ABSTRACT

COUGHENOUR, KIMBERLY WALKER. Effects of a Three Part Strategy Cluster on Reading in Differentiated Vs. Whole Group Instructional Setting. (Under the direction of Dr. Hiller Spires.)

The first purpose of this study was to determine if a three part strategy cluster combining an anticipation/reaction guide, advance organizer, and Question Answer Relationship strategy significantly increases reading comprehension and content knowledge in students reading on a fourth grade level. Secondly, this study examined if the strategy cluster increased students' ability to formulate reading response questions at four levels. Finally, this study determined if the two cluster strategy treatment conditions created a percentage of change in students' attitudes towards reading.

There was no significant difference between control and treatment groups for reading comprehension at the study's conclusion. Both instructional settings were shown to be effective for different purposes. Whole group instruction works well for presenting content and the classroom discussions that are facilitated during that time are beneficial in students' ability to make connections with the text. Students in this group reported a positive change in reading attitude for liking to read, thinking about the story while reading, and utilizing a strategy while reading. Differentiated instruction is effective for teaching students new reading skills. In small groups students are reading text on their instructional level and practicing strategies with teacher feedback. Students in this group reported that they felt better about answering comprehension questions at the end of the study. It is important to consider the type of instructional setting when teaching skills or content. In this study the instructional setting was an important factor in student success.

EFFECTS OF A THREE PART STRATEGY CLUSTER IN A DIFFERENTIATED VS. WHOLE GROUP INSTRUCTIONAL SETTING

by
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Chair of Advisory Committee

DEDICATION

This work is dedicated to my students of the past and present who have been a great source of inspiration. As the Wright Brothers determination brought innovation to aviation let us take out reading wings to flight so that no single mind will be left on the ground.

BIOGRAPHY

Once upon a time there was brand new teacher fresh from Pennsylvania who found herself living in the land of North Carolina. After her first full week teaching third graders she knew there was something missing. The children couldn't read and she didn't know how to help them. The undergraduate degree she had earned was valuable but simply not enough to cope with the challenges of an inclusive classroom where every student seemed to have a reading difficulty. After a few months of tears and frustration, and an exhaustive search for anything helpful here and there, she knew it was time to get intensive training.

Through the journey of graduate school this teacher has found herself improving in helping students to understand why they are experiencing reading difficulties and how to work with them. Conquering our reading fears by utilizing effective strategies became a team effort between teacher, student, and parent.

To Be Continued….

ACKNOWLEDGEMENTS

A HUGE THANK YOU

To Ben who has helped in more ways over the past four years than I can count

To Lenz who is the best research assistant/editor anyone could ask for

To the other members of the Fourth Grade Team for your time, patience, expertise, and willingness to see this through

To the students who willingly participated

To my Principal whose support is unwavering

To Barry who found what Orville wanted to eat instead of popcorn

To my family who are always there for me

To my friends who've been neglected, I'm back!

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Purpose Statement

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Rationale and Research Questions

Strategy instruction is a popular approach in reading education today. Strategy instruction teaches students how to utilize a reading strategy, in what situation the strategy could be appropriately attempted, and why it is important (Vacca & Vacca, 2002). Reading strategies are commonly presented to students in one of two instructional settings either as a whole class or in small groups differentiated by reading level. Differentiated instruction, is when teachers respond to the difference among learners in the classroom by creating the best learning experience possible for each student by varying the content, process, end products, and learning environment (Tomlinson, 2000, p. 2). Although teachers may see the value of differentiated instruction it can be difficult to implement. Preparing a multitude of lessons across various reading levels can be a daunting task from week to week considering the amount of preparation time required. Some teachers doubt the effectiveness of teaching one

small group at a time, essentially leaving the rest of the class to work independently. Some see this as instructional time off task in a high-pressure environment to show student growth in test scores. On the other hand some educators feel the work put forth to differentiate lessons is the key to student growth by meeting each student at his or her ideal level of instruction.

In this study before, during, and after reading strategies were utilized in a cluster. The before reading strategies are an anticipation/reaction guide and an advance organizer. First students' prior knowledge of a given topic must be assessed. An anticipation guide is a list of statements or questions students respond to as a before reading activity. The purpose of this activity is for students to access existing schema or knowledge on the topic to be learned (Vacca & Vacca, 2005). The same questions are assigned after reading to determine what information was retained. Second, conceptual supports are developed to build new knowledge or enhance existing schema, which facilitates the encoding of new information. An example of a conceptual support is a narrative advance organizer. Once students' prior knowledge is assessed an advance organizer is designed to present important information students will need to understand the text in a story format (Marzano, Pickering, & Polluck, 2001). In this study the narrative advance organizer will be designed as a power point presentation.

The during and after reading strategy in the cluster is the Question Answer Relationship approach. The purpose of QAR strategy is to increase the students' awareness of where the necessary information to answer reading comprehension questions can be found. The QAR strategy helps students build schema on how to answer reading

comprehension questions by providing an organizational framework that helps students visualize whether the answers can be found in the text or in their head. The reader finds and summarizes information in the text or makes connections to prior knowledge or other texts (Fountas & Pinnell, 2001).

The QAR involves four types of questions: Right There, Think and Search, Author and You, and On Your Own. The answer to a Right There question can be found simply in one sentence of the text. A single statement from the reading can be turned around into a question. If the text read, “The Wright Brothers first successful flight took place on December 17, 1903,” the question would state “When was the Wright brothers first successful flight?” A Think and Search question requires a few paragraphs or pages of the text to be read. For example, “What is the main idea of this section?” Think and Search questions like “How was the Wright brothers experience inventing the airplane like Thomas Edison’s experience inventing the light bulb?” may also require a student to make a connection to text previously read.

Author and You questions can be answered with the help of clues found in the reading. Students must analyze this information and apply it to what they already know about the topic. For example “The author implies that Orville and Wilbur were not satisfied with their first attempts at flying. Why do you think this is true?” The responses to the following two On My Own questions are found as a combination of student’s opinions and experiences that are connected to the text: “How has the Wright brothers’ invention in 1903 changed your life today? What if they had not been successful?”

While educators are continuing the debate about whether or not to differentiate there are also those with opinions about the QAR strategy. Some teachers choose not to utilize the QAR in their classroom because it can take up to a week of instructional time during the reading block just to teach the questioning framework. The QAR is a metacognitive strategy and many students struggle with the higher order thinking components. Previous research involving the QAR has shown the strategy to be an effective method for teaching Right There and Think and Search question types. However there were inconsistent results for Author and You and On My Own questions because students lacked adequate background knowledge of the topic to make higher order thinking connections (Ezell et al., 1996, p. 6). Is this strategy worth the time it takes to teach if students are not really learning to think critically? This study will utilize the QAR strategy in conjunction with an anticipation/reaction guide and an advance organizer as a model of the information processing theory.

Information processing theory is one viewpoint represented within the cognitive perspective of learning. There are two assumptions on which this theory is based; the human memory is an active, organized processor of information and any prior knowledge of a topic is an important factor in encoding new information to long-term memory. Encoding new information to memory is considered successful when it can be retrieved with the appropriate stimuli usually in the form of a question (Gredler, 2005). This study examines one method of applying information processing theory in the classroom involving the three-part strategy cluster.

The best strategies taught explicitly may lack effectiveness if not delivered in the proper setting. Differentiated instruction is a classroom management approach in which teachers design activities that responds to students' individual readiness, instructional needs, interests, and learning preferences. Student may work with the teacher individually or in groups depending on their strengths and limitations. Differentiated instruction is highly flexible, allowing students the opportunity to make their own choices as to what type of task to complete to show competence in the skill or concept being learned. Teachers act as facilitators providing multiple assessments that meet curriculum standards and needs of the learner (Heacox, 2002).

In summary, based on a review of the literature, several assumptions can be made: 1) single reading strategies for young readers may not provide adequate support for information to be processed fully; 2) strategy instruction that is not individualized to the student's needs may be less than effective; and 3) differentiated instruction has been proven effective in terms of positive attitude and increased achievement in reading. As a result, this study was designed to address the following questions:

1. Is there a difference in reading comprehension skills among students on a fourth grade reading level who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), or a control group?

2. Is there a difference in content knowledge among students who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), or a control group?

3. Is there a difference in the ability to formulate reading comprehension questions at four levels among students who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR) and whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR)?

4. What is the percentage of change in students' attitudes towards reading in the two cluster strategy treatment conditions?

Review of the Literature

The following review of literature includes research involving the development and application of information processing theory. Evidence to support the three components of the strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR) is presented. Finally current research on the positive effects of differentiated instruction in the elementary setting is discussed.

"The human brain is unlike other organs in the body in that looking at its structure does not reveal anything about how it functions" (Parkin, 2000, p. 10). This simple truth has been a constant quandary for researchers in education. Beginning in the early 1980's research conducted by Raphael et al. focused on elementary students and their ability to comprehend

while reading and extend their thinking to a higher level. At the heart of these studies was a strategy referred to as Question Answer Relationships. Students were asked to develop four types of questions as they read. The four question types as previously described ranged from basic, low level, to higher order thinking questions. Results from multiple studies reported similar findings. Students were able to utilize the QAR strategy to answer Right There and Think and Search questions successfully. Author and You as well as On My Own questions requiring higher order thinking skills showed mixed results. Students often lacked prior knowledge of the topic they were reading about and therefore unable to make connections to the text (Raphael & Wonnacott, 1985). A study conducted by Ezell et al. in 1996 reported that students who were taught the QAR were able to maintain the ability to answer Right There and Think and Search questions over a period of time without reminders. Students were unable to accurately answer Author and You and On Your Own questions over time. The lack of prior subject knowledge when reading to learn can be an impediment and cause of frustration. In the past the QAR method has been partially effective. Standing alone, this strategy is only one piece of the puzzle. QAR could be successful in connection with an old theory, information processing theory.

In 1949 the theory of information processing first made its debut in the field of psychology by researchers Miller and Frick inspired by the work of Shannon. Shannon claimed that it was possible for information to be measured quantitatively by redundancy, meaning more information is transmitted than necessary for minimal communication and channel capacity, meaning that humans have a maximum capability for transmitting information. If it is possible for the amount of information to be measured then it is possible

to measure the efficiency of communication systems. From these findings Miller and Frick designed their own study demonstrating the use of information measure to describe the behavior of rats. Even though other scientists followed their lead it would be another year before the theory gained wide acceptance. Psychologists believed the measure to be too restrictive (Garner, 1988). After this initial concern new research created a wave of interest that eventually broke down into three areas of study within the foundations of information processing, perception, attention, and memory.

In 1951 Miller, Heise, and Lichten began experiments involving speech perception where subjects were asked to recognize words heard in noise. Findings of this study proved that the amount of information in the stimulus was a critical factor in the accuracy of subjects' responses. Attneave studied the perception of visual patterns in 1954. Findings from this study showed that the human visual system attempts to encode patterns as simply as possible by focusing on any identifying features (Garner, 1988).

Other researchers were concerned with the perception of motion. In 1957, Reichardt reported findings that described the vision of insects as linear. After many attempts to apply this theory to human vision it wasn't until 1984 that Santen and Sperling found that in fact human vision is non-linear (Dosher & Sperling, 1998). This shows the importance of understanding how the human brain first detects information from the environment. This knowledge is critical because perception is the first step in comprehending information (Gredler, 2005). Information gathered from the sensory system is stored in the brain's sensory register temporarily. From here a manageable amount of information will either be stored or lost. The remaining information will be given an initial meaning. Pattern

recognition will take over the process of identifying new information received from the environment. Receiving constant stimuli from the environment may cause students to be unaware of the appropriate information on which to focus their attention. Knowing which information to remember or forget can be a key factor in developing concepts in long-term memory.

Within the field of cognitive psychology there has been a considerable amount of research on the process of selective attention. Work on this topic began in the early 1950's by Collin Cherry. His theory, referred to as the cocktail party problem focused on the fact that humans can selectively attend to one conversation while other events may be going on around them. Results from this study concluded that certain aspects of the secondary stimuli could be identified however no meaning could be gathered from this information. A weakness in this theory is that while someone may be engaged in conversation with person A, it is possible to switch attention to person B and gain meaning accordingly.

The issue of attention switching was an area of interest for Broadbent who in 1958 reported his theory on an information-processing model of attention called the filter model. According to this model the brain accepts input from the environment into a sensory register. From here the brain decides via a selective filter to pay attention or lose interest. If the choice is to pay attention then the information learned goes into short-term memory. Otherwise the information is lost (Parkin, 2000).

Another approach to attention research focused on the perspective of resource limitations. This refers to the idea that there is limited source of energy available to initiate and maintain attention. A study by Allport et al. in 1972 reported findings on their study of

divided attention. Subjects were given a visual and auditory task to compete simultaneously. Results showed that that attention is task-specific. Competing demands on attention will stretch available resource capacity and therefore affect the ability to sustain attention on multiple tasks (Parkin, 2000).

Automaticity is another factor that affects attention. This is the ability to complete a task while expending very little energy on attention. Posner and Snyder conducted research on the theory of attention automaticity. Participants were asked to decide whether two letters presented side by side were the same or different and the response time was measured. Subjects were first shown a letter or symbol that may or may not be in the next letter pair. They found that the prior presentation of a same letter would lead to facilitating quick decisions about the content of letter pairs being the same. When the letter presented was different, response time was inhibited. These experiments lead to the dual-process theory of attention (Parkin, 2000).

Information is perceived from the environment and stored in the sensory register. From there the brain attends to the new information being presented. How successful this process becomes depends on the amount of resources needed to attend to the task at hand. An automatic task expends less attention energy and is more likely to be completed successfully. For student success in the classroom the ability to complete a task with automaticity is highly beneficial (Gredler, 2005). Students can then use conscious attention resources more wisely; such as performing a task that will encode newly gathered information into long-term memory.

The final aspect of information processing theory is memory. Research theories on memory changed from behavioral or operant conditioning stimulus response viewpoints with the development of cognitive psychology. Waugh and Norman reported their findings on the probe digit task in 1965. In this study participants viewed a stream of continuous digits. At various intervals subjects were asked to state the digit, which appeared immediately before the probe digit. Results showed that performance was best when the interval between the probe and the digit was small. As the interval between the probe and digit of inquiry increased performance level decreased. These findings supported the theory that retrieving information from primary memory is effortless. The short interval tasks only required the use of primary memory. Longer intervals produced poorer performance because subjects needed to retrieve information from secondary memory (Parkin, 2000). However all researchers were not in agreement on the theory of primary memory.

In 1966 Sternberg reported that the accessibility of an item in short-term memory could be inferred from the time required to recognize it. In this study subjects were shown a list of items, which were attended to and transformed into short-term memory. The participant then responded to a test a few of seconds later by telling whether the prompt was or was not a list item. There was a direct, positive, correlation between the length of the list and the amount of time it took to respond to the test. This finding lead to the theory that short-term memory is item limited and requires a recovery process for information to be successfully retrieved (Dosher & Sperling, 1998).

Memory research took a new direction in 1971 with Atkinson and Shiffrin's multi-store model. This model explains how information flows from the sensory register, to short-

term memory, and then after a rehearsal process into long-term memory. When the information is required retrieval strategies must be employed in order to effectively recall previously learned information. At this time it was assumed that although short- term memory was limited, long-term memory was not. In order for information to be stored in long-term memory rehearsal tasks were required (Parkin, 2000).

In 1972, Tulving increased the knowledge base of long-term memory by introducing the distinction between episodic and semantic memory. Up until that time research was conducted primarily on episodic memory, remembering discrete personal events. Semantic memory deals with language and general knowledge about the world. Later Tulving modified his theory to include procedural memory, which involves knowing the active process of how to compete a task. This theory was supported by research on amnesia patients. Patients with amnesia will have a fully intact procedural memory however the episodic memory may be affected so that life events are no longer remembered. Depending on the severity of the amnesia patient's semantic memory may also be affected, in that recently learned words or information have been forgotten (Parkin, 2000).

The theory that information is stored in a variety of ways inspired the dual-code model. This theory first introduced in 1971 by Paivio explains how information may be stored in long-term memory as verbal or non-verbal. Verbal information is an abstract object or event such as the idea of success. Examples of non-verbal information are environmental sounds, actions, and sensations. In 1983, Paivio and Clark found that nonverbal encoding is easier to recall as concrete memories than the abstract ideas of verbal memory (Gredler, 2005).

In 1992, Alexander took the dual-code concept further by explaining that an individual's knowledge is considered to be either tacit or explicit. Tacit knowledge is implicit and operates in a person's subconscious in the form of a script. A script is general information known about familiar events or places. For example, after going to the grocery store each week a child will soon remember every event that occurs during the repetitive trip from getting in the car to paying the cashier. Explicit knowledge on the other hand is conscious and available for thought. This idea of explicit knowledge is referred to today as meta-cognition, the ability to think about ones own knowledge (Gredler, 2005). This breakthrough in cognitive research changed the way educators expected students to learn. No longer an empty slate waiting to be filled, students are energetic able-minded thinkers that can learn strategies to take charge of their own learning. Now teachers have the challenge of determining how to best present information so that students will be able to retain and retrieve knowledge successfully.

Now that perception, attention, and memory are connected to how humans learn the information processing theory become a learning process theory. For success there must be a structured framework to increase students attention to important information. Second, the learner's perception must be facilitated so that information can be properly encoded into memory. Lastly students need strategies to construct meaning and retrieve information correctly. One theory concerning how new information is stored is the schema theory.

Schema is the basic building block of cognition. Mental organization is schematic or categorical in that knowledge about an object or event is considered to be a small network. This network is activated when a new object or event is similar to something already learned.

The new information is then stored with the pre-existing knowledge (Mandler, 1984). As the network builds schema will include knowledge from the past as well as what will happen, should a given situation occur again. According to Thorndyke there are five characteristics of schema models. First, a schema represents an abstraction or a list of properties that define an idea thus making a framework or scaffolding. Second, these properties are instantiated by events that fit the schema. Next, when new information arrives, it may not be complete so there cannot be instantiation right away. However predictions can be made as to where the new information might fit in the framework. Fourth, schema is formed through induction. The more experience a student has with a concept the easier it will be to make meaning. And finally, schema is hierarchically organized into different levels from general to specific (Detterman & Sternberg, 1993). Understanding how information is retained is integral in teaching students strategies to construct their own meaning and realize when gaps or discrepancies exist within pre-existing knowledge.

Information processing and schema theory are linked when considering how humans learn information from text. “A reader comprehends a message when he is able to bring to mind a schema that gives a good account of the objects and events described in the message” (Anderson, 2004, p. 594). There are several steps to successfully integrate these theories into the classroom. First, students’ prior knowledge requires activation in order to be accessed and developed. Second, lessons should be designed to focus students’ attention on the important information to be learned. Students should also be taught strategies to differentiate what material is important to learn and what can be left behind. Finally, students should be given the opportunity to practice strategies that will help in building as well as maintaining

knowledge such as a self-questioning strategy. According to information processing theory these things together will lead to students taking responsibility for their own learning.

Three main factors in students' motivation to read reported by Guthrie and Knowles (2001) are self-directed tasks, interesting texts, and cognitive strategies. As a classroom setting differentiated instruction incorporates these ideas. According to Tomlinson & Kalbfleisch (1998) differentiated classrooms are "responsive to students' varying readiness levels, varying interests, and varying learning profiles" (p. 54). "Differentiated instruction also means that teachers will create different levels of expectations for task completion within a lesson or unit" (Waldron & McLesky, 2001, p.176). Along with this idea, there are two ways in which differentiated instruction is beneficial to students as reported by Sorenson and Hallinan (1986). First, teachers are able to retain students' attention while there are fewer students in an instructional group. Second, teachers are more likely to adapt methods and materials to meet the needs of individual students. "Students are likely to make better use of their abilities and intellectual resources" (p. 522).

Eicher (1995) examined academically gifted fourth grade students who were underachievers in the classroom. Students were placed in a setting where instruction was differentiated by learning styles. Students also collaborated with peers who were academically gifted and high achievers. Students in both achievement groups made positive gains in self-esteem, attitude about school, and accountability (p. 34-36). Further research conducted by Baumgartner et al. (2003) placed second, third, and seventh grade students who lacked comprehension skills into differentiated classroom settings. These students worked within flexible groups and had a choice on variety of tasks to be completed as well as text to

be read. Students in all three groups showed an increase in reading comprehension skills as well as attitude about reading in general. The authors attributed this increase to the students' experience of success at reading on the appropriate level as well as receiving skill instruction in small groups. Teachers were able to easily assess where students required assistance. Further support for the concept that differentiated instruction can evoke positive changes in attitude about learning is derived from a study of students' perceptions of themselves.

Mac Iver (1988) looked at the effect that classroom practices have on how students view themselves as learners. Students were placed into mixed ability groups to perform mathematics skills. Students also received differentiated tasks that aligned with individual performance levels. Data collected from student surveys showed that students perceived themselves to be better at performing math tasks after working in smaller groups and completing assignments at his or her individual level (p. 503).

Another study examined the use of peer-assisted procedures to teach the QAR strategy (Ezell et al., 1992). Third grade students of low, average, and high achievement levels in reading worked together in mixed ability dyads to practice writing each question type. Results of this work showed that students at all levels improved significantly on writing types of QAR questions.

For the purposes of this study, the QAR strategy was modified to include teaching students how to use Bloom's Taxonomy. A study by Noble (2004) integrated a revised Bloom's Taxonomy into elementary classrooms in the attempt to aid in differentiation of curriculum to benefit students of mixed ability levels. Students were given multiple chances to work in the Bloom's domain that was comfortable for them (p. 206). Results showed that

students were able to develop a better self-awareness of their own learning. Also, teachers found it easier to determine where students needed extra attention.

A study conducted by Sternberg & Zhang (2004) looked at different styles of thinking. “A style of thought is a preference for using abilities in certain ways. It is not an ability itself, but the way one likes to utilize abilities” (p. 245). The fact that thinking styles takes personal preferences into account can be highly motivating to students, especially those that are struggling readers (Sternberg & Lubart, 1995). The QAR strategy in modified format meets the requirements of several thinking styles. Students with a hierarchic thinking style prefer assignments with many parts and will complete them in order of preference. The QAR strategy is taught in segments and the question writing and answering activities are completed in four parts to equate with the four question types. An oligarchic student prefers assignments in which all parts are equally important to complete. Each section of the QAR strategy is important for students to learn and perform with consistent accuracy. Anarchic students have a predilection for tasks that allow creative thinking and flexibility. The higher order thinking questions within the QAR strategy allow for students to think creatively and make connections between the text, self, and world (Sternberg & Zhang, 2004).

The QAR strategy appeals to many different thinking styles. This is an important consideration for teachers working within diversified classrooms. There is no such thing as a perfect strategy that will meet the needs of all students, and time is a precious commodity in the classroom. Knowing these realities, educators are looking for strategies and methods that will meet the needs of as many students as possible.

Methodology

Participants

Participants in this study consisted of 90 elementary students reading on the fourth grade level as determined by North Carolina end of grade test scores. The school is located in a suburb of a large city in North Carolina. Of the student population in this school, 54% receive free or reduced lunch. The percentage of students on the fourth grade reading level receiving free and reduced lunch is also 54%. Half of the participants are male and half are female. Forty-eight percent of students are African American, 39% Caucasian, 10% Hispanic, and 1% Asian. Eleven percent of students have English as a second language, 4% are academically gifted in reading, and 4% are considered learning disabled in reading.

Materials

An anticipation/reaction guide was designed to assess students' prior knowledge of the Wright Brothers' inventions (See Appendix B). From these responses an advance organizer in the form of a PowerPoint presentation was created to give students facts and aid their understanding. Students were given a survey to assess attitudes on reading and answering questions (See Appendix C). A graphic organizer explaining the four question types of the Question-Answer Relationships strategy was given to each student in the treatment groups (See Appendix D & E) along with a version of Bloom's Taxonomy question stems written in language fourth grade students can easily understand (See Appendix F).

Students in both treatment groups read *Amelia and Eleanor Go For A Ride* by Pam Munoz Ryan as they learned the QAR strategy in week one. The second treatment group was

taught in three differentiated groups. The leveled texts students used while learning the QAR strategy were *Fly Like A Bird* by Johanna Biviano, *Up, Up, and Away* by Anne Cambal, and *The Wheels on the Bike Go Round and Round* by Laurence Howard. The control group read *Science Super Giants: Can You Fly High, Wright Brothers?* by Melvin and Gilda Berger.

During weeks two and three, students in the first treatment group were taught as a whole class using *Science Super Giants: Can You Fly High, Wright Brothers?* by Melvin and Gilda Berger. In the second treatment group students in the below level group read *First Flight: The Story of Tom Tate and the Wright Brothers* by George Shea. The on-level reading group read *To Fly: The Story of the Wright Brothers* by Wendie C. Old. Students in the above level group read *The Wright Brothers At Kitty Hawk* by Donald Sobol. During reading each student kept a response journal in which his or her individual QAR questions were written. The control group read *Amelia and Eleanor Go For A Ride* by Pam Munoz Ryan.

Measures

Students' prior knowledge of the Wright Brothers was assessed with a pre-test of the content. The same test was given at the end of the study to determine if the QAR strategy was effective in aiding reading content retention. Students were also given a self-assessment questionnaire before and after learning the strategy to note any differences in how students perceived their own ability to answer different types of QAR questions. A Likert scale was used to rate students' ability to write and answer the four types of QAR questions recorded in individual reading response logs. Two writing samples were collected and scored with the rubric (See Appendix G). The Gates-MacGinitie Test was utilized as a post assessment to

determine the effectiveness of the QAR strategy in both the differentiated and whole class instructional setting.

Scoring

Scores were collected on five different measures. The content knowledge scores and self-assessment questionnaire responses were collected as pre and post-test measures. Gates-MacGinitie scores were compared across the groups at the end of the study. An ANOVA test was used to determine significant differences among the three groups. Fisher's LSD test was used to determine significant differences between groups. QAR questions and answers written in reader response logs were scored with a Likert scale. Two teachers were trained to rate these responses. Inter-rater reliability was established at 0.96 using the Pearson Product Moment correlation test.

Design

The researcher randomly assigned students to one of three groups, whole group, differentiated instruction, or control. Students were listed in alphabetical order and then assigned a number from one to ninety. The number range was entered into a random number generator and three lists of thirty numbers were created. Three fourth grade teachers were randomly assigned to teach one of the three groups using the random number generator. Students in the whole group and differentiated instruction groups received instruction in the QAR reading strategy over a three-week period. Both treatment groups received approximately one hour of instruction daily for thirteen days. The last two days of the study were utilized for assessment purposes. Students in the control group will receive instruction on this strategy at a later date within the regular school language arts curriculum.

Procedures

Two fourth grade teachers were trained by the researcher to teach the modified QAR strategy prior to student involvement in the study. In a one-hour session the cooperating teachers learned how the strategy works and practiced using the technique with student text. A third teacher was trained separately on procedures for facilitating the control group. The daily lesson plans to be used in the control group, whole group, and differentiated small groups were distributed and explained to each teacher individually (See Appendix A). A mini-lesson was modeled and teachers had the opportunity to ask for clarification on the strategy or lesson procedures. The teachers were given the opportunity to ask questions each day before and after the lessons were taught. Teachers were observed within the classroom setting on a regular basis to establish fidelity.

Week One. At the beginning of the study students in all three groups were given an anticipation/reaction guide to assess prior knowledge about the Wright Brothers. The first questions inquired about the Wright Brothers and their inventions. The second set of questions asked students to agree or disagree with opinion statements about reading and answering comprehension questions.

Next students in treatment group one were taught in a whole group setting how to utilize the Question-Answer Relationships strategy for the purpose of enhancing reading comprehension and higher order thinking skills. One of the four question types Right There, Think and Search, On My Own, and Author and You was modeled over a period of four days. Each day students were given the opportunity to practice writing and answering each question type during class. The book *Amelia and Eleanor Go For A Ride* by Pam Munoz

Ryan was read aloud as a class to provide students with an opportunity to hear a teacher modeled think-aloud for the QAR strategy. Each student received a graphic organizer, which explained the four question types and how to write or answer them. Students also received a copy of Bloom's Taxonomy question stems to aid in formulating questions. Students were encouraged to ask for assistance if needed and individual progress was monitored via teacher observations and classroom discussions. Homework was assigned nightly. Students were expected to read a section of text from class and practice writing and answering each QAR question type as it was taught.

The second treatment group received instruction on the QAR strategy with whole class mini lessons and then practiced question writing in differentiated reading groups. End of grade test scores for reading were used as the benchmark for placing students into three differentiated groups. There were ten students in the above level group, twelve in the on-level group, and eight assigned to the below level. Students received the same QAR graphic organizer and Bloom's Taxonomy question stems as the first treatment group. The difference in instruction was that students were practicing the strategy with text on their individual reading levels. Students in both groups wrote their own QAR questions in a reading response log before, during, and after reading each section. Homework was assigned nightly. Students were expected to read a section of text from class and practice writing and answering each QAR question type as it was taught.

For the first week of the study the control group read the text *Science Super Giants: Can You Fly High, Wright Brothers?* by Melvin and Gilda Berger. Students in this group read the text each day utilizing a variety of reading approaches such as paired reading, choral

reading, individual reading, and teacher read aloud. The teacher facilitated discussion on the content of the text and students formulated questions based on what they read. Students wrote their own questions in reader response journals. The students then worked with partners to answer each other's questions. Homework was assigned nightly. Students were expected to read a section of text and write questions about what was read.

At the end of the first week of instruction students were given two, one page stories unrelated to the Wright Brothers topic. Students in the treatment groups were asked to read each story and formulate QAR questions based on the text. Students in the control group received the same stories and were asked to write questions as they read. The responses from this assignment were collected and scored by two teachers using the QAR rubric.

Weeks Two-Three. After the initial responses to the anticipation/reaction guide were collected, a PowerPoint presentation was created as an advance organizer to teach students and provoke discussions about the Wright Brothers and their inventions. The purpose for this advance organizer was to give students information to aid their understanding of how important the invention of the first engine powered airplane was for North Carolina, the United States, and the world. This presentation was shown to all three groups at the beginning of the second week of the study.

Over the following two weeks during the reading block of class time students in the first treatment group read the same text *Science Super Giants: Can You Fly High, Wright Brothers?* by Melvin and Gilda Berger. Students wrote questions independently and then shared them orally during class discussion. To complete Think and Search questions students were encouraged to make connections between the Wright Brothers text and the Amelia

Earheart story they previously read. For On My Own questions each student was given a simplified copy of Bloom's Taxonomy question stems. The purpose of this resource was to aid students in developing questions that provoke higher order thinking. Students then exchanged papers with a peer who wrote answers to the questions. Homework was assigned nightly and students were expected to re-read text from class and write three Right There, three Think & Search, two Author & You, and two On Your Own questions.

Students in treatment group two read one of three chapter books assigned to reading groups by reading level. After completing each chapter students wrote several questions in the QAR format. Students wrote questions independently during class and then shared them orally in teacher-led small group sessions. Participating in the small group activity gave students the opportunity to correct any errors in writing the four question types. To complete Think and Search questions students were encouraged to make connections between the Wright Brothers text and book they previously read on flight. For On My Own questions each student was given an identical copy of Bloom's Taxonomy question stems that were used with the first treatment group. Students then exchanged papers with a peer in their reading group who wrote out answers to the questions.

Each day during the small reading groups students participated in discussions about the issues and events brought forth in the chapter books. As peers asked questions orally group members responded by telling the type of QAR question presented and whether they agreed or disagreed with the answer given. Students were encouraged to think about what they heard and use examples from the text to support their own answers. Homework was

assigned nightly and students were expected to re-read text from class and write three Right There, three Think & Search, two Author & You, and two On Your Own questions.

Within the second and third weeks, the control group read *Amelia and Eleanor Go For A Ride* by Pam Munoz Ryan. Students followed the same procedure of reading and then writing questions they formulated from the text as they did in week one. The teacher encouraged class discussion comparing the Wright Brothers *Science Super Giants: Can You Fly High, Wright Brothers?* by Melvin and Gilda Berger and the new text. Students worked in pairs to answer each other's reader response questions. Homework was assigned and students were expected to re-read text from class and write questions based on what was read.

During the first three days of the third week students finished reading the content texts assigned to their group. Teachers and students continued to practice question writing in reader response journals and answering questions written by peers. Students continued to receive homework assignments that asked students to read a text and formulate questions. Students were to answer their own questions as practice.

At the culmination of the three weeks the students in all three groups were given another copy of the anticipation/reaction guide on the Wright Brothers content to complete individually. Students were then given the first copy of the reading attitude survey that had been filled out at the beginning of the study so that a comparison could be made between what they believed before and after receiving the strategy instruction. Students were also given the Gates-MacGinitie Test for reading comprehension. Two writing samples of individual QAR questions written in reading response logs were selected. The first sample

was taken at the end of week one and the second sample was taken at the end of week three. Two teachers using a rubric and Likert scale rated both samples.

Results

As previously mentioned, students were randomly assigned to one of three groups: differentiated instruction (n=30, females =12), whole group instruction (n=30, females=18), and a no-treatment control group (n=30, females =15). For descriptive data, see Table 1.

Table 1. Descriptive Statistics

Variables	M	SD	N
Reading Comprehension			
Control	29.4	1.48	30
Whole Group	31.67	1.47	30
Differentiated	30.83	1.49	30
Content Knowledge			
Control	6.4	0.34	30
Whole Group	8.13	0.28	30
Differentiated	6.73	0.27	30
Rubric Scores Between Whole Group/Differentiated	-2.23	0.53	60
Right There	-0.07	0.05	60
Think and Search	-0.33	0.15	60
Author and You	-0.9	0.26	60
On Your Own	-1.0	.31	60

A series of Analysis of Variance (ANOVA) tests were run in order to determine if there was a significant difference among groups at the end of the study. ANOVA is used for comparing quantitative response variables, such as the means, of several groups. This is appropriate when population distributions per group are normal, standard deviations of the population distributions are equal, and independent random sampling is used. Preliminary analysis was conducted on end of grade test scores in reading to determine group equivalency. Results from the ANOVA test indicated that there were no significant differences among the three groups in reading ability at the beginning of the study ($F(2) = 1.25$, $p = 0.29$). Results are presented by each research question.

Research Question 1

Is there a difference in reading comprehension skills among students on a fourth grade reading level who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), or a control group? At the end of the three-week study the Gates-MacGinitie Test for reading comprehension was administered to each group. An ANOVA test was utilized to compare group mean scores. Results as seen in Table 2 demonstrate that there was no significant difference among groups in reading comprehension.

Table 2. ANOVA Results for Reading Comprehension

Source		*df*	M	*F*	*p*
	Between Groups	2	39.43	0.60	0.55
	Within Groups	87	65.56		
	Total	89			

Research Question 2

Is there a difference in content knowledge among students who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR), or a control group? At the end of the three-week study, a teacher made test on content knowledge related to the Wright Brothers was administered to each group. An ANOVA test was utilized to compare group mean scores. Results as seen in Table 3 show that there was a significant difference among groups in content knowledge. Fisher's LSD post-hoc analyses were conducted to determine which group differences were significant. Results indicated that the whole group instruction significantly outperformed both the differentiated and control groups ($p < .05$). For group means see Table 1.

Table 3. ANOVA Results for Content

Source		*df*	M	*F*	*p*
	Between Groups	2	25.38	9.58	0.001
	Within Groups	87	2.65		
	Total	89			

Research Question 3

Is there a difference in the ability to formulate reading comprehension questions at four levels among students who receive differentiated instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR) and whole group instruction with a strategy cluster (i.e., anticipation/reaction guide, advance organizer, and QAR)? At the end of the three-week study, students were asked to formulate the four types of QAR questions, which were scored on a 5 point Likert scale with 5 indicating higher order thinking. Students could derive a total score of 18 points, based on the addition of the 4 QAR subscales.

A series of t-tests were conducted to analyze differences on total scores as well as on the 4 subscales. Results indicated that there was a significant difference between treatment groups in the total scores on question formation. As seen in Table 1, the differentiated instruction group significantly outperformed the whole group instruction group ($t(58) = 4.22$, $p < .001$). Results indicated that there was not a significant difference between treatment groups for the “Right There” subscale.

The differentiated instruction group significantly outperformed the whole group instruction group on “Think and Search” questions (t (58) = -2.20, p =. 03), “Author and You” questions (t (58) = -3.46, p =. 001) and “On Your Own” questions (t (58) = -3.28, p =. 002).

Research Question 4

What is the percentage of change in students’ attitudes towards reading in the two cluster strategy treatment conditions? A survey with six statements was given to each student before and after the study. Students were asked to agree or disagree with each statement. Students that received whole group instruction reported 77% liked to read before the study and 90% at the end; the differentiated group reported no change. For the statement “I am a good reader” there was no change reported for either group; the whole group reported 90% and the differentiated group reported 80%. Before the treatment, 67% of students from whole group instruction reported that they think about the story as they read and 70% after. The percentage of students from the differentiated treatment group decreased from 87% to 80% in thinking as they read. For both groups fewer students liked to answer comprehension questions after the study. The percentage of students who responded that he or she is good at answering comprehension questions increased in the differentiated group from 37% to 53%. Students from whole group instruction maintained 73% before and after the study. Finally, 50% of whole group instruction students reported using a strategy while reading before the study, which increased to 60%. The percentage of students in the differentiated instruction group who reported using a strategy while reading decreased from 57% to 47% at the conclusion of the study.

Table 4. Results of Self-Assessment Questionnaire for Reading Collected As Pre-test and Post-test Measures Comparing Student Reading Attitudes in Whole Group Instruction and Differentiated Instruction

Survey Statements	Whole	Differentiated
I like to read.	+13	+0
I am a good reader.	+0	+0
I think about the story as I read.	+3	-7
I like to answer comprehension questions after I read.	-3	-7
I am good at answering comprehension questions.	+0	+16
I use a strategy while I read.	+10	-10

Discussion

The first purpose of this study was to determine if a difference in reading comprehension skills exists among students on a fourth grade reading level who receive differentiated instruction with a strategy cluster, whole group instruction with a strategy cluster or a control group. From the data collected it can be ascertained that there was no significant difference among groups. The anticipation/reaction guide, advance organizer, and QAR strategy cluster was not effective in increasing reading comprehension skills in students on a fourth grade reading level. Students worked with the strategy cluster for a three-week period. This amount of instructional and practice time may not have been sufficient to show growth in reading comprehension on a standardized test. At the conclusion of the study students in both treatment groups continued to utilize class notes and graphic organizers as reminders of how to formulate the question types. Over time as students continue to practice the QAR strategy while reading for content knowledge the skill could become more

automatic therefore providing a thought process for answering higher order thinking questions such as Think and Search, On Your Own, and Author and You. An automatic task expends less attention energy therefore more likely to be completed successfully (Gredler, 2005).

The difference in instructional setting also had no effect. Students the differentiated reading group did receive more individualized attention from the teacher and text on appropriate reading levels. The design of this study did not allow for students to self select text. Also class work assignments were not differentiated. Every student was required to read text segments and write QAR questions in response journals. Self-selecting text and tiered assignments are components of differentiated instruction (Tomlinson, 2000). This could have had an effect on student performance because the same level of task completion was expected (Waldron & McLesky, 2001).

The second purpose of the study was to determine if a difference in content knowledge exists among students who receive differentiated instruction with a strategy cluster, whole group instruction with a strategy cluster, or a control group? Results showed that there was a significant difference in Wright Brothers content knowledge between the control group and the group, which received whole group instruction. There was also a significant difference between the whole group and differentiated instruction group. The differentiated instruction group was not statistically different from the control group. From this information it can be determined that the class receiving whole group instruction significantly out performed the other two groups.

The whole group method provided all students with full class strategy instruction and teacher read alouds of content material from the same text. Students in this group read the text with a variety of techniques such as paired reading, choral reading, and independent reading. The teacher also facilitated lengthy discussions to aid students in making connections to the text. An environment was set for students to develop schema from a general to specific level (Detterman & Sternberg, 1993). Students in the differentiated group received the same strategy mini-lessons but read different texts based on reading level. Students did not have whole class discussions of the content material. These students discussed the text in small groups as well as practiced the QAR strategy therefore not having as much class time with the teacher to review the content orally. Some class time was spent reviewing Wright Brothers content with peers. Differentiated instruction with small reading groups may not be effective in aiding students' retention of content knowledge in this format. From this finding, whole group instruction appears to be more effective while utilizing the three-part strategy cluster for retention of content. Prior knowledge was activated, students were directed to pay attention to important information, the QAR strategy was taught, and practice time was given (Anderson, 2004).

Third, this study looked for a difference in the ability to formulate reading comprehension questions at four levels among students who receive differentiated instruction with a strategy cluster and whole group instruction with a strategy cluster. Results of this study showed an increase in students' ability to formulate Think and Search, On Your Own, and Author and You question types. Students in the differentiated group performed better on question writing than the group receiving whole group instruction. Students were able to

practice writing the question types in pairs and small groups (Sorenson & Hallinan, 1986). The teacher was able to provide support for the new skill at the point of need for each student as they were at various stages of learning. Students also received immediate feedback (Tomlinson & Kalbfleisch, 1998). Within the whole group instruction method the teacher does not have as much time to spend with each student individually. Each student may not receive feedback at the most appropriate time in order for changes to be made or for confusions to be addressed.

Finally is there a percentage of change in students' attitudes towards reading in the two cluster strategy treatment conditions? Results from the student survey were varied. Students who received the whole group treatment reported an increase in liking to read, thinking about the story as they read, and utilizing a strategy while they read. Students from the differentiated instruction group reported an increase in confidence of their ability to answer comprehension questions accurately. Students were able to read text at the appropriate instructional level, which may have increased understanding of the content therefore making students feel more competent in forming questions (Baumgartner et al., 2003). According to survey results the three-part strategy cluster did not produce any change in either group as to whether or not students believed themselves to be good readers. The lack of differentiated assignments in small groups could partially account for these results. Students are more likely to feel competent about their abilities if assignments are tailored to their ability levels (Mac Iver, 1988).

Both treatment groups reported a decrease in liking to answer comprehension questions after reading. As Gredler has noted (2005), students on the verge of acquiring a

new skill often feel frustration, which may cause them not to enjoy the new task. Over time as the students become more automatic with formulating their own QAR questions their opinions may change.

Limitations

One limitation of this study was a small sample size. Three groups of thirty students was the largest feasible sample size for this study given the available population of students. The study would have benefited from larger group sizes showing greater statistical reliability on the effects of the three part strategy cluster on students reading at a fourth grade level.

Secondly, teachers felt their own unfamiliarity with the QAR strategy was a factor in student performance. Although training and time for questions and discussion had been provided throughout the study, they lacked confidence themselves with their level of experience in teaching the new strategy. This may have affected student performance.

A third limitation was that within this three-week study many students did not have enough time to practice writing QAR questions for mastery. Students worked with the strategy for about an hour each day in school and some time spent with homework. Approaching content text by developing questions more difficult than Right There questions takes time to practice. This type of skill could be taught at the beginning of the school year and consistently revisited in order for students to develop automaticity.

Another issue was the large class sizes of thirty students. At the school in which this study was conducted teachers and students are accustomed to class sizes from twenty to twenty-two. Teachers found it difficult to manage the larger class size in both the whole group and differentiated setting. Some students who were comfortable with the usual class

size felt overwhelmed and needed a period of adjustment for the first week of the study, which could have had an effect on their attitudes and readiness to learn. Class size affected the amount of individual attention students received in the classroom. Students in the whole group setting did not obtain enough individual feedback on question writing and students in the differentiated group did not have enough class time to check for understanding of Wright Brothers content on a daily basis.

An additional limitation of this study was that students were learning new content and a new reading strategy within the same hour of instruction each day. The QAR strategy can require intensive thinking with analyzing and synthesizing text. Being able to keep up with new content may have overwhelmed students while trying to learn a thinking strategy at the same time.

Conclusions and Future Research

In the future, students could be given more time to learn and practice the QAR strategy to automaticity. The strategy could be utilized throughout the school day, not just in one subject area. For example the QAR strategy could be taught in differentiated reading groups during reading instruction while content could be read and discussed during social studies instruction. This would allow students to learn and practice the QAR strategy in small groups receiving individualized attention on question writing while reading text at the instructional level. Students could then have a second chance to practice the QAR technique later in the day while reading content text. The comprehension strategy would not be brand new and students could focus on learning content and making connections.

The three-part strategy cluster could also be repeated over time with a variety of content topics. This idea would entail utilizing the strategy cluster for one subject area such as Social Studies and comparing the results to data collected during Science instruction. Another way to change this study would be to look at the differentiated reading groups more closely. Would there be a significant difference among the small reading groups based on reading level? A further possibility would be for another form of anticipation guide or advance organizer to be utilized at the beginning of the study and allow students to make their own PowerPoint presentation as a culminating project. Giving students the opportunity to present information that they learned in their own format can be beneficial for retaining content (Marzano et. al., 2001).

Should this study be replicated alterations could be made to the method in which students' QAR question writing and answering is assessed. One way this could be accomplished is by charting daily progress in students' ability to write and answer the four types of QAR questions, which could be a motivational tool. A rubric for each question type could be designed as a tool for students in both treatment and control groups to use in assessing their own ability to write and answer QAR questions. Students could also be given a survey where they are given the opportunity to rate texts for level of interest. A variety of texts on the same topic could be provided and students permitted to choose which they would like to read.

In future work an investigation could be made into finding if the three part strategy cluster has an effect based on the gender or socio-economic status of students. Data could also be gathered from across grade levels. This strategy instruction would be appropriate for

grades three through five in the elementary setting. Students in upper grades could also benefit from QAR strategy instruction in content area classes.

Differentiated instruction, while not necessarily better for learning and retaining content knowledge can be effective in supporting the acquisition of new reading skills such as the QAR strategy. Students reading in small groups utilize different texts. This creates a challenge for teachers and students during whole class discussions if everyone is not presented with the same material. Students do receive individualized instruction on strategies in small reading groups. Teaching skills in small groups allows the teacher to notice where students need assistance and provide feedback immediately. Students have the opportunity to practice the newly acquired skill with a text on their instructional level. In this study students who received differentiated instruction felt that they were better at answering comprehension questions at the end of the three-week treatment.

The whole group setting was effective in aiding students with learning and retaining content knowledge. Students in this group read the same text with teacher lead class discussions. This method was a benefit to learning and retaining content because students were able to listen to connections that their peers made with the content as well as think of their own. Whole group instruction was not effective in teaching students how to write their own QAR questions. Mini-lessons provided modeling but there was little time for the teacher to provide feedback. The whole group treatment showed a positive change in students' attitude toward reading. More students liked to read, thought about the story while reading and utilized strategies while reading.

Both instructional settings were shown to be effective for different purposes. Whole group instruction works well for presenting content and the classroom discussions that are facilitated during that time are beneficial in students' ability to make connections with the text. Differentiated instruction is effective for teaching students new reading skills. In small groups students are reading text on their instructional level and practicing strategies with teacher feedback. It is important to consider the type of instructional setting when teaching skills or content. In this study the instructional setting was an important factor in student success. Whole group instruction was effective in facilitating the learning of the Wright Brothers content while differentiated instruction was effective in assisting students' acquisition of the QAR strategy.

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Appendix

Overview of Lessons

	Group 1: Control	Group 2: Whole Group	Group 3: Differentiated
Week 1			
Day 1	Pre-Test for Content	Pre-Test for Content	Pre-Test for Content
Day 1	Read Text 1 Complete Reader Response Log	Teach QAR Strategy Right There Text 1	Teach QAR Strategy Right There Text 1
Day 2	Read Text 1 Complete Reader Response Log	Teach QAR Strategy Think & Search Text 1	Teach QAR Strategy Think & Search Text 1
Day 3-4	Read Text 1 Complete Reader Response Log		
Day 3		Author & You	Author & You
Day 4		On My Own	On My Own
Day 5	Collect Question Writing Sample	Review Question Types Collect Writing Sample	Review Question Types Collect Writing Sample

	Group 1: Control	Group 2: Whole Group	Group 3: Differentiated
Week 2			
Day 1	View Advance Organizer (PowerPoint)	View Advance Organizer (PowerPoint)	View Advance Organizer (PowerPoint)
	Read Text 2 Reader Response Log	Read text 2 & practice QAR	Read text 2 & Practice QAR
Day 2-5	Read Text 2 Reader Response Log	Read Text Practice QAR with Whole class activities	Read Text Practice QAR with differentiated activities

	Group 1: Control	Group 2: Whole Group	Group 3: Differentiated
Week 3			
Day 1-3	Read Text 2 Complete Reader Response Log	Continue QAR practice with content	Continue QAR practice with content
Day 4	Content Post Test	Content Post Test	Content Post Test
Day 5	Comprehension Post Test	Comprehension Post Test	Comprehension Post Test
	Instruction on QAR strategy at a later date		

Wright Brothers Content Pre/Post Test

Directions: Read each question carefully. Write your answers in complete sentences.

1. Who were the Wright Brothers?_____

2. Why did they become famous?

3. What state were the Wright Brothers from? _____

4. Why did they move to Kitty Hawk, North Carolina for a short time?

5. Name at least one type of business the Wright Brothers were in before they moved to North Carolina.

6. Explain at least one experience from the Wright Brothers' childhood that helped them become successful inventors.

7. How did the Wright Brothers' lives change after they became famous?

8.How did the Wright Brothers' success at Kitty Hawk change the lives of people in North Carolina?

9. How might our lives be different now if the Wright Brothers had not been successful?

10. What do the Wright Brothers and Amelia Earhart have in common?

Self-Assessment Questionnaire for The Wright Brothers Unit

Name_____Date_____Teacher_____

Directions: Read each statement below. Mark an **X** in the column to show if you agree or disagree with each statement.

Before			**After**	
Agree	**Disagree**	**Statement**	**Agree**	**Disagree**
		I like to read.		
		I am a good reader.		
		I think about the story as I read.		
		I like to answer comprehension questions after I read.		
		I am good at answering comprehension questions.		
		I use a strategy while I read.		

QAR Question Types: Teacher Class Notes

Right There (Knowledge) **Date_____**
(Recall of information: Who, What, When, Where, How) **The answers to these questions are found in the book, usually in one place in the text.** What toy did Orville and Wilbur's father buy them that inspired the brothers to think about flight?
Think & Search (Comprehension/Application) **Date_____**
(Describe, Interpret, Organize Information From Text) **These questions make connections between <u>2</u> different places in one text <u>OR</u> more than one text.** What character traits do Amelia Earheart and the Wright Brothers have in common?
Author & You (Analysis/Synthesis/Evaluation) **Date_____**
(Find Evidence or Underlying Motives, Combine Ideas, Predict, Infer, Make Judgments) **The answer to this type of question is found in YOUR HEAD!** **Think about the author's purpose or opinions!** From what you read in the text, do you think the author has a positive or negative opinion about the Wright Brothers success? What evidence shows this?
On Your Own (Analysis/Synthesis/Evaluation) **Date_____**
(Find Evidence or Underlying Motives, Combine Ideas, Predict, Infer, Make Judgments) **The answer to this type of question is found in YOUR HEAD!** **Make a personal connection to something you know or have experienced that is similar to the text.** Have you ever taken a trip on an airplane? What was it like? How do you think Orville felt as he realized he was flying for the first time?

QAR Question Types: Student Class Notes

Student Name_____

Right There **Date_____**
Think & Search **Date_____**
Author & You **Date_____**
On Your Own **Date_____**

Bloom's Taxonomy Question Stems

Right There (Knowledge)
Remember, Recognize, Recall Who, What, When, Where, How?
Think & Search (Comprehension/Application)
Interpret, Describe, Organize Information, Summarize What does ____mean? What was it like? How did it happen?
Author & You (Analysis/Synthesis/Evaluation)
Find Evidence or Underlying Motives, Combine Ideas, Predict, Infer, Make Judgments What is the author's opinion? Why did the author include this information? What was the author trying to show? What evidence can you find in the text to support your answer?
On Your Own (Analysis/Synthesis/Evaluation)
Find Evidence or Underlying Motives, Combine Ideas, Predict, Infer, Make Judgments How does this compare or contrast? What would happen if? What other solution could there be? Do you agree/disagree? What do you think about? What is most important?

Reader Response Journal Page

Student Name_____Date_____

Right There	**Answers by:_____**
Think & Search	
Author & You	
On Your Own	

QAR RUBRIC
For Reader Response Journal

Objective Question Writing

Directions: Score each question based on the point scale and question type description.

5	4	3	2	1
Questions match type and look for analysis, synthesis, or evaluation of the material.	Questions match type and look for knowledge, comprehension, or application of material.	Questions match type but do not probe for thinking.	Questions do not match type or probe for thinking.	There is no question of this type attempted.

Question Type Descriptions

Right There	Think & Search	Author & You	On Your Own
Question asks for information that can be found directly in one line of text.	Question makes a connection between two sections of a text or two related texts.	Question looks for the Author's purpose or contemplate what the author was trying to say.	Question makes an appropriate connection to the reader's previous knowledge or experiences.
What state were the Wright Brothers from?	How were the Wright brothers like Amelia Earheart?	What evidence in the text shows that the author thought the Wright Brothers were brave?	How would our lives be different now if the Wright Brothers had not been successful?

Student Scoring Sheets

Student Name_____

Observer 1	Question Type	Observer 2	Score
	Right There		
	Think/Search		
	Author & You		
	On My Own		