until the people within it change" (Hall & Hord, 2006, p. 7). Until teachers are given the opportunity to focus their efforts on the innovation at hand, schools cannot expect to see changes in their teachers or their schools. School systems and school leadership should be aware of the work load teachers are facing. Schools should focus on one innovation at a time and realize that it takes 3-5 years for successful implementation of an innovation. Support should be provided to teachers in the form or resources and training which will ease their burdens. Professional development should focus on time saving techniques and how teachers can manage the workload and time during the implementation of a specific innovation.

Conclusion 7: A positive, moderate relationship exists between teachers' perceived level of expertise and their primary Stage of Concern: As the teachers' level of expertise increases, they tend to move through the Stages of Concern. However, teachers self-perceived level of expertise can only account for 9.12% of the variance. This conclusion supports Aneke and Finch (1997). Aneke and Finch (1997) concluded that teachers' concerns progressed as their experience with the innovation increased. As teachers gain more experience with CARS, they learn better ways to use and integrate the strategy. They can learn from their experiences in order to improve the effectiveness and efficiency of their use of the innovation. Teachers can also

benefit from the experience of others to learn how to successfully incorporate CARS into lessons. As these teachers become more effective in their use of the strategy and it becomes a natural teaching tool, they can focus more on the high level concerns and less on the lower level concerns.

If teachers were able to begin building their experiences through professional development programs, they may progress through the Stages of Concern faster. Providing the teachers an opportunity to use, interact with, and teach the strategies during professional development, should help them progress through the implementation. Teachers should also collaborate to discuss their personal success and applications for CARS in agriscience.

Conclusion 8: The overall concerns profile for agriscience teachers is a non-user profile: The overall concerns profile (Figure 4-1) was that of a *typical nonuser* according to George et al. (2006). Figure 5-1 illustrates the common user profiles and their hypothesized progression. When evaluating the group data, consideration must be made to the fact that it will be affected by "dominant high and low Stages of Concern" (George et al., 2006, p. 34).This profile indicated that the participants, as a whole, were not entirely aware of the innovation or focused on other obligations or innovations. However, since stages one and two were reasonably high in relative intensity, an interest in learning about the innovation may have existed. The low consequences and collaboration scores suggested that teachers were not intensely concerned about these areas of the innovation. The *tailing-up* of the profile at stage 6 signified that the teachers may have other ideas which they think deserve more time and attention. The *tailing-up* also indicated that the participants may be resistant to change.

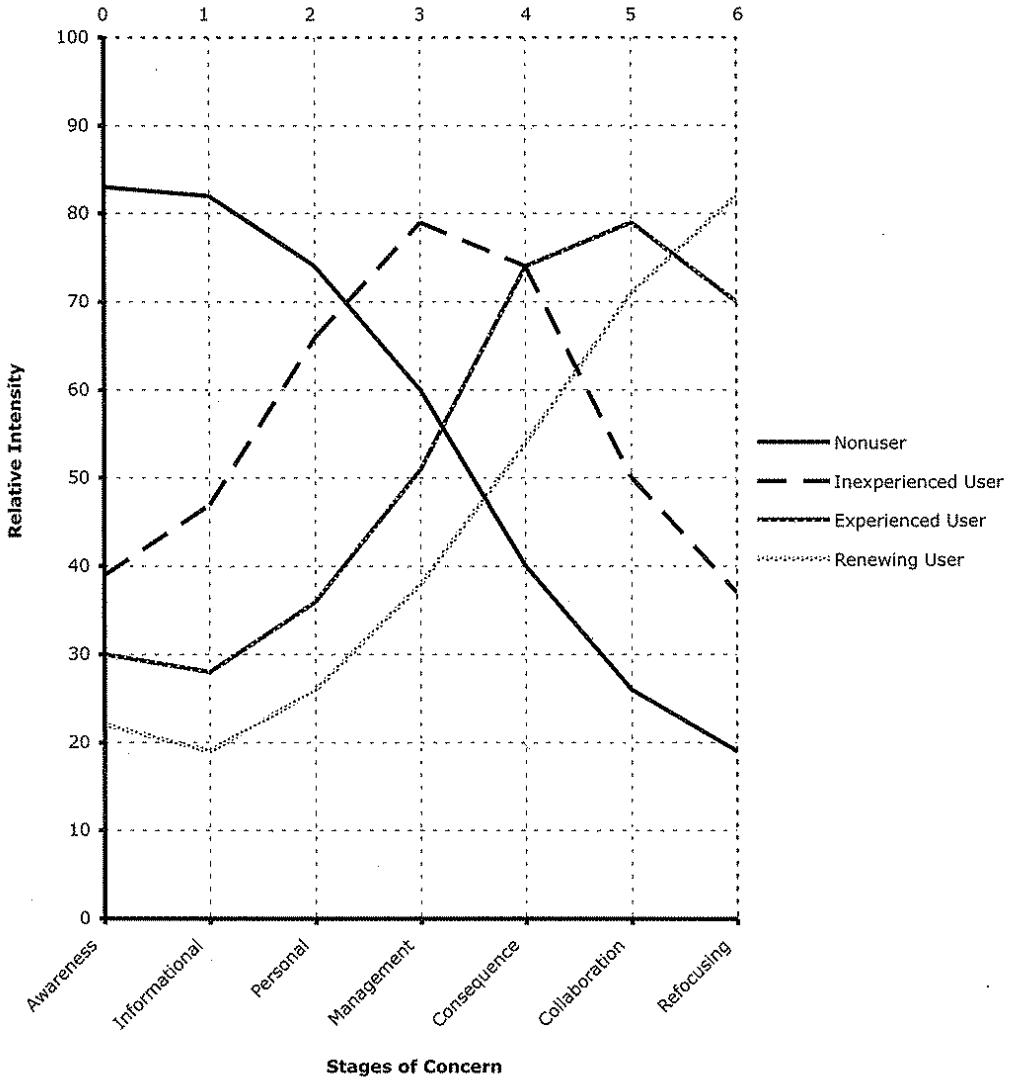

Figure 5-1. Hypothesized development of Stages of Concern (George et al., 2006, p.36).

Hall and Hord (2006) emphasize, "the crucial step in using [concern profiles is] to make *concerns based interventions* that will be able to resolve the concern and move the person toward more advanced use of the innovation" (p.142). Interventions should be utilized to assess and address teacher resistance. Continued interventions and support are needed to help these teachers progress through the implementation of CARS. Until the teachers have fully implemented

CARS, no research on the effectiveness or student outcomes can be completed, because there will be no change in outcome until there is a change in behavior (Hall & Hord, 2006).

Conclusion 9: In general, agriscience teacher show resistance to the CARS innovation: A majority of the group concerns profiles had a *tailing-up* of stage 6 which indicates the teachers had other ideas about the innovation (George et al., 2006). In a non-user profile, these other ideas indicate a resistance to change. When the tail increases more than 10 percentile points, it should be considered an alarm (George et al.). In this study 10 out of 15 concern profiles developed for teachers with 0 to >130 hours of professional development *tailed up* at Stage 6 and seven of the profiles *tailed up* by 10 percentile points or more.

Resistance to CARS was also reflected in some of the concern statements. One teacher said, "[CARS are] taking away even more time that the students could be learning hands on. If done correctly, I think it would be a great way to compliment the topics that are covered in a classroom, but if mandated I fear it would take up too much time." Another proclaimed, "Too much emphasis on reading turns students away. Time on reading takes time from content." Another complained, "Too much emphasis [is placed] on CAR instead of the goals set for my program." Finally, one teacher criticized,

> I am a hands-on instructor, formal classroom instruction reinforced with real world lab or farm experiences. These strategies take away from the class/lab time devoted to a topic or a specific project. My kids are not college bound and will rebel, and I don't blame them, at any approach that lessens hands on or the practical approach to learning. Granted all need to learn to read, but, all are not college bound.

Change Principle 11 notes, "appropriate interventions reduce resistance to change" (Hall & Hord, 2006, p. 13). Hall and Hord define interventions as "various actions and events that [change leaders] and others take to influence the [change] process" (p. 8). Hall and Hord suggest that change facilitators need to identify one of three reasons for resistance and address each case

with different interventions. Some of these interventions will need to be addressed individually; others can be administered to a whole group.

Agriscience teachers provide a very interesting user system culture, since they interact often through various regional and state wide events. Agriscience teachers have the opportunity to discuss current educational problems or innovations. This time allows for mushroom interventions to occur and can be used constructively or destructively for the implementation of CARS. If teachers who disapprove of the innovation take the opportunity to express their disproval and persuade others against the innovation, it could be detrimental to the innovation. On the other hand if teachers use the time to support the innovation and collaborate, the interaction between these teachers could support the implementation of CARS.

Research and interventions should assess and address the cause of agriscience teachers' resistance. Possible sources may be attitudes, knowledge, philosophy, perceptions and conceptions, and motivation. If professional development is built upon addressing and the causes of resistance before covering the strategies, teachers may be much more attentive and willing to implement CARS.

Conclusion 10: Agriscience teachers are not focused on the consequence of implementing CARS or the potential for collaboration: The consequence SoC was consistently the lowest SoC. Agriscience teachers do not realize how the implementation of CARS will affect students' learning. Teachers may be more likely to have lower awareness scores and higher consequences scores if teachers understood the direct benefits of CARS utilization to students and teacher. Professional development programs should focus on marketing the benefits of CARS implementation to the teachers. Teacher might then recognize CARS as a valuable teaching tool rather than another mandate.

Also evident from the SoC profiles, collaboration concerns also scored consistently low. If teachers are not interested in collaborating, they are missing opportunities to share success and applications of CARS. Based on the concern statements, teachers could benefit from collaboration. Many of the comments teachers made focused on a need for examples and ideas of how to implement CARS into agriscience content. Collaboration could meet those needs.

Change Principle 9 asserts, “the school is the primary unit for change” (p. 12). Although change must first occur in the individual, successful organizational change must occur on a school level. For this to occur, collaboration is required among teachers and between the teachers and the change facilitator tem. Teachers should be encouraged to collaborate more in order to foster implementation. Teachers who collaborated could decrease the concerns in informational, personal, and management stages and increase concerns in consequence stages by learning from each other and sharing their experiences. Research should investigate the effects of teacher collaboration on progression through the Stages of Concern and the implementation of CARS. Professional development programs and school systems should focus on fostering collaboration. A wiki or newsletter could be used to share experiences, ideas, and materials.

Conclusion 11: The Stages of Concern were not related to the total number of professional development hours: The large standard deviation (SD = 52.20) and range (312) between the total number of professional development hours and indicated a lack of consistency in professional development programs completed by agriscience teachers. The results have clearly indicated that the total number of CARS professional development hours has not has not been related to the progression through the Stages of Concern. These results contradict Aneke and Finch (1997) who found that Stages of Concern profiles and the intensity of the concerns changed when grouped by “hours of reform-related training” (p. 10). However, Aneke and Finch

underscored the importance of these trainings to address the personal concerns of the participating teachers. This observation may indicate that it is more important to focus on the quality of the professional development and its ability to meet the needs of the teachers, rather than just the number of hours spent in professional development.

A shared vision of content literacy goals may assist in improving the quality of professional development (Bryant, Ugel, Thompson, Hamff, & Hougen, 2001). Developing an innovation configuration based on CBAM (Hall & Hord, 2006) can help define and organize this vision. Quality CARS professional development programs should focus on the following areas identified by Bryant et al.: word identification, partner reading, collaborative strategic reading, modeling, supporting meetings, and teams.

Baker, Gersten, Dimino, and Griffiths (2004) identified three key components of a professional development program which led to sustained success of an educational innovation. These components included: (1) an initial training to establish the *big picture*, (2) on-going, on-site support for the first 5 years, and (3) school investment of funds.

The authors emphasized the importance of providing on-going support throughout the implementation process which supports similar suggestions made by Hall and Hord (2006). Agriscience teachers have acknowledged that implementing this innovation will require time to adapt (Park, 2005). On-going support during this adaptation period should make the process more effective and more efficient.

Baker et al. (2004) also suggested that both procedural and conceptual knowledge of the innovation be addressed by the development program. Park (2005) also noted the importance of providing opportunities for agriscience teachers to practice the new CARS skills they have learned.

Conclusion 12: CARS professional development programs are not meeting the needs agriscience teacher; thus, these teachers are not progressing through the Stages of Concern and are not implementing CARS at a high level: The group concerns profile developed for teachers who had not completed CARS professional development is a nonuser profile with an additional peak at stage three and a *tailing-up* of stage 6. According to descriptions provided by George et al. (2006), teachers in this group are likely more concerned with something other than the implementation of CARS. The peak in stage 3 also indicates high managerial concerns. Consequences of the use of CARS and working with others are both of low concern. This profile also had a strong *tailing-up* of over 20 percentile points. George et al. (2006) noted that this may show strong resistance to the innovation and suggested it be "heeded as an alarm" (p. 42).

Based on George et al.'s (2006) description of concern profiles, several conclusions can be made about the group concern profile teachers who had completed CARS professional development. The high relative intensity score for stage 0 indicated that teachers were more concerned about other things (i.e. other innovations, responsibilities, or activities). The second peak at stage 3 identified the strong management concerns which existed. These teachers may be focused on time, logistics, etc. This profile indicated little interest in consequences of CARS and mild interest in working with other teachers with CARS. The *tailing-up* of the concerns profile at stage 6 revealed that teachers had ideas about changing the innovation and may be resistant to the implementation of CARS. However, the *tailing-up* in this profile is slight and should not cause great concern.

The group concerns profiles created for different levels of total CARS professional development hours did not show a pattern of development through the stages of a nonuser, inexperienced user, experienced user, or renewing user. Figure 5- 1 displays a hypothesized

development of the stages of concern developed by George et al. (2006). The profiles developed did not show a high relative intensity of concern for consequences and rarely showed high relative intensity of concern for collaboration. The desired profile has the primary stage of concern at Stage 5, Collaboration (Hall & Hord, 2006; George et al.). The total number of hours of professional development did not move the profiles closer to that of experienced users. The correlation between total number of CARS professional development hours and the primary stage of concern was of low magnitude according to Davis (1971) (Table 4-7) and can only account for 3.96% of the variance.

The researcher was surprised to see that regardless of the number of hours of professional development training, Stage 0, awareness, was the highest stage of concern. According to George et al. (2006) changes have been made to the instrument and the norms to make interpretation of Stage 0 more definite. Stage 0 scores should indicate the current *degree of interest* in the innovation. Low scores are indicative of individuals who view the innovation as important to his or her work. On the other hand, high scores indicate that other innovations or consideration are of greater importance to the teacher. This explanation of the awareness concern can explain the consistently high awareness SoC. Agriscience teachers have not bought into the CARS innovation. They may view the innovation as just another mandate which adds to their work load.

From the 92.7% (n=141) respondents who had reported being involved in one or more forms of CARS professional development, only about half (47.6%, n=70) of the participants report using CARS on a weekly basis in their lessons. Nineteen percent (n=28) incorporate CARS on a monthly basis and one third of the participants (n=49) utilize CARS less than once per month. If the teachers are implementing CARS less than once per month, they essentially are

not implementing the innovation. Teachers may not feel confident in their abilities to transfer the information from training into practice. Research should be conducted to investigate why teachers are not transferring the skills they learn into practice. Professional development programs should incorporate a practical component for teachers to practice implementing the skills they have learned.

Aneke and Finch (2001) highlighted the importance of reform-related trainings to address the personal concerns of the participating teachers. By administering the Stages of Concern Questionnaire prior to a professional development program, instructors can assess and address the concerns of the participants through the training. Hall and Hord (2006) recommend using open-ended concerns statements before and after professional development programs to identify, target, and assess development of teachers' Stages of Concerns through the program. This technique should increase the quality and effectiveness of the professional development program. Baker et al. (2004) suggested making a smooth and gradual transition so that the innovation *enhances* teaching instead of asking teachers to make a drastic change in the teaching methods.

Specifically, CARS professional development for agriscience teachers should focus on the areas those teachers have identified. Agriscience teachers want to learn "where, how, and why to use CARS in their agriscience courses" (Park, 2005, p. 138-139).

Recommendations

Based on the results and conclusions from this study, the research has made recommendations for practitioners and researchers.

Practitioner Recommendations

Based on this study, the researcher suggests that practitioners consider the following recommendations:

1. A consistent, in depth professional development program should be implemented to provide ongoing training and support of the innovation throughout a several year process.

2. Professional development should provide an opportunity for teachers to demonstrate and practice their CARS skills.

3. School staff and professional development programs should provide interventions to help teachers overcome barriers of transferring knowledge and skills developed in professional development into their teaching.

4. Agriscience teachers and reading coaches should work on creating a strong, positive relationship to better foster implementation of CARS.

5. Schools should stagger innovations every 3-5 years so teachers can focus on implementing one innovation at a time.

6. Since time is a major barrier, teachers would be more likely to implement CARS if schools should provide time saving support, such as providing resources (i.e. provide easy to access instruction for CARS, reading materials that would foster CARS and content learning, and sample CARS lesson plans) for teachers.

7. Professional development programs should present time saving techniques and how teachers can manage the workload of the innovation within their current workload.

8. Interventions should be utilized to identify and address the cause of teachers' resistance to CARS.

9. Schools should utilize Stages of Concern questionnaires to identify concerns which need to be addressed by professional development, measure the effect of professional development on Stages of concern, and measure the success of implantation.

10. Professional development trainers should address the stage 6 concerns in order to decrease resistance to the innovation.

11. School systems and school systems should encourage teacher collaboration to foster CARS implementation.

Future Research Recommendations

This study has identified the need for research in the following areas:

1. Research should investigate if teachers with more classroom management and content experience find it easier to effectively integrate CARS.

2. In order to improve professional development programs, research should be conducted to identify the barriers which prevent teachers from transferring the knowledge and skills they learn in professional development into the classroom setting.

3. Research should be completed to develop an Innovation Configuration which would provide a more unified vision for CARS implementation.

4. Research should be conducted to verify the concern profiles developed for the participants of this study.

5. In order to better understand the differences of the professional development programs, research should be conducted to determine the characteristics of various CARS professional development programs.

6. Research should be completed on the effectiveness of different professional development programs in order to be able design more effective and efficient programs.

7. To better meet the professional development needs of teachers, research should be conducted to identify the specific CARS professional development needs of agriscience teachers.

8. To get a more complete understanding of CARS implementation using the CBAM model, researchers need to complete a Levels of Use study.

9. Research should be conducted on the types of interventions (support) agriscience teachers receive for CARS implementation and the effects of the identified interventions.

10. Researcher is needed identify the points of resistance agriscience teacher have about implementing CARS.

11. Research should investigate the effects of teacher collaboration on progressing through the Stages of Concern and the implementation of CARS.

12. Researcher should design studies to examine the other variable proposed in the conceptual model: discipline, resources, social context, mandates, attitudes, knowledge, philosophy, perceptions, conceptions, and motivation.

13. Research on the outcomes of CARS should not be performed until successful implementation can be documented.

National Research Agenda

The conclusions, discussions, implications, and recommendations address the research objectives outlined by The National Research Agenda: Agricultural Education and Communications 2007-2010. Specifically this research addressed:

- RPA 4: Prepare and provide an abundance of fully qualified and highly motivated agriscience educators at all levels.
    - What are the professional development needs of agricultural educators?

        - Assess models for the effective delivery of teacher professional development programs.

This research also set the ground work for the following research initiatives:

- RPA 2: Provide a rigorous, relevant, standards-based curriculum in agricultural, food, and natural resources systems.
    - What instructional strategies in agricultural education programs promote increased student achievement in the traditional academic areas?
        - Determine the effects of a comprehensive agricultural education program on student academic performance and achievement.
- RPA 5: Determine the effects of agricultural education instruction.
    - How do agricultural education programs contribute to student achievement and performance?
        - Assess the influence of agricultural education programs on student achievement in math, science, reading, and communications.
- RPA 5: Determine the effects of agricultural education instruction.
    - How do agricultural education programs contribute to student achievement and performance?
        - Examine the contribution of agricultural education programs to schools and communities.

APPENDIX A
INSTRUMENT

1. Informed Consent

Informed Consent

Project Title: Agriscience Teachers' Concerns Regarding Content Area Reading Strategies

Purpose of the research study: The purpose of this study is to assess Florida agriscience teachers' implementation of content area reading strategies in their classrooms. Specifically the study aims to identify the concerns and professional development history of teachers regarding the implementation of content area reading strategies.

What you will be asked to do in the study:
Complete and electronically submit a web-based questionnaire

Time required:
Approximately 15-20 minutes

Risks:
No risk of physical, psychological, or economic harm to participants is foreseen.

Benefits/Compensation:
There is no compensation or other direct benefit to you for participation.

Confidentiality:
Your identity will be kept confidential to the extent provided by law. Your information will be assigned a code number. The list connecting your name to this number will be kept in a locked file and destroyed once the data have been analyzed. Your name will not be used in any report.

Voluntary participation:
Your participation in this study is completely voluntary. There is no penalty for not participating. You do not have to answer any questions you do not want to answer. The decision to participate will not influence your grade in the course or your general standing in the program.

Right to withdraw from the study:
You have the right to withdraw from the study at any time without consequence.

Whom to contact if you have questions about the study:
Anna J. Warner
Masters Student
Agricultural Education and Communication Department
C/O 305 Rolfs Hall, PO Box 110540
Phone: (352) 392-0502 ext 244
Email: anna.j.warner@ufl.edu
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Or

Brian E. Myers, PhD
Assistant Professor
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305 Rolfs Hall, PO Box 110540
Phone: (352) 392-0502 ext 236
Email: bmyers@ufl.edu
Fax: (352) 392-9585

Whom to contact about your rights in the study:
UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone: (352) 392-0433.

Agreement:
I have read the procedure described above. I voluntarily agree to participate and understand that by clicking "Next" below, I am consenting to participate in this study. If I choose not to participate, I will exit the survey.

*** 1. Please enter your password (The number given to you in the e-mail with the link to this survey).**

Next

2. Stages of Concern Directions

The purpose of this questionnaire is to determine what people who are using or thinking about using various programs are concerned about at various times during the adoption process.

The items were developed from typical responses of school and college teachers who ranged from no knowledge at all about various programs to many years' experience using them. Therefore, many of the items on this questionnaire may appear to be of little relevance or irrelevant to you at this time. For the completely irrelevant items, please select "0" on the scale. Other items will represent those concerns you do have, in varying degrees of intensity, and should be marked higher on the scale.

Please respond to the items in terms of your PRESENT concerns, or how you feel about your involvement with implementing Content Area Reading Strategies (CARS). We do not hold to any one definition of the innovation so please think of it in terms of your own perception of what it involves. Phrases such as "the innovation ", "this approach" and "the new system" all refer to implementing contenet area reading strategies. Remember to respond to each item in terms of your present concerns about you involvement or potential involvement with implementing content area reading strategies.

Thank you for taking time to complete this task.

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3. Stages of Concern

Please use the following scale to rate your concerns regarding implementation of content area reading strategies (CARS).

0 Irrelevant

1 Not true
2 of me now

3 Somewhat
4 true of
5 me now

6 Very true
7 of me now

1. Please select the answer that appropriately states your concerns regarding implementation of content area reading strategies into your classroom.

	0	1	2	3	4	5	6	7
1. I am concerned about students' attitudes toward the innovation.								
2. I now know of some other approaches that might work better.								
3. I am more concerned about another innovation.								
4. I am concerned about not having enough time to organize myself each day.								
5. I would like to help other faculty in their use of the innovation.								
6. I have a very limited knowledge of the innovation.								
7. I would like to know the effect of reorganization on my professional status.								
8. I am concerned about conflict between my interests and my responsibilities.								

9. I am concerned about revising my use of the innovation.								
10. I would like to develop working relationships with both our faculty and outside faculty using the innovation.								
11. I am concerned about how the innovation affects students.								
12. I am not concerned about the innovation at this time.								
13. I would like to know who will make the decisions in the new system.								
14. I would like to discuss the possibility of using the innovation.								
15. I would like to know what resources are available if we decide to adopt the innovation.								
16. I am concerned about my inability to manage all that the innovation								
17. I would like to know how my teaching or administration is supposed to change.								
18. I would like to familiarize other departments or persons with the progress of this new approach.								

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4. Stages of Concern 2

Please use the following scale to rate your concerns regarding implementation of content area reading strategies (CARS).

0 Irrelevant

1 Not true
2 of me now

3 Somewhat
4 true of
5 me now

6 Very true
7 of me now

1. Please select the answer that appropriately states your concerns regarding implementation of content area reading strategies into your classroom.

	0	1	2	3	4	5	6	7
19. I am concerned about evaluating my impact on students.								
20. I would like to revise the innovation's approach.								
21. I am preoccupied with things other than the innovation.								

22. I would like to modify our use of the innovation based on the experiences of our students.								
23. I spend little time thinking about the innovation.								
24. I would like to excite my students about their part in this approach.								
25. I am concerned about time spent working with nonacademic problems related to the innovation.								
26. I would like to know what the use of the innovation will require in the immediate future.								
27. I would like to coordinate my efforts with others to maximize the innovation's effects.								
28. I would like to have more information on time and energy commitments required by the innovation.								
29. I would like to know what other faculty are doing in this area.								
30. Currently, other priorities prevent me from focusing my attention on the innovation.								
31. I would like to determine how to supplement, enhance, or replace the innovation.								
32. I would like to use feedback from students to change the program.								
33. I would like to know how my role will change when I am using the innovation.								
34. Coordination of tasks and people is taking too much of my time.								
35. I would like to know how the innovation is better than what we have now.								

Prev Next

5. Concerns Statement

1. Please briefly describe the concerns you have regarding the use of content area reading strategies in your agriscience classes.

Prev Next

6. CARS Professinal Development History

1. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
Pre-professional (College, before teaching)		

Please provide a breif description of the professional development program.

2. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
Continued education coursework		

Please provide a breif description of the professional development program.

3. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Hours
Personal training with reading coach		

Please provide a breif description of the professional development program.

4. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
School training		

Please provide a breif description of the professional development program.

5. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
County training		

Please provide a breif description of the professional development program.

6. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
Florida Reading Initiative Training		

Please provide a breif description of the professional development program.

7. Please indicate if you have completed the following professional development trainings, approximate number of hours spent in training, and a brief description of the professional development program.

	Participation	Number of Hours
Other		

Please provide the name and a breif description of the professional development program.

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7. Demographics

1. How long have you been involved with the innovation, not counting this year?

- Never
- 1 year
- 2 years
- 3 years
- 4 years
- 5 or more years

2. In your use of the innovation, do you consider yourself to be a:

- non-user
- novice
- intermediate
- old hand
- past user

3. Are you currently in the first or second year of use of some other major innovation or program other than this one?

- Yes
- No

If yes, please describe breifly:

4. What is your gender?

- Male
- Female

5. How old are you?

- 21-30
- 31-40
- 41-50
- 51-60
- >60

6. How many years have you been teaching?

7. Have you taught subjects other than agriculture?

- Yes
- No

If yes, what subjects?

8. What is(are) your area(s) of certification?

9. How often do you incorporate CARS into your lesson plans?

- 3-4 times a week
- 1-2 times a week
- 3-4 times a month
- 1-2 times a month
- <1 per month

10. What is your working relationship with the reading coach in your school? 1= very weak 5= very strong

- 1 very weak
- 2 weak
- 3 average
- 4 strong
- 5 very strong

11. In your school, what are the biggest barriers to implemetation of CARS?

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APPENDIX B
IRB LETTER OF APPROVAL

UF | **Institutional Review Board**
UNIVERSITY *of* FLORIDA

PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: October 10, 2008

TO: Anna Warner
P.O. Box 110540
Campus

FROM: Ira S. Fischler, PhD, Chair
University of Florida
Institutional Review Board 02

SUBJECT: **Approval of Protocol #2008-U-872**

TITLE: Agricultural Educators Concerns Regarding Content Area Reading Strategies

SPONSOR: None

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants, and based on 45 CFR 46.117(c), An IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: *(1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.*

The IRB authorizes you to administer the informed consent process as specified in the protocol. If you wish to make any changes to this protocol, ***including the need to increase the number of participants authorized***, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

If you have not completed this protocol by **September 29, 2009**, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl

An Equal Opportunity Institution

APPENDIX C
PRE-SURVEY NOTICE LETTER

UF UNIVERSITY of FLORIDA
College of Agricultural and Life Sciences

310 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502 ext. 244
Fax: (352) 392-9585
anna.j.warner@ufl.edu

Department of Agricultural Education and Communication
Anna Warner, Graduate Teaching / Research Assistant

Dear Agriscience Teacher,

I am a current master's student at the University of Florida. I have been working closely with Dr. Brian Myers to determine agriscience teachers' concerns regarding content area reading strategies. We, along with my advisory committee, have determined that the best method of measuring these concerns is to survey agricultural agriscience teachers within the state.

Within the next week, you will be receiving an e-mail from me with a link to a survey in order for you to complete the instrument online. Please feel free to contact me at anna.j.warner@ufl.edu if you have any questions regarding the survey. I used the information located within the Florida Agricultural Education Directory and if you would prefer I send e-mails to another address, please respond to me with your preferred e-mail address.

Your participation is greatly appreciated and completely voluntary. There is no penalty for not participating. If you choose to participate, you will answer items on a confidential assessment that will take approximately 10-15 minutes to complete. You can stop any time without penalty and you do not have to answer any question you do not wish to answer. All answers are confidential to the extent provided by law. There are no known risks or other direct benefits associated with this study. If you would like to learn more about this project, please contact me at 408 Rolfs Hall, Gainesville campus, 352-392-0502 ext. 244 or Dr. Brian Myers, 307A Rolfs Hall, Gainesville campus, 352-392-0502 ext. 236, bmyers@ufl.edu. If you have questions about your rights as a research participant, please contact the UFIRB Office, Box 112250, University of Florida, Gainesville, FL, 32611-2250, 352-392-0433.

Once again, your participation in completing the following assessments is greatly appreciated. You are helping to develop a better understanding of agriscience teachers' concerns regarding content area reading strategies.

Thank you,

Anna J. Warner	Dr. Brian Myers	Dr. Ed Osborne
Graduate Assistant	Assistant Professor	Chair
Department of Agriculture	Department of Agriculture	Department of Agriculture
Education & Communication	Education & Communication	Education & Communication

APPENDIX D
INITIAL CONTACT LETTER

UF UNIVERSITY of FLORIDA
College of Agricultural and Life Sciences

Department of Agricultural Education and Communication
Anna Warner, Graduate Teaching / Research Assistant

310 Rolfs Hall
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Gainesville, FL 32611-0540
Telephone: (352) 392-0502 ext. 244
Fax: (352) 392-9585
anna.j.warner@ufl.edu

Dear Agriscience Teacher,

As you know from my previous e-mail, I am researching the concerns of agriscience teachers regarding content area reading strategies for my thesis. Below you will find a **link** for the questionnaire, along with a **password** you will need to access the questionnaire. The survey should take approximately 15 minutes to complete. Please feel free to contact me if you have any questions regarding the survey.

Once again, your participation in completing the assessment is greatly appreciated. You are helping to develop a better understanding of the agriscience teachers' concerns about content area reading strategies.

Link to the survey:
https://www.surveymonkey.com/s.aspx?sm=50Os_2bjqm82_2fMwLAjuEaeCQ_3d_3d

Password: XXX

Thank you,

Anna J. Warner	Dr. Brian Myers	Dr. Ed Osborne
Graduate Assistant	Assistant Professor	Chair
Department of Agriculture	Department of Agriculture	Department of Agriculture
Education & Communication	Education & Communication	Education & Communication

APPENDIX D
THANK YOU LETTER WITH ADDITIONAL LINK

UF UNIVERSITY of FLORIDA
College of Agricultural and Life Sciences

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Telephone: (352) 392-0502 ext. 244
Fax: (352) 392-9585
anna.i.warner@ufl.edu

Department of Agricultural Education and Communication
Anna Warner, Graduate Teaching / Research Assistant

Dear Agrisciene Teacher,

I wanted to take this opportunity to thank you for participating in my research and encourage you to complete the questionnaire if you have not already done so. It is not my intention to bombard you with e-mails, but it is part of the research design to which I must adhere in order for my research to be deemed valid.

Below you will find the link for the agriscience teachers' concerns regarding content area reading strategies survey. In addition I have included the password you will need to access the survey. Please feel free to contact me if you have any questions regarding the survey.

Link:
https://www.surveymonkey.com/s.aspx?sm=50Os_2bjqm82_2fMwLAjuEaeCQ_3d_3d

Password: XXX

Once again, your participation in completing the following survey is greatly appreciated. You are helping to develop a better understanding of the concerns of agriscience teachers regarding content area reading strategies.

Thank you,

Anna J. Warner	Dr. Brian Myers	Dr. Ed Osborne
Graduate Assistant	Assistant Professor	Chair
Department of Agriculture	Department of Agriculture	Department of Agriculture
Education & Communication	Education & Communication	Education & Communication

APPENDIX E
NON-RESPONDENTS LETTER

UF UNIVERSITY of FLORIDA
College of Agricultural and Life Sciences

Department of Agricultural Education and Communication
Anna Warner, Graduate Teaching / Research Assistant

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PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502 ext. 244
Fax: (352) 392-9585
anna.j.warner@ufl.edu

Dear Agrisciene Teacher,

Recently you have received a link to my web-based survey. I am trying to assess the concerns of agriscience teachers towards the implementation of content area reading strategies (CARS) as well as their levels of CARS professional development. Your participation in this survey is vital for the success of this study. The results of this study will be used to address your concerns for the innovation.

If you have not had a chance to complete the survey I would ask you to please take time to submit complete this survey as class work slows down for the holiday break. You can complete the survey quickly and easily. I cannot emphasize enough how important your response is.

Below you will find the link for the agriscience teachers' concerns regarding content area reading strategies survey. In addition I have included the password you will need to access the survey. Please feel free to contact me if you have any questions regarding the survey.

Link:
https://www.surveymonkey.com/s.aspx?sm=50Os_2bjqm82_2fMwLAjuEaeCQ_3d_3d

Password: XXX

Once again, your participation in completing the following survey is greatly appreciated. You are helping to develop a better understanding of the concerns of agriscience teachers regarding content area reading strategies.

Thank you,

Anna J. Warner	Dr. Brian Myers	Dr. Ed Osborne
Graduate Assistant	Assistant Professor	Chair
Department of Agriculture Education & Communication	Department of Agriculture Education & Communication	Department of Agriculture Education and Communication

APPENDIX F
FINAL CONTACT LETTER

UF UNIVERSITY of FLORIDA
College of Agricultural and Life Sciences

Department of Agricultural Education and Communication
Anna Warner, Graduate Teaching / Research Assistant

310 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502 ext. 244
Fax: (352) 392-9585
anna.j.warner@ufl.edu

Dear Agriscience Teacher,

Hello, I am sorry to bother you, but we still have not received your response on the Content Area Reading Strategies (CARS) Survey. I am trying to assess the concerns of **agriscience teachers** towards the implementation of content area reading strategies as well as their levels of CARS professional development. This survey applies to **all** agriscience teachers regardless of their involvement with CARS. It is very important to the success of this study for everyone to participate. The results of this study will be used to address your concerns for the innovation.

If you have not had a chance to complete the survey I would ask you to please take time to complete and submit this survey as class work slows down for the holiday break. You can complete the survey quickly and easily. I cannot emphasize enough how important your response is.

Below you will find the link for the agriscience teachers' concerns regarding content area reading strategies survey. In addition I have included the password you will need to access the survey. Please feel free to contact me if you have any questions regarding the survey.

Link:
https://www.surveymonkey.com/s.aspx?sm=50Os_2bjqm82_2fMwLAjuEaeCQ_3d_3d
Password: XXX

Once again, your participation in completing the following survey is greatly appreciated. You are helping to develop a better understanding of the concerns of agriscience teachers regarding content area reading strategies.

Thank you,

Anna J. Warner	Dr. Brian Myers	Dr. Ed Osborne
Graduate Assistant	Assistant Professor	Chair
Department of Agriculture	Department of Agriculture	Department of Agriculture
Education & Communication	Education & Communication	Education & Communication

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BIOGRAPHICAL SKETCH

Anna Warner was raised on a farm in York County, Pennsylvania. Growing up, she was active in 4-H and helping at her family's agribusiness in Carroll County, Maryland. From these experiences in agriculture, Anna had no doubt that she wanted to major in agricultural education in college. Anna attended West Virginia University where she earned her Bachelor of Science in Agriculture degree with a major in Agricultural and Extension Education. She also completed her student teaching at Hundred High School in Hundred, West Virginia as part of her requirements to become a certified agricultural teacher. Anna's experiences from West Virginia University and the opportunities offered by the University of Florida brought Anna to the University of Florida to pursue her Master of Science degree. Upon graduation, Anna plans to move back to the Pennsylvania-Maryland area obtain a job as an agriscience educator.