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An Analysis Of Teacher Action Research Focused On Differentiated Instruction For Student Subgroups In One Florida School District In 2009-2010

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AN ANALYSIS OF TEACHER ACTION RESEARCH FOCUSED ON DIFFERENTIATED INSTRUCTION FOR STUDENT SUBGROUPS IN ONE FLORIDA SCHOOL DISTRICT IN 2009-2010

by

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ABSTRACT

This study examined the action research reports written by teachers in one Florida school district after they had received professional development on differentiated instruction and the action research process in the 2009-2010 school year. The 69 reports that were completed by the teachers were assessed using the Action Research Rubric that was developed for this study. This rubric evaluated whether the reports contained the elements of action research along with the characteristics that the district emphasized as part of the professional development such as differentiation, student subgroups, and collaboration.

The Action Research Rubric contained seven subscales: Purpose of the Study, Plan, Professional Collaboration and Resources, Data and Evidence, Results, Instructional Decisions and Professional Reflection, and Sharing Results. Descriptive statistics were found for the aggregate group of reports as well as subgroups depending upon the school level (elementary, middle, or high school), the types of teachers within the elementary category, or the FCAT subject area of focus for the report. Overall, the action research reports met the district's standard as measured by the Action Research Rubric. As an aggregate group, the reports also met the standard on the Purpose of the Study, Professional Collaboration and Resource, and Data and Evidence Subscales. They did not perform as well on the Plan and Sharing Results Subscales.

This work is lovingly dedicated to my supportive family.

Ed Pisani, Jr.

and

Michael, Sheila, and Patrick Madden

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Introduction

Action research dates back to the early twentieth century when Kurt Lewin (1948) used the technique in the area of social psychology and John Dewey's (1909) belief in progressive education paved the way for studies by Ralph W. Tyler and Myles Horton (Adelman, 1993). The work of Tyler and Horton, in turn, became the foundations for action research in education (Adelman, 1993). One of the early advocates of action research, Corey (1954) defined action research as a process where "the people who actually teach children or supervise teachers or administer school systems attempt to solve their problems by using the methods of science" (p. 375). Myles Horton (2003) used participatory research with adults as he tried to increase the literacy in Appalachia. Meanwhile, Tyler (1930) advocated action research as a way to stay abreast of the changing teaching methods in American education. He wrote that the set of teaching methods that teachers use upon entering the profession will need to evolve with time and he believed that the structure of action research was helpful in providing teachers avenues for growth in this regard. According to Tyler (1930), "though specific methods of teaching change with the seasons, methods by which intelligent people investigate and solve new problems are not so changeable" (p. 206).

As a contemporary approach to improving teaching and learning, action research provides a methodology for investigating problems in education. Corey (1954) described action research as a formal process conducted by practitioners in the field. He found this to be in contrast to teachers simply making changes in teaching methodology due to subjective

impressions of what the core problem might be or having an outside source study the problem and present them with solutions. The formal steps within the process of action research allow for the findings to be transferred to other situations and be conceptualized at a deeper level by practitioners (Brighton, 2009; Giles, Wilson, & Elias, 2010; St. Clair, MacLachlan, & Tett, 2009).

While there are multiple frameworks for action research, Brighton (2009) summarized the process by placing it into a series of seven steps. The process begins by identifying a focus for the research in the practitioner's classroom. The practitioner should conduct research for potential solutions to the topic. This process allows the practitioner to determine the formal question that he or she wants to answer as part of the action research. The second step is to create a plan for conducting the research, deciding on what measurements will be taken, and when these measurements will be taken. The next two steps are to collect the data, preferably from multiple sources, and then organize it. "The organizational system must be efficient, practical, and protective of sensitive or confidential information about specific students," (Brighton, 2009, p. 43). Then the findings of the research should be disseminated so other educators may benefit from the research. Finally, the process becomes cyclical as a new plan is developed.

Conceptual Framework

Zepeda (2003) found that the process of action research facilitates Dewey's concept of reflective inquiry. In recent years, action research has gained attention as a way for schools to promote targeted instruction to meet the specific needs of students in an era of increased accountability and standardized testing (Hines, Conner, Campano, Damico, Enoch, & Nam, 2007). The methodology has been used with new teachers to aid in their understanding of how to make informed instructional decisions (Giles et al., 2010; Ostorga, & Estrada, 2009; St. Clair et al., 2009). Among more established teachers it has been found to help counteract feelings of isolation and provide a sense of professional renewal (Robins, Villagomez, Dockter, Christopher, Ortiz, Passmore, & Smith, 2009). The fact that teachers decide on the topic of their action research projects leads to a greater sense of ownership (Brighton, 2009; Giles et al., 2010; Ostorga & Estrada, 2009; St. Clair et al., 2009). Researchers have also determined that the strategies employed in the classroom as part of action research benefit students beyond the original group that was targeted (Brighton, 2009; Giles et al., 2010; Sowa, 2009). The process also has been shown to lead to more positive dispositions in the teachers that participate in action research. Sowa (2009) found that the teachers were more open, flexible, and confident that they could impact change in their students after going through the process of conducting action research.

While Sowa (2009) found positive growth in teachers' professional attributes as a result of instituting action research, other researchers have warned against using action research as the predominant form of professional development. St. Clair et al. (2009) posited that it could lead to fewer commonalities in the repertoires of teachers since they would not be receiving the same

professional development. The authors believed that this might also decrease the responsiveness that school districts can have when initiatives for education are introduced at the national level. St. Clair et al. (2009) were also concerned that some school districts might rely too heavily on action research as a way of cutting staff development costs.

While going through the action research process, some researchers have reported teacher reservations with not being objective enough while conducting action research because they were acting as participants with an interest in seeing positive outcomes (Guishard, 2009; Patterson & Crumpler, 2009; Zollers, Albert, & Cochran-Smith, 2000). Ross and Blanton (2004) also wrote that participating in action research could not be considered by itself to be improving the practice of teaching. It requires other forms of professional development and follow-up to increase the likelihood that it will improve the practice of teaching (St. Clair et al., 2009).

Several studies also offer direction for making action research more impactful in the long term in the education system. Using action research within a school should be a continuing commitment by schools in order for it to take root and have lasting impressions upon teacher practice according to St. Clair et al. (2009). They suggested follow-up by administration after conducting workshops on how to conduct action research in order to make it more meaningful and a greater priority. Giles et al. (2010) and St. Clair et al. (2009) suggested that having administrative interest and support with the process and utilizing a mentor to guide teachers through the process of action research leads to lasting benefits in the teaching practices.

Communication and collaboration among teachers also leads to more meaningful insights as they work through the process (Fairbanks & LaGrone, 2006; Giles et al., 2010; Ostorga & Estrada, 2009; Ross & Blanton, 2004). In the study conducted by Ostorga and Estrada (2009) of

student-teachers who were completing action research projects in the classroom, the student teachers who collaborated were able to reach higher levels of reflection than those who worked independently as measured by King and Kitchener's (2010) scale of seven stages of reflective thought. In addition, the deep levels of reflection that teachers have as they go through the process and the accountability associated with sharing their findings led teachers to question their current methodology leading to long term changes in practice (Brighton, 2009; Chant, 2009; Fairbanks & LaGrone, 2006; Giles et al., 2010; Sowa, 2009).

Hahs-Vaughn and Yanowitz (2009) analyzed the School and Staffing Survey (SASS) from the National Center for Educational Statistics of K-12 schools in all sectors to determine the teacher, school, and staff development characteristics that led to a greater likelihood of teacher participation in teacher research. They found that teachers who had taught in private schools at some point in their career, had participated in staff development in their content area, student assessment, and teaching methods and had the support of mentors, peer observations, or coaching along with release time for research were more likely to participate.

In the era of increased accountability with No Child Left Behind (NCLB) (2001), teachers are seen to be key to student academic improvement (U.S. Department of Education, 2004b). At the same time the push for what Cochran-Smith and Lytle (2009) referred to as a "nonscientific view of science" may cause local knowledge to be "more likely to be regarded as anecdote or fad than it is to be seen as a legitimate way of knowing about schools and classrooms" (p. 69). These opposing views of the roles of teachers may also lead the way to conflicting results of action research. St. Clair et al. (2009) wrote that action research may either have the democratic potential of improving the academic experiences of the targeted

population of students whose teachers pool together their resources. However, the authors believed that this environment might inspire more individualism since teachers are personally accountable for the test scores and progress of their students. St. Clair et al. (2009) termed this phenomenon "the individual entrepreneurial educator" (p. 181). This would be contrary to Dewey's intention of the school acting as a source of democratic change in the community according to Adelman (1993) or what Cochran-Smith and Lytle (1993) termed his urging for "educators to be both consumers and producers of knowledge about teaching" (p. 9).

No Child Left Behind

George W. Bush introduced the *No Child Left Behind* (NCLB) *Act* to the American public just three days into his presidency in 2001. It was instituted as a way to improve the American education system through increased accountability for the states, school districts, and schools, greater choice for parents, an emphasis on reading education, and increase flexibility in the way that Federal funds are used by states and local education agencies (U.S. Department of Education, 2004a). It holds the lofty goal that all children will be proficient in reading and mathematics by the 2013-2014 school year as measured on statewide assessments on state standards (Taylor, Stetcher, O'Day, Naftel & Le Floch, 2010). According to the U.S. Department of Education (2008a), "he challenged schools to hold all students regardless of race, income level, background, or zip code, to the same high standards" (A Quality Education for All section, para. 1). To meet this objective, NCLB requires schools to report disaggregated student scores based on subgroups of students who come from low-income households, have disabilities, or are of limited English proficiency. In addition, the scores are also reported by the students'

race or ethnicity to help ensure that the schools target all students for improvement in their academic standards (U.S. Department of Education, 2008a). The U.S. Department of Education (2004a) also stated that by reporting student scores by these various subgroups will ensure that states and school districts provide adequate planning to assure all students make gains.

Each state was required to develop a plan for assessing Adequate Yearly Progress (AYP) and submit it to the United States Department of Education for approval as part of NCLB (Florida Department of Education, 2009). According to Taylor et al. (2010), the flexibility within NCLB has led to differences in the ways that states test and report their results including the rigor of the tests, the way that AYP is calculated and their annual proficiency targets. In Florida the proficiency targets for the 2009-2010 school years were 72% of students at or above grade level in reading and 74% of students at or above grade level in mathematics (Florida Department of Education, 2009). Since these numbers were based upon the goal of having all students at proficiency by the 2013-2014 school year, the proficiency targets increase by 7% each year for reading and 6% each year for mathematics from (2009-2010)-(2013-2014) (Florida Department of Education, 2009).

According to a 2009 Florida Department of Education (FDOE) report, "all public schools must be held to the same criteria, and all eligible students must be included in the calculation of AYP" (p. 2). In addition to reporting the aggregate scores of students in each grade level on the yearly assessments the eight subgroups that are also reported for AYP as identified by the FDOE include: white, black, Hispanic, Asian, American Indian, economically disadvantaged, English language learners, and students with disabilities. If a school has not met AYP due to the proficiency of all students or to the proficiency of two or more subgroups, the school is

considered to have wide scale problems, and schools that fail to make AYP due to the proficiency of one subgroup are viewed to be inadequate at meeting the needs of a segment of the school population (Taylor et al., 2010). The FDOE (2009) explains the criteria for meeting reading and mathematics proficiency for each subgroup applies when "the number of students is greater than or equal to 30 and represents more than 15 percent of the school's population (with valid test scores) or at least 100 students" (p. 2). (See Table 1.) Writing proficiency is evaluated with a minimum of 30 valid test scores. The writing proficiency meets the criteria of NCLB requiring states to have an additional academic indicator beyond reading and mathematics assessments. The FDOE (2009) also reports that 95% of eligible students must be tested for AYP purposes and that the state of Florida has three other criteria for meeting the standard: improved writing performance by the number of students meeting proficiency by 1% (or a school wide proficiency of 90% or more), at the high school level the graduation rate must increase by 1% or stay above 85%, and the school cannot receive a D or F rating.

Table 1 *Minimum Number of Students in Subgroups Needed for Calculating AYP in Florida*

Group	Minimum Number
Race/Ethnicity	---
White	30
Black	30
Hispanic	30
Asian	30
American Indian	30
Economically Disadvantaged	30
English Language Learners (ELLs)	30
Students with Disabilities (SWD)	30
AGGREGATE	N/A

Collaboration in Action Research

Collaboration is necessary when conducting action research to establish more insightful reflection as teachers engage in dialogue with one another (Argyropoulous & Nikolaraizi, 2009; Fairbanks & LaGrone, 2006; Giles, Wilson, & Elias, 2010; Ostorga & Estrada, 2009; Shosh & Zales, 2005). Ostorga and Estrada (2009) found that these interactions led to action research plans that were more detailed and thoroughly planned. In addition, the collaboration can lead the teachers to have a greater level of dedication to the action research. Warrican (2006) stated that "the more collaboration involved, the more committed the participants are likely to be" (p. 11). Argyropoulous and Nikolaraizi (2009) listed character traits that were prerequisites to meaningful collaboration between teachers as part of action research projects. Their list of traits included: the ability to change, share responsibility, and rely on one another. Argyropoulous and Nikolaraizi (2009) also maintained that teachers who collaborate with one another need to relinquish some of their autonomy and must exemplify great interpersonal skills.

There are several factors that have evolved as part of the culture of schools that might inhibit the likelihood that teachers will participate in collaborative action research projects. For example, Argyropoulus and Nikolaraizi (2009) wrote that the structure of schools with one teacher in one classroom might make it difficult for teachers to envision how to incorporate collaboration as part of their action research projects or even foresee a way to make this possible. Holly (1987) wrote about how participating in action research might not incite collaboration since action research is a way to create change in the school which might be seen as a threat to the school's long established culture. Therefore, Holly explained that those teachers who participate in action research might be shunned by teachers who do not want change. Lloyd (2002) stated that "by its very nature, action research challenges practice and for some colleagues this will inevitably be an uncomfortable process, which may result in alienation for the researcher" (p. 119). In the case of teacher action research, this alienation will be between teachers.

Having time set aside to conduct action research in collaboration with other teachers is another obstacle to the process. Lloyd (2002) described teacher action research projects conducted by fifteen Dutch teachers from various schools. Some teachers reported that within their schools they found it difficult to find colleagues willing to collaborate due to time constraints and feelings of being threatened by the research. In an interview, Schlechty argued that the time needs to be built into teachers' schedules for action research and reflection since they barely have enough time to literally digest their lunches let alone digest the events in their classrooms (Whitford, Schlechty, & Shelor; 1987).

In the first decade of the 21st century, some schools shifted away from school cultures where teachers worked in isolation to encouraging collaboration through learning communities (Given, Kuh, LeeKeenan, Mardell, Redditt, & Twombly, 2010; Lujan & Day, 2010; Lumpkin, 2008). When teachers work in collaboration as part of action research it can be seen in many forms. In some cases, the teachers conducting action research would come together as a whole group to work on formulating the action research projects and ensuring that they met the expectations of the school administrators or university mentors if the action research was conducted as part of coursework (Giles, Wilson, & Elias, 2010; Shosh & Zales, 2005; St. Clair et al., 2009). In these studies, the teachers then continued to meet in smaller groups to support one another and work through obstacles along the way. In some cases, university mentors worked with teachers who had volunteered to complete teacher action research projects that were not part of any requirements for coursework (Giles et al., 2010; Langerock, 2000).

Within schools, teachers form groups in various ways as they conduct action research. In some cases, the collaboration may be across a department like a group of high school chemistry teachers who noted common errors in their students' conceptual understanding (Robins et al., 2009). At the elementary level, this might translate into teachers collaborating on action research projects across a grade level (Butterfield, 2009; Giles et al., 2010). Butterfield (2009) conducted research on a school that noted a school wide concern with a lack of growth in reading achievement. Grade levels decided upon their own action research projects to address this issue. In other instances, teachers within the same school collaborated on their action research projects due to the common questions that they wanted to address through action research. This type of collaboration spanned grade levels and opened communication between teachers that would not

normally have worked together (Giles et al., 2010). Teacher action research projects can also involve regular education and special education teachers collaborating on the project to help students in inclusive classrooms (Dymond, Renzaglia, Rosenstein, Chun, Banks, Niswander, & Gilson, 2006; Langerock, 2000; Parker, 2006). Butterfield (2009) also explained how reading specialists within the school can be a resource for teacher action research reports.

Once the action research reports are completed, teachers may share their findings in many different ways. For example, some administrators encourage school wide sharing of the results (Butterfield, 2009; Giles et al., 2010; Glanz, 2005). Giles et al. (2010) studied a Missouri elementary school where the principal invited interested teachers from other schools to attend these sharing sessions. In other studies, teachers shared their findings with their departments or grade levels (Glanz; Warrican, 2006). At the beginning of the school year, new teachers may be given insight gained about a specific student from the previous teacher's action research report as yet another form of collaboration (Giles et al., 2010).

In addition, some teacher action research reports have provided teachers with the opportunity to combat some of the isolation of the classroom. In her research, Richards (1987), a middle school language arts teacher, observed a group of students that she targeted as part of her action research report as they went to classroom to classroom throughout the day. In other cases, the teachers conducting the action research might open their doors to let other teachers in the school see how the new techniques are being implemented (Warrican, 2006).

Subgroups in Action Research

McCracken (2004) wrote that "if no child is to be left behind then every child must be studied. What is needed now more than ever is research on small groups and individual children working in particular contexts" (p. 108). While Glanz (2005) did not reference NCLB specifically, he did recommend it as a methodology to improve instruction, "because no one educational strategy works under all circumstances, action research is used by principals and teachers to discover which pedagogical practices are most effective in raising achievement levels for particular classes or students in a given grade" (p. 19). Schoen (2007) also referenced action research as a way for schools to meet the demands of ensuring student success in response to NCLB. Since NCLB requires standardized test scores to be reported by various subgroups, a review of the literature was conducted to see if the action research being conducted by teachers specifically targets any of these subgroups.

Accountability within NCLB may be a deterrent for some teachers to attempt action research. Shosh and Zales (2005) wrote that the pressures to perform well on standardized tests have led to an increase in low level practice of answering multiple choice questions and a decrease in the amount of authentic tasks which students are given. Cannon (2006) found that the pressures of standardized tests which require specific content to be covered prior to testing seem to be in conflict with the time needed for teachers to make accommodations for the special needs students. Warrican's (2006) study involved action research in a secondary school in the Caribbean where nonreaders were being targeted, however, fear of testing even though NCLB was not issue in this country made many teachers reluctant to participate.

The literature review conducted by this author did not locate any studies where teachers had developed subgroups in direct response to NCLB. However, Langerock (2000) used the Texas Assessment of Academic Skills (TAAS) scores for her students to target six special education students, 3 of whom were African-American and 3 of whom were Hispanic to improve their scores before the ramifications of NCLB. Her goal was to improve their reading scores on the following year's TAAS by increasing the level of collaboration between herself and the special education teacher and among the students in both reading and writing.

There are some examples in the literature of targeting groups of students who are examined as subgroups in NCLB even though the authors did not mention NCLB as a factor for creating the project. The teacher action research projects that Sowa (2009) wrote about involved English language learners' reading skills. The work of Monroe, Gali, Swope, and Perreira (2007) examined the impact of using alternatives to round robin reading with students who received special education services at a Title 1 school. Parker (2006) studied the impacts of using alternative instructional strategies with students who had learning disabilities.

At the international level, which was beyond the scope of NCLB, studies could be found where teachers had targeted students who had visual or hearing impairments (Argyropoulous & Nikolaraizi, 2009), had learning disabilities (Lloyd, 2002; Nonis, 2008), or students who had moved to the Netherlands and were being taught mathematical concepts as they were learning Dutch (Lloyd, 2002).

While the literature did not show that subgroups of students were being chosen for teacher action research in direct response to NCLB, there was an overlap in the groups that NCLB examines and the groups of students that teachers were targeting. However, teachers

have been targeting these subgroups before NCLB was established and teachers from abroad also target students from these categories.

Data Sources for Action Research

The use of multiple data sources has been advocated as a way to view the problems being studied through action research from various perspectives which enables the teacher conducting the research to notice nuances that may have gone unnoticed (Glanz, 2005; Ostorga & Estrada, 2009). Doris, a teacher who used cooperative learning with one of her mathematics classes as part of her action research project, reflected, "Once you gather and analyze your own data, you'll be in a position to make your own judgments about what should or should not be done. Action research empowers teachers!" (Glanz, 2005, p. 21). With this in mind, a review of the literature was conducted to determine what types of data sources teachers were using to support their decisions in their action research projects.

Various types of tests were used as data sources in teacher action research projects. Standardized tests scores were used in some studies (Glanz, 2005; Langerock, 2000). In these projects, the standardized tests scores seemed to be the impetus for the action research. Teacher made tests were also used in some studies to note whether progress was being made with the skills that were the focus of the action research (Glanz, 2005; Robins et al., 2009). For some action research projects involving reading, utilized assessments were sold as kits. PM Benchmarks for grade level reading equivalents were taken at the beginning, middle and end of the project in Jersey, United Kingdom (Butterfield, 2009). Meanwhile, other projects employed

the Informal Reading Inventory (IRI) to track students' reading development (Langerock, 2000; Warrican, 2006).

Other sources of information on how the students were progressing while participating in action research included work samples (Glanz, 2005; Langerock, 2000; Patterson & Crumpler, 2009; Shosh & Zales, 2005; Warrican, 2006). Reading logs were also used to track whether students had an increasing amount of time devoted to leisure reading (Warrican, 2006). Richards (1987) also used report card grades to see if students' motivation and grades improved as part of her action research project.

A wide array of data sources involved using the words of the teachers and students who participated in the action research as they reflected on what had taken place. Surveys were used in several studies (Glanz, 2005; Langerock, 2000; Richards, 1987; Shosh & Zales, 2005; St. Clair et al., 2009). A more open ended form of gathering the participants' reflections was used though journal entries in several studies (Dymond et al., 2006; Langerock, 2000; Monroe et al., 2007; Patterson & Crumpler, 2009; Richards, 1987). Interviews were also used to gather the thoughts of teachers and students as they reflected on how the action research was progressing and impacting change (Dymond et al., 2006; Glanz, 2005; Richards, 1987; Shosh & Zales, 2005; St. Clair et al., 2009; Warrican, 2006).

In addition, there were instances where the actions and words of participants were captured as they worked in the classroom. For example, observations and field notes were used to document important interactions that took place in classrooms (Dymond et al., 2006; Patterson & Crumpler, 2009; Richards, 1987; Robins et al., 2009; Shosh & Zales, 2005; Warrican, 2006). Audiotapes were used in the action research of Richards (1987) to document the students' words

and interaction with their teacher. Meanwhile, both of the studies by Patterson and Crumpler (2009) and Zhang, Lundeberg, and Eberhardt, (2010) found videotape to be a positive source for action research data. Zhang et al. (2010) believed that the videotapes provided an unbiased view of interactions within the classroom and a way for researchers to notice small interactions and discussion points that might go unnoticed during traditional observations.

Problem Studied

Achievement of student subgroups as identified by NCLB is a challenge among schools. Teacher use of data and evidence to differentiate instruction and find solutions to address learning needs of specific subgroups and specific students is essential to improve learning. Therefore, the problem to be studied was whether the teachers in this school district who completed action research projects met the standards that the school district had set concerning the action research process, use of collaboration, and focus on student subgroups.

Definitions of Terms

Action Research- "any systematic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their particular schools operate, how they teach, and how their students learn" (Mills, 2003, p. 5)

Adequate Yearly Progress (AYP)- "An individual state's measure of progress toward the goal of 100 percent of students achieving to state academic standards in at least

reading/language arts and mathematics. It sets the minimum level of proficiency that the state, its school districts, and schools must achieve each year on annual tests and related academic indicators" (U.S. Department of Education, 2008b, http://www.ed.gov/nclb/accountability/ayp/edpicks.jhtml?src=az).

Florida Comprehensive Assessment Test (FCAT) - "part of Florida's overall plan to increase student achievement by implementing higher standards. The FCAT, administered to students in grades 3-11, consists of criterion-referenced tests (CRT) measuring selected benchmarks in mathematics, reading, science, and writing from the Sunshine State Standards (SSS)" (Florida Department of Education, n.d., http://www.fldoe.org/faq/default.asp?Dept=179&ID=972.,).

No Child Left Behind Act of 2001 (NCLB)- an act passed by the United States Congress and signed by President George W. Bush in an attempt to reform the American educational system with a special focus on "improving the academic achievement of the economically disadvantaged" with the stated goal "to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind" (The No Child Left Behind Act of 2001). NCLB was a reauthorization of the Elementary and Secondary Act of 1965.

Student Subgroups- To meet the objective of having all students improve in academic achievement, NCLB requires schools to report disaggregated student scores based on subgroups of students who come from low-income households, have disabilities, or are of limited English proficiency. In addition, the scores are also reported by the students' race or ethnicity to help ensure that the schools target all students for improvement in their

academic standards (U.S. Department of Education, 2008a). These disaggregated student scores are the student subgroups that are examined to determine if a school has made AYP.

Teacher Action Research- Action research completed by teachers for themselves. It involves identifying an area of focus, developing an action plan, collecting data, analyzing and interpreting the data (Mills, 2003).

Research Questions

In light of the research on the attributes of action research and the environment of increasing accountability at the teacher level for students' academic success the following research questions were studied (See Table 1):

1. What are the descriptive statistics of various teacher professional variables using the action research scores on the Action Research Report Rubric?
2. To what extent do teachers report collaborating with others or use professional resources to design their action research?
3. To what extent do teachers report sharing the findings of their action research with just a few teachers, their team, their school, or at the school district level?
4. To what extent do teachers target students in their action research based on one of the AYP subgroups such as race, economic disadvantage, English proficiency, or Exceptional Student Education services?

5. To what extent do teachers differentiate instruction by altering the resources, time, intensity, or instructional techniques used with the students who were targeted for the action research study?
6. To what extent, do teachers measure change with various types of data or evidence (attitude surveys, observations, tests, or work samples)?

Table 2 *Data Sources Used to Answer Research Questions*

Research Question	Data Source
1. What are the descriptive statistics for the projects based on teacher professional variables?	Teacher Action Research Rubric-Overall Score
2. To what extent, do the teachers use collaboration or on their projects?	Professional Collaboration resources and Resources Subscale
3. To what extent, do the teachers share their results with other professionals?	Sharing Results Subscale
4. To what extent, do teachers connect the purpose of with AYP subgroups?	Purpose of the Study their projects Subscale
5. To what extent, do teachers use differentiation with with the targeted students?	Planning Subscale
6. To what extent, do teachers use a variety of data and evidence to measure change?	Data and Evidence Subscale

Methodology

Population

During the 2009-2010 school year, a group of 96 teachers in a Central Florida public school district participated in teacher action research projects after attending workshops on differentiating instruction during the summer of 2009. They were chosen by their principals for this project. The primary resource for teachers that was emphasized in the workshops attended together was a book from the Florida Department of Education (Rawlinson & Little, 2004) entitled "Becoming an Action Researcher". It provided explanations of the steps involved in the process along with examples for how each step should be completed. There were places at the end of the chapters for the teachers to summarize what they had learned and write reflections on the content. There were also blank forms that teachers could use to help them organize the steps in the process or use to take notes on the progress of their students. Examples of questionnaires and skills assessments were also provided to help teachers envision what their project should resemble. Another book from the Florida Department of Education (Little & Rawlinson, 2002), "Becoming an Action Researcher to Improve Learning in Your Classroom," was given to the teachers. This book provided information on each of the steps in the action research process and gave both examples and non-examples of how teachers could accomplish these steps. The teachers who participated in this project included those at the elementary, middle school, and high school levels.

School District Action Research Process

As follow-up to these workshops, the teachers met with a consultant in the fall of 2009 to discuss how to go through the process of translating what they had learned in the workshops regarding differentiated instruction into action research. The teachers then met again with the consultant in January of 2010 for a status update and to review how the teacher action research should be documented in order for the teachers to receive thirty hours of continuing education credit. The final teacher action research projects were due at the end of the 2009-2010 school year and were to be submitted to the school district director of professional development in order to receive in-service credit and to be posted on the internal portion of the school district website for other teachers to read and reference.

The teachers were given a template for the write up of their action research (See Appendix A). This template included a portion to be completed before the teacher action research was initiated. The information included the teacher's name, the school or department, a problem statement, goal, general statement of actions to be taken, and the formal research question. At the end of this first portion, there was also a place for the principal to sign and date as an indication that he or she was aware of the report.

The remaining portions of the template were to be completed after the teacher action research had been concluded. The first of these two sections concerned the research process and included an explanation of the baseline data that had been collected, the resources that had been used to make an informed change in methodology, the demographics of the students who were selected along with an explanation of why they were selected, a summary of the strategies that

were implemented and amendments that were made to the process along the way, and the timeline of the study.

The second section to be completed at the end of the action research was an abstract. The teachers were given a list of guiding questions to prompt them to include the following pieces of information: the problem, actions that were taken, a description of the differentiation, a minimum of three forms of data or evidence to demonstrate how the subgroups were impacted the change along with an analysis of the data, a professional reflection on how the action research impacted teaching, and a statement concerning who the teachers shared their teacher action research with as part of a collaborative effort or as part of the process of disseminating the findings.

Instrument

The Teacher Action Research Rubric (See Appendix B) was the instrument developed by the researcher to answer the research questions. This rubric was developed based upon the 2004 booklet on action research developed for the Florida Department of Education which outlines the steps in the process of action research and was used by the teachers who participated in this project. In addition, the Action Research Rubric was developed with permission based upon a rubric developed by Cynthia Pearl (See Appendix C). Pearl attributed her rubric as being an adaptation of the work of from K. J. Miller. Pearl's version was published in Bruce and Pine's (2010) book on action research in special education.

This Teacher Action Research Rubric was adapted for the purposes of the current study to reflect this Florida school district's expectations of the action research. These expectations include evidence of differentiation and the identification of AYP subgroups that were being

addressed in the project. The instrument was reviewed by four experts in the field for content validity. One of the experts specialized in educational research methodology, measurement, and evaluation. Another expert specialized in instructional leadership focused on improving student achievement and has conducted workshops on action research. The third expert has a focus on preparing teachers and administrators and employee supervision. The final expert has published works on action research, data based decision making, and exceptional student education.

The instrument is composed of seven subscales. These subscales include: Purpose of the Study, Plan, Professional Collaboration and Resources, Data and Evidence, Results, Instructional Decisions and Professional Reflection, and Sharing Results. Each subscale on the rubric has a point value ranging from 1-5. Lower numbers on the scale indicate that the action research report did not include all of the elements required by the school district. A score of 3 would indicate that all of the required elements for that portion of the subscale were met. Scores of 4 or 5 would indicate that the report went beyond the minimal requirements and included elaboration as well. When the seven subscales of the instrument are combined each report could receive a maximum score of 35 points.

Data Analysis

To answer the research questions, the completed teacher action research reports were analyzed. At the onset of this project, approximately 96 teachers had committed to the process. These teachers represented teachers from K-12 in a variety of subject areas; therefore the data were analyzed by grades K-5, 6-8, and 9-12 as well as in aggregate. Each action research report that was completed as part of the school district's initiative was analyzed and scored on the

Teacher Action Research Rubric. The average overall score given to each report along with the subscale scores that pertained to the various research questions were computed. These scores were analyzed in aggregate to determine the overall mean score on the report along with the range, mode, and median. These statistics were computed based on grades K-5, 6-8, and 9-12. In addition, scores for the elementary teachers were analyzed based upon whether the teachers taught ESE or ELL students or were kindergarten, first, second, third, fourth, or fifth grade classroom teachers. The reports were also sorted based upon subject matter: mathematics, reading, science, or writing. These subjects were all FCAT tested areas.

Limitations

The study has the following limitations:

1. The teachers were reporting the information as they completed the Action Research Report for their school district. Differences in their interpretations could impact whether or not all pertinent information was included.

2. The reports that were used in this study were from one school district in the state of Florida. Therefore, the conclusions from this study may not be generalizeable to other schools in Florida or to the United States.

3. The fact that the principals chose the teachers who would participate in this study might impact the quality of the reports that were conducted. Also, there was a smaller group of high school teachers that participated in the study than elementary or middle school teachers.

4. Many variables outside of the control of the researcher could impact the way the teachers structured their action research reports. These variables may include: the student

population in the teachers' schools and classes, the cultures of their schools and whether they welcome collaboration, and the resources available at the schools.

5. The researcher was the only scorer of the action research reports. However, steps were taken in an effort to establish reliability. A report was read once and scored. Then in a minimum of 24 hours later, the report would be read again and rescored. If the scores did not match, the report was read and rescored a third time 24 hours later.

Delimitations

The delimitations employed by the researcher in this study include the fact that the researcher did not observe the meetings that were held with the consultant at the beginning of the school year when the action research report was being introduced. The researcher was also unable to attend the sharing session that the teachers had during the summer to explain the action research reports to other teachers within the school district that might be interested in completing an action research report during the 2010-2011 school year.

Another delimitation of the study is that it lacks follow through to indicate why teachers who may have begun the action research report may not have completed the project. The lack of information in this area will not shed light on whether the cultures of the schools, lack of time, or pressures of covering the content before standardized testing began might have contributed to the number of teachers who did not complete their reports.

Significance of the Study

This study will add to the body of knowledge on teacher action research by examining the trends for targeting AYP student subgroups for action research, how the teachers believe the process impacted their teaching, and whether or not they collaborated with their peers during the process. Statistical analysis of the reports and a qualitative examination of teacher reflections will be used to obtain these results.

CHAPTER 2 REVIEW OF LITERATURE

Introduction

This chapter presents the rationale for conducting research on the action research reports that were submitted by teachers in a particular county in Florida after they received instruction on how to conduct action research. University of Central Florida Education Reference Librarian, Terrie Sypolt was consulted in the summer of 2010 to ensure a thorough search of the literature. Databases including Education Full Text, Education Resources Information Center, Dissertations and Thesis: Full Text, and Web of Science were utilized. The literature on action research was examined to determine if the elements that the teachers were asked to include in their reports mirror those described in the literature. In addition, the examination included determining if the literature contained references to projects that incorporated information regarding how action research can be used in response to NCLB. It sought to determine if subgroups and differentiation reflected the groups that determine whether AYP has been met. Also, was data from state testing as part of NCLB used to help find students' weaknesses or determine whether growth had been made after the action research had been carried out? In sum, connections between the format of the action research report requirements in the Florida school district and the elements of the reports in the literature and AYP requirements were sought.

The structure of the literature review is based upon the Action Research Report Rubric and its subscales: (a) purpose, (b) professional resources, (c) plan, (d) data, (e) results, (f) instructional decisions, (g) collaboration.

Purpose

Identifying a problem that is suitable for action research can be problematic for teachers and is often an area where they feel they need more support (Goodnough, 2010; Little & King, 2008). In fact, Platteel, Hulshof, Ponte, van Driel and Verloop (2010) found that not understanding the process of action research initially is a source of great frustration for teachers. There is often confusion on what types of topics are appropriate for action research projects. "The most common and egregious mistake made by fledgling teacher-researchers is that they pose a question that could only be answered with a large-scale experimental study and then claim results" (Saul & Launius, 2010, p. 27).

The type of action research most often exemplified in the current study is first person action research according to the "father of action research," Kurt Lewin, who characterized it as being one teacher studying his or her practice in the classroom in order to create personal change (Brighton, 2009). Schoen (2007) wrote that action research can target one student, one classroom, a grade level or even the whole school as it attempts to create change especially in the current educational environment where schools must adapt to NCLB's demands to ensure students' success. "Because no one educational strategy works under all circumstances, action research is used by principals and teachers to discover which pedagogical practices are most effective in raising achievement levels for particular classes or students in a given grade" (Glanz, 2005, p. 19).

Kemmis (2010) stated that professionals in fields such as education and medicine must constantly change to adapt with the times and help their professions evolve. Working to help the profession progress was a type of stewardship to Kemmis (2010) which could be accomplished

through action research. Chenhall and Chermack (2010) wrote about action research's usefulness as a tool for both human resources development and change within an industry. However, Judah and Richardson (2006) warned that by requiring that teachers complete action research in the face of state mandated testing educational leaders might be undermining the transformational properties associated with action research since it would no longer have the characteristic of being a self-selected technique, a quality that seemed integral.

The wider scope of initial data that inspired teachers to undertake action research projects included increasing student engagement and motivation (Capobianco, Lincoln, Canuel-Brown, & Trimarchi, 2006; Patterson & Crumpler, 2009; Richards, 1987). There were also realizations that algebra skills were not being transferred from mathematics class to chemistry (Robins et al., 2009). Teachers also questioned whether including science technology in secondary classrooms would improve progress on state mandated tests (Subramaniam, 2010) or finding a way to allow a student who was deaf to participate more in class thereby promoting her academic progress (Argyropoulous & Nikolaraizi, 2009).

Linking AYP to the Purpose

As Schoen (2007) wrote, NCLB impacts the way that schools prove that they are successfully meeting the demands of ensuring that all students are progressing academically each year. Shosh and Zales (2005) believed that NCLB had led to increased practice of low level skills in the classroom and their action research had students utilizing more authentic tasks in the classroom which in turn produced higher student achievement. They reasoned that the higher

order thinking skills required of students as they complete the authentic tasks would transfer to increased higher ordering thinking as they took state mandated tests.

There were action research reports found in the ERIC database that resembled the format of the reports that the teachers in the Florida school district had utilized for their action research reports (Friebele, 2010; Lubawski & Sheehan, 2010). Both reports were completed as part of graduate work required of the authors' respective universities. In addition, both touched upon aspects of NCLB and AYP. Friebele (2010) worked at a school in Washington, D.C. that had been forced to convert from a parochial school to a public charter school. His school's student population mostly came from low socioeconomic (SES) status households. Instead of targeting a portion of his class, Friebele (2010) decided to use his entire class to determine if the use of manipulatives and social interaction would improve mathematical achievement. Lubawski and Sheehan's (2010) study also took place within a charter school. They however, targeted six tenth-grade students who had the potential of failing the Massachusetts Comprehensive Assessment System (MCAS) because passing the MCAS was required for graduation in Massachusetts. The differentiated instruction included explicit instruction of reading strategies in order to see if they impacted students' comprehension.

Sheridan-Thomas (2006) reported on the types of action research projects conducted by teachers at a middle school where the principal had departments work together to target areas for action research based upon data from state testing. The principal's goal was to promote collaboration, reflection, and a climate of learning as he responded to the school district's mandate for improving academic weaknesses found in the state mandated testing data for the school. The science department focused on improving graphing skills which like the study of

Robins et al. (2009) was trying to encourage students to transfer mathematical skills into the science classroom. The English department worked on determining if explicit instruction of reading strategies would improve comprehension, a purpose similar to that of Lubawski and Sheehan (2010). Meanwhile, the social studies department chair took a different approach to the principal's request to conduct action research by having teachers conduct their projects based upon their individual areas of interest. As Sheridan-Thomas(2006) explained:

> The social studies department chair saw action research as useful for teachers who want to improve their instruction, but may not have previously found the motivation or structure to accomplish that. However, she did not find it useful for people who already reflect on their teaching and make adaptations to refine their instruction on an ongoing basis. (p. 113)

The result was a wide variety of topics from teachers within the department, some of which were more literature based than social studies based. Overall, the authors found that "even within a required school-wide action research focus, teachers found a way to make the projects their own" (Sheridan-Thomas, 2006, p. 104).

Instead of focusing on NCLB, Fazio's (2009) research nonetheless focused on adapting to changes in the curriculum and reform goals. Fazio (2009), a university researcher and action research facilitator, wrote about the collaboration between three high school teachers and a middle school teacher as they met to discuss how to use action research to determine whether they were making progress in the implementation of new science standards. Fazio (2009) found that the collaboration when coupled with action research led to growth the depth of understanding of the Nature of Science and Scientific Inquiry.

Langerock (2000) conducted her research before NCLB took effect, however, she used data from the Texas Assessment of Academic Skills (TAAS) to help her target the six lowest

achieving students in her class for differentiated instruction in the areas of reading and writing. Even without the demands of NCLB, Langerock (2000) understood the need for growth and improvement in her teaching techniques in order to better service her students. She seemed to value her professional growth without it being a requisite of her school or school district. Langerock's (2000) purpose included bettering her craft and her students' achievement. Likewise, Schlechty reasoned "a physician friend told me once that if he engaged in practices today that he was taught in medical school, he'd be guilty of malpractice, because he would not be practicing the present practice" therefore, Schlechty felt that teachers should continue to conduct research to improve their craft (Whitford et al., 1987, p.161).

As part of NCLB, certain subgroups of students are closely scrutinized to determine whether the school is properly addressing the needs of different types of students (Taylor et al., 2010). In Lubawski and Sheehan's study (2010), Lubawski chose to focus on six of his lowest readers who were in danger of failing the MCAS thereby not being able to graduate. While the authors did not use the term *lowest quartile* in their paper, it would seem that the six lowest students in the class would most likely be in the lowest quartile of students from Lubawski's school, Advanced Math and Science Academy Charter School. Piper, Marchand-Martella, and Martella (2010) wrote about a teacher who differentiated mathematical instruction for eight students who were found to be below level on the Washington Assessment of Student Learning. However, the authors discussed National Assessment of Educational Progress as a reason to study mathematics instruction rather than NCLB's emphasis on helping the lowest quartile.

Professional Resources

In order to help identify the best course of action to take after finding an area of concern for an action research study, teachers should conduct a review of literature to provide them with a list of possible courses of action to take (Brighton, 2009). The Alberta Teachers' Association (2009) recommended that teachers conduct an extensive literature review to ensure that they are using the best techniques to address the problems in their classrooms. While some of the teachers conducting action research used professional books (Celani, McIntrye, & Rightmyer, 2006; Lubawski & Sheehan, 2010), journal articles were another traditional choice (Celani et al., 2006; Friebele, 2010; Lubawski & Sheehan, 2010; Piper et al., 2010). In addition, implementing techniques that were learned at professional development classes on technology integration was used by the science teachers that Subramaniam (2010) discussed. Piper et al. (2010) also cited school district institutes as sources of information that guided the mathematics teacher's decision to use direct instruction with her below-level students. Celani et al. (2006) reported that the fifth grade teacher, the first author, utilized findings reported through National Reading Conference presentations and a report by the National Reading panel.

Professional papers by various educational groups were also employed within the literature reviews. A paper by the National Council for Teachers of Mathematics was used by the mathematics teacher described by Piper et al. (2010). Friebele (2010) utilized both a United States Department of Education document on Response to Intervention (RtI,), and an article by the Professional Association of Georgia Educators. Lubawski and Sheehan (2010) used information from the Texas Reading Initiative to help them gain ideas on how secondary schools with low test scores were able to make gains. Electronic sources of information were also

employed in literature reviews by Friebele (2010) who used information form electronic journals and Annenberg Media while Piper et al. (2010) also cited websites.

The teachers in the middle school science department described in the article by Sheridan-Thomas (2006) engaged the teachers in the mathematics department as resources on how to help students better transfer their graphing skills into the science classroom. The English department at this same school intended to take their findings from their study on transferring explicitly taught reading strategies from guided practice into independent use and compare them with the newest literature to help them decide whether to keep the topic or try something new the following year. While this group of teachers seems to value the information found when conducting a literature review, Saul and Launius (2010) found in their research that the literature review was not a highly valued aspect of the action research process for teachers who were learning about the process.

Plans

As part of the report that the teachers in Florida were asked to complete as summary to their action research, they were instructed to describe the setting and participants involved along with details of the procedures, timeline, data collection, and differentiation. The literature shows that the action research is held in various settings. Hahs-Vaughn and Yanowitz, (2009) determined that teachers who have taught in private schools are more likely to conduct action research. The most detailed papers on action research projects were written by charter school teachers as part of their university coursework (Friebele, 2010; Lubawski & Sheehan, 2010). Friebele's (2010) work along with that of Celani et al. (2006) conducted research with students

primarily from urban backgrounds, but Patterson conducted his research in a rural high school (Patterson & Crumpler, 2009).

In Friebele's (2010) study, the use of manipulatives was introduced for six weeks on a daily basis with a "Problem of the Day" given at the end of each class for students to complete. However, instead of the manipulatives students were able to use graph paper to sketch out how the manipulatives could be used to solve the "Problem of the Day." Richards (1987) completed her study on motivating a low achieving middle school class over the course of seven months. Lubawski and Sheehan (2010) had originally proposed that they would conduct research on both Sheehan's seventh grade students and Lubawski's tenth grade students. However, they ultimately decided to concentrate the research on Lubawski's students. They reasoned that, "This class offered the most needed opportunity to provide help to the students who need it the most. The small sample size also allowed us to collect more data and analyze it more thoroughly" (Lubaswski & Sheehan, 2010, p. 14).

A group of 14 Dutch secondary teachers worked together on their action research projects for 18 months with the help of the university facilitators (Platteel et al., 2010). While specifics were not given on how the various teachers conducted their action research, the overall goals of improving instruction and student motivation were given and it provided an example of action research projects that extend beyond the regular school year. It also shows an example of collaborative action research that encouraged the teachers to join together in smaller groups on a monthly basis, and then the larger group met together at the end of each school year to share their findings under the guidance of one of the article's authors. In their work, Ostorga and

Estrada (2009) supported teachers joining together to plan as they found that collaborative projects were more carefully designed and had greater attention to detail.

Robins et al. (2009) provided a more detailed example of collaborative action research as four high school chemistry teachers from north-central California worked together to create a set of experiences to help students better understand concepts regarding the gas laws after testing helped the teachers learn that algebra was not the greatest area of student weakness as they had originally hypothesized. The students that participated in this study were all taught by one of the teachers over the course of three different classes and across three different grade levels. The tests that were administered to the students as part of this study were graded by the other teachers who collaborated with the instructing teacher.

One of the elements of the plan that the teachers in Florida were asked to incorporate was the use of differentiation. "Because no one educational strategy works under all circumstances, action research is used by principals and teachers to discover which pedagogical practices are most effective in raising achievement levels for particular classes or students in a given school or grade" (Glanz, 2005, p.19). In the article written by Celani et al. (2006), Celani, the fifth grade teacher who conducted action research in her classroom, differentiated her instruction by working with five below level readers in literature circles once or twice a week as they completed three books. Piper et al. (2010) wrote of a project where a teacher differentiated instruction for eight of her below level mathematics students by spending lunch each Thursday providing them with a double dose of mathematics over the course of 31 days.

In the work of Dymond et al. (2006), a regular education high school science teacher, worked with a special education teacher and paraprofessional to ensure that the needs of the

special education students in the class were being met. The special education teacher spent time differentiating instruction for the students in small group activities while the regular education teacher incorporated more hands- on activities for all the students to complete in groups. This resulted in better participation and engagement of the special education students while they also improved their relationships with other students in the class (Dymond et al., 2006). Throughout this process, the researchers also found that the utilization of the paraprofessional was enhanced since the regular education teacher was more proactive in her direction of the paraprofessional. The small group instruction and hands-on activities provided time for special education students to work without the direct supervision of the paraprofessional who then worked with the students primarily during direct instruction.

While there are examples of differentiated instruction in the literature, it can be a topic which instills fear in teachers (Koutselini, 2008). Koutselini (2008) studied sixteen preprimary teachers in Cyprus who conducted action research on the topic of language acquisition. Differentiation scared the educators as they wondered about the logistics of providing differentiation in a class of 25 and whether they would do the right things for the students. In an ironic twist, reflection led the teachers to come to the understanding that they had been spending more time and attention on the students from higher SES homes thus inhibiting the lower SES students through their own preconceived notions. They had in fact been unconsciously differentiating instruction prior to the action research project. With the help of action research, they used data to help them identify a purpose for their action research and target the students most in need of a change in instructional techniques.

Data and Evidence Sources

As teachers carry out their action research projects, they collect data to help document changes that the students and teacher experience through the process. Using multiple data sources enables teachers to view the problem from various perspectives and helps bring different aspects to light (Glanz, 2005; Ostorga & Estrada, 2009). Saul and Lanius (2010) found that teachers view triangulation of data as being an element of action research that makes the process more credible to teachers.

Observation of the students and teachers during the enactment of the action research was a major source of data in many of the action research projects found in the literature. Richards (1987) and Celani et al. (2006) wrote of teachers who made audio recordings of their classes. In addition, Richards (1987) also observed the students that were the subject of her action research as they worked with other teachers in their middle school schedule to note differences in their behavioral patterns. Capobianco et al. (2006) also wrote of teachers who not only observed within their own classrooms, but also made observations in other teachers' classrooms. Warrican (2006) wrote about using observations of students' reading patterns and the connection between increased reading and improved writing. Shosh and Zales (2005) discussed the use of memos that teachers wrote to themselves as they were observing students and observation field logs that the teachers completed as data sources. Anecdotal records were also used (Friebele, 2010; Sheridan-Thomas, 2006) to help document teachers' observations as they worked with students. Others recommended videotapes as providing an unbiased view of the classroom that records events that a teacher might miss while in the act of teaching (Zhang, Lundeberg, & Eberhardt, 2010).

Interestingly, Capobianco et al. (2006) reported how a teacher named Susan, who had completed action research on presenting science in a more holistic and engaging way, felt that the data sources used in teacher action research do not need to hold up to public scrutiny. Meanwhile, a mathematics teacher who conducted action research on double dosing mathematics for struggling students had another teacher observe her during one of these sessions for fidelity purposes. This indicates that there is some disagreement in the literature as to what standard the data sources should uphold.

Testing results were another major data source found in the literature. The Informal Reading Inventory was used in a few action research projects that centered on literacy (Langerock, 2000; Warrican, 2006). PM Benchmarks for grade level equivalences were utilized in Jersey, United Kingdom to track the reading levels of students at the beginning, middle, and end of the project (Butterfield, 2009). Projects also used state standardized testing to help isolate the purpose of the action research and to make determinations of whether or not growth had been achieved (Glanz, 2005; Langerock; Lubawski & Sheehan, 2010; Sheridan-Thomas, 2006). Teacher made tests were also used in several instances (Glanz, 2005; Piper et al., 2010; Robins et al., 2009). The mathematics teacher who used double dosing with her at-risk middle school mathematics students also used school district assessments to track her students' progress in addition to the teacher made tests.

In his review of action research reports, Schmoker (2004) worried at the lack of data in the school based research reports that he reviewed:

> Not one had any student assessment component whatsoever. Such "research" will never make teachers more capable of "distinguishing one practice and its virtue from another." Until its fundamental concepts are defined, action research, still kicking, will continue to be marginalized (p. 87).

While Schmoker (2004) seemed to be rallying for an increased amount of statistical data to legitimize action research, Saul and Launius (2010) seemed to write against it being paramount to all other forms of measure. "Might some of the less promising practices we enact in schools, practices that do not result in higher test scores, lead to a goal as important as a lifelong commitment to learning?" (Saul & Launius, 2010, p. 25).

Another form of data that were often cited in the research was student work (Capobianco et al., 2006; Friebele, 2010; Glanz, 2005; Langerock, 2000; Richards, 1987; Sheridan-Thomas, 2006; Shosh & Zales, 2005; Warrican, 2006). Writing samples and portfolios were used in several action research reports to document improvements (Glanz, 2005; Langerock, 2000; Warrican, 2006). Maria was a tenth grade language arts teacher that used writing samples to compare the progress of students who were part of a special writing program with the samples of students who were not taught using the program (Glanz, 2005). In the process, the writing samples helped to reveal a lack of growth in the female students who participated in the new program when compared to the male students in their class. Warrican (2006) wrote about how narrative writing samples were taken by teachers and analyzed both stylistically and linguistically to note that students who read more produced better quality pieces. In Langerock's (2000) study, a regular and special education teacher worked together to co-plan and in the process the targeted students increased 1-3 points on the San Francisco Unified School District rubric. She also used work samples from student journals to help gather data on their writing development.

Friebele (2010) used group performance tasks that were graded using a rubric to determine if students were making mathematical progress after explicit instruction using

manipulatives. In the action research project reported by Shosh and Zales (2005), student work samples were used to see if the authentic tasks students completed indicated growth which was then confirmed by improvements on standardized testing.

Lesson plans were another data source used in multiple studies to help document changes in the types of lessons and the amount of time devoted to certain activities in the classroom (Dymond et al., 2006; Langerock, 2000; Shosh & Zales, 2005). Both the work of Dymond et al. (2006) and Langerock (2000) discussed how lesson plans were used to document the integration of planning by regular and special education teachers. The use of co-planning, as documented in the lesson plans, helped "design effective strategies even when our original objectives and goals seemed to be so unrelated that it seemed they couldn't possibly be integrated" (Langerock, 2000, p. 28). The time spent on certain activities and the variety in the types of activities planned were documented by lesson plans.

Journals written by either the teachers or the students were another data source used in action research projects to help document the insights of the participants (Capiobianco, 2006; Celani et al., 2006; Dymond et al., 2006; Fazio, 2009; Friebele, 2010; Langerock, 2000; Lubawski & Sheehan, 2010; Patterson & Crumpler, 2009; Richards, 1987; Sheridan-Thomas, 2006). Langerock (2000) included journal reflections of her students on her daily work as part of her study on targeted instruction for a group of low achieving students in her fourth grade classroom. She and a special education teacher collaborated together to meet these students' needs, and she found that the students seemed to emulate the two teachers by finding the strengths in one another as they as students collaborated. According to one student, "Mrs. Langerock took us to the library and told us how it works today. I couldn't find the books, but

"G" knew how. She showed me. "W" couldn't read the numbers so I helped him. We all got books. Now, we are ready," (Langerock, 2000, p. 31). Likewise, Friebele (2010) used the journal entries of his students to record their changes in attitude and thought processes as they completed problem solving assignments over the course of the mathematical action research project. The teachers at the middle school documented by Sheridan-Thomas (2006) also used the words of their students as data.

Celani, the fifth grade teacher, whose action research report was documented by Celani et al. (2006), used a set of eight research journal entries as her second data source. She used the entries "to reflect on her own practice and students' responses to the practice" (Celani et al., 2006, p. 104). Likewise, Patterson would use his journal to reflect on his day's field notes as he used more response oriented techniques instead of a formalistic framework in his high school history classroom (Patterson & Crumpler, 2009). Richards (1987) wrote the following in her journal after she discussed the different positive reinforcement strategies that she was using with her low achieving eighth grade students, "I was also wrong about the positive notes home. I shared my fear about them being too "cool" for a positive note. Norman, Scott, and Dawn all said that's not true. They said they took their notes home and showed them" (Richards, 1987, p.71). Langerock's (2000) journals also documented that her students were more collaborative and supportive of one another, "Walter! If we work together, we can do this project. If you draw the pictures and read the words, I will do the write up. We can do it!" (p.34). According to Langerock (2000), this quote came from a gifted student who was eager to work with one of the targeted students in her action research.

Teachers also used interviews as another data source (Capobianco et al., 2006; Friebele, 2010; Glanz, 2005; Lubawski & Sheehan, 2010; Shosh & Zales, 2005; Warrican, 2006). Friebele (2010) used the interviews with students as another source of documenting change in the students' mathematical thought process and he felt that it was the strongest piece of his triangulation. "Although responses in interviews revealed the most compelling evidence of higher order thinking, students' increase on individual quantitative assessments also display their increase in ability to think critically" (Friebele, 2010, p. 29).

Surveys were another structured way to gain insight into the students' changes in their thought processes (Friebele, 2010; Glanz, 2005; Langerock, 2000; Lubawski & Sheehan, 2010; Richards, 1987; Shosh & Zales, 2005). In Lubawski and Sheehan's (2010) action research project on using direct instruction of reading comprehension strategies, students were initially given a survey to help show what strategies they felt confident using before they were explicitly taught. This was followed by a comprehension pretest to act as a baseline for the project. Then the students were given instruction on the strategies followed by reading comprehension tests after the individual skills were taught. Then at the conclusion of the unit, a post test was given and another survey was taken of the students to see what strategies students felt were most impactful. The surveys were used as a way of seeing which strategies were most meaningful to the students' reading comprehension growth.

Results

As teachers report on the results of their action research, they often include not only the elements of their original plan, but include some of the amendments that they make along the

way (Lubawski & Sheehan, 2010; Patterson & Crumpler, 2009; Saul & Launius, 2010). According to Saul and Launius (2010), making these changes can be an imperative component of sound research, "You need to understand the landscape before you begin your study, although checking back to see where you are now as opposed to where you originally set up your tent is something a good action researcher does again and again throughout the process" (p. 29).

Kusch, Rebolledo, and Charly (2005) believe that action research planning leads to feelings of knowing what should happen, but there are also moments of confusion and self-questioning as the plan is carried out. Frankham and Howes (2006) believe that it is inevitable that there will be disturbances in the action research plan as it is being carried out, but they also believe that by working through these issues collaborative relationships might be strengthened.

Taking an idea straight from the literature and trying to implement it in another school as written might not be realistic according to Judah and Richardson (2006). "There are no centrally located answers, only those that are arrived at within the context of where the participants find themselves" (Judah & Richardson, 2006, p.73). Warrican (2006) concurred:

> All classrooms are not the same, and require different shades of the same programme to meet their needs. If teachers can see that they can adapt a solution to fit their circumstances, and they are not expected to take some pre-determined path, they are more likely to adopt a change and see it as their own. (p. 12)

When Patterson, a veteran history teacher of 30 years, worried that the response oriented frame that he was working to adapt did not hold the students accountable he amended his plan by including some quizzes to make sure that students were keeping up with their readings (Patterson & Crumpler, 2009). Without this change to his original plan, he might not have been able to sustain the changes he made in his style of presenting his lessons.

When Strand (2009) conducted a literature review of action research articles published in the area of music education, she found only favorable results. "There were neither examples of a theory or piece of software that failed, misbehaviour in the classroom, nor of children who were unsuccessful as a result of the new teaching strategies" (Strand, 2009, p. 360). Likewise, the findings across a larger spectrum of topics were also positive. Butterfield (2009) explained that the favorable results found in the Jersey school that focused on reading were to be expected:

> The enthusiasm for the research and the increased focus on reading would inevitably create the "Hawthorne effect" and one would expect the results to have improved over this period. It was reinforcing for the staff to have positive tangible results, but what was more encouraging was that the staff pledged to continue the action research projects into the following year. (p. 323)

As the teachers at the middle school studied by Sheridan-Thomas (2006) reported their findings, the author noted that the science teachers focused on statistics and neglected to include a narrative or to mention using anecdotal records. Sheridan-Thomas (2006) hypothesized that this might be due to the scientific nature of using statistics and mentioned that both the English and social studies departments used a variety of formal and informal data sources in their results. Saul and Launius (2010), however, worried that just focusing on numbers might be at the expense of less quantifiable factors as they wrote: "Might some of the less promising practices we enact in schools, practices that do not result in higher test scores, lead to a goal as important as a lifelong commitment to learning?" (p. 25). This served as an even sharper contrast to Sheridan-Thomas's (2006) opinion when the fact that Launius served as a science coordinator for a school district in St. Louis, Missouri is considered.

The narrative portion of action research projects' results sections often document some of the social changes that occur in the classroom (Argyropoulous & Nikolaraizi, 2009; Friebele,

2010; Langerock, 2000; Lubawski & Sheehan, 2010). Lubawski and Sheehan (2010) discussed the greater amount of motivation and confidence that students demonstrated after the explicit instruction. Langerock (2000) went beyond the increase in standardized test scores and explained how the collaboration between the special education teacher and herself served as a model to improve the collaboration among all students in the class. Argyropoulous and Nikolaraizi (2009) stated that the special education students that were targeted in the action research projects they studied had gains in both their academics and social interactions. The narrative sections often go beyond the statistics to report growth in other areas of students' lives that are less quantifiable, or that are not directly assessed as part of AYP.

Instructional Decisions and Reflections

After reviewing the results of the action research project, drawing conclusions, and disseminating the findings, the final step is to develop a new plan to continue the research cycle (Brighton, 2009). Sowa (2009) wrote that reflection is necessary for teacher growth and that the process of action research allows for reflection. Through this reflection, teachers can decide what steps to take next. Bradbury-Huang (2010) also wrote about how important it is for reflection:

> Feedback mechanisms that help develop self-insight are not really the exotic extras that conventional social science would have us believe. They are crucial if we are to become aware of how our espoused values translate to actual impact with or upon others. (p. 236)

Ostorga and Estrada (2009) as well as Whitford et al. (1987), found that teachers who collaborated with one another had deeper levels of reflection. Argyropoulous and Nikolaraizi (2009) noted that collaboration through action research increased the teachers' ability to

understand the intricacies of teaching. A journal entry from a teacher who participated in the action research reported by Fazio (2009) seems to reiterate this:

> The mere fact of being part of an action research group kept the project focused. The ideas and stories that others shared, even if it wasn't directly associated with my action project, influenced the direction of my project .... The sharing of research and literature had untold value in the entire process. (Alicia, journal entry) (p. 101)

In the work of Subramaniam (2010), five secondary science teachers incorporated technology in their lesson plans and collaborated to examine their findings and make reflections under the facilitation of a university researcher over a five month period. When collaborating, the science teachers' perceptions enlarged to the realization that the technology was doing more than just displaying pictures that could be drawn on the board. Subramaniam (2010) wrote that the teachers came to understand the technology allowed for the students to make more thoughtful predictions and have deeper scientific interactions as a result of the technology.

Often the reflections led teachers to insights that impacted future instructional decisions. Celani (2006) concluded that when she was becoming impatient she would prematurely end her small group lessons with her below level students, and a deeper analysis of transcripts from her small group discussions with these students helped her come to the realization that she was less acknowledging of one of the students (Celani et al., 2006). Upon reflection after providing students who were having difficulty with mathematics double doses of lessons once a week, another teacher noted that students' attitudes and participation improved (Piper et al., 2010). Langerock's (2000) reflection led her to the conviction, "that many of the problems that exist in our inclusive classrooms can be solved as we combine the best of our expertise in a forum of collaborative, data-based decision making" (p. 34). Lubawski and Sheehan (2010) decided to

continue with explicit instruction of reading strategies at the conclusion of their action research project.

Cannon (2006) found that when conducting research teachers' attitudinal changes often follow their behavioral changes. Monroe et al. (2007) found that preservice teachers who began using alternative strategies to round robin reading became advocates of the alternative strategies after using them. Their attitudes changed to the degree that they found the use of round robin reading damaging by the end of their action research. However, Monroe et al. (2007) followed up with the teachers a year later to discover that they reverted back to round robin reading when the pressures of the first year of teaching were in full force since it was a comfortable methodology that both they and their students knew. Thus, the changes in behavior were not long lasting without follow-up activities (Monroe et al., 2007).

In the section of the action research report that details the teachers' reflections and future instructional decisions, teachers might also discuss the limitations of their studies. Holly (1987) worried that the teacher conducting action research might be seen by his or her colleagues as a threat. This threat could then lead to isolation for teachers conducting action research as he felt their colleagues might shun them. "Involvement in action research renders the individual teacher more intelligent concerning his or her own practice and classroom milieu, too intelligent, in fact, for his or her own good" (Holly, 1987, p. 82).

Holly (1987) also felt that a whole school approach to action research would not provide for a dramatic change in individual classroom practice. Nearly twenty-years later Judah and Richardson (2006) had similar concerns about requiring teachers to undertake action research:

> If the context is artificial, how authentic can the experience be? Despite the fact that mandating action research projects might well be a means of bringing teachers to explore

> new ways of teaching, the dilemma remains: How does such an external mandate affect the likelihood that participants can achieve personally relevant and sustainable changes in their teaching practices? (p. 77)

The social studies department chair in the middle school studied by Sheridan-Thomas (2006) expressed similar concerns during the planning stages of action research with her department. The chair did have experience with making changes to her instruction and then reflecting upon them.

> The social studies department chair saw action research as useful for teachers who want to improve their instruction, but may not have previously found the motivation or structure to accomplish that. However, she did not find it useful for people who already reflect on their teaching and make adaptations to refine their instruction on an ongoing basis. (Sheridan-Thomas, 2006, p. 113)

Most of the particular action research projects found in the literature did not reiterate the concerns of Judah and Richardson (2006). In Piper et al. (2010), the mathematics teacher who provided an extra twenty-five minutes of mathematical instruction during lunch once a week was able to reflect upon the limitations her study might have had. She concluded that 25 minutes a week might not have been enough small group instruction and the fact that she was just one teacher who had already established a positive relationship with these students prior to the study limited the ability of the results to be primarily attributed to the double dose of mathematics rather than the relationship that the students had with their teacher. Koutselini (2008) wrote that reflection allowed the teachers to realize that they spent more time and attention on the students from higher SES homes thus inhibiting the lower SES students through their own preconceived notions. Platteel et al. (2010) wrote about action research projects which were conducted with the help of a facilitator from outside of the school. After going through the process of action research with the help of a facilitator, Macy, a teacher, commented that "I would now

recommend inviting outsiders to take part in meetings, because they have different ways of looking at things and often don't get side-tracked by practical issues like a group of teachers often get" (Platteel et al., 2010, p. 440). The middle school science teachers from Sheridan-Thomas's (2006) article decided that they would reassess the students at the beginning of the next school year to determine whether the effects that they found at the conclusion of their action research project were long lasting, and the English department decided that they would reassess their results in light of new ideas for reading strategies that could be found in the literature in order to decide whether to keep the action research project for the following year or find a new topic.

Collaboration and Sharing

While the use of collaboration is not necessarily requisite to conduct action research, Brighton (2009) does list disseminating the findings as part of the process. Also, the use of collaboration within the action research projects that were conducted in schools is a theme that is repeated in the literature (Alberta Teachers' Association, 2000; Dymond et al., 2006; Giles et al., 2010; Ostorga & Estrada, 2009; Robins et al., 2009). Brighton (2009) wrote that Kurt Lewin, the father of action research, called action research that is meant to improve interactions between members of a team or a group's dynamics second person action research. Brighton (2009) also identified Lewin's stated purpose for third person action research as being to understand causes of problems and how to implement a solution in various settings. Many of the action research projects involving collaboration in the literature seemed to start out as third person action research, but also had elements of second person action research as the teachers worked together.

The chemistry teachers that collaborated to conduct action research on improving students' conceptualization of the gas laws wrote lessons together and helped the teacher whose students participated in the lessons grade her assessments (Robins et al., 2009). Through this process, the teachers gained a sense of professional renewal and felt that they grew in their proficiency in the field (Robins et al., 2009). Teachers at the Missouri elementary school studied by Giles et al. (2010) collaborated in different ways depending upon their chosen topics. Some teachers collaborated within the same grade level while others worked together across grade levels, but Giles et al. (2010) wrote that collaboration seemed to be one of the elements that helped action research become a norm at this school for seven years. "Professional dialogue emerged as the glue of action research, giving life to inquiry, enhancing reflection, and deepening the professional community," (Giles et al., 2010, p. 99).

Collaboration can take many forms including university teachers, regular education teachers, co-teachers, and special education teachers (Dymond et al., 2006), or it can be a smaller group of just two teachers working together (Lubawski & Sheehan, 2010; Warrican, 2006). Capobianco et al. (2006) recommended grouping teachers with various levels of experience with action research. They also stated that

> teachers need to join with other passionate teachers to explore ways to voice freely their concerns, develop action plans, and enact their plans for change. Groups must be configured so that they include teachers who have alternative thoughts, ideas, and perspectives on teaching and learning. (Capobianco et al., 2006, p. 76)

Collaboration during action research improves the reflections of teachers according to several studies (Fazio, 2009; Ostorga & Estrada, 2009; Whitford et al., 1987). Ostorga and Estrada (2009) also found that collaboration led to better action research plans. "Collaborative action research may help to meet reform goals, yet, it is idealistic to assume that teachers are able

to individually initiate collaborative types of action research projects" (Fazio, 2009, p. 96.) Fazio (2009) recommended having a facilitator from outside of the school come in to help in these instances. Meanwhile, Lujan and Day (2010) found that the professional learning communities that they studied related to one another in a superficial way during formal meetings, but experienced true collaboration when they met more informally without all of the members. Platteel et al. (2010) learned that teachers from the same school had difficulty openly communicating with one another because they felt like they would be harshly judged by teachers who saw them regularly. Koutselini (2008) also noted that antagonistic attitudes from colleagues from the same school as the teachers began learning about the process and planning their own projects. They also feared appearing incorrect in front of their coworkers.

The Alberta Teachers' Association (2000) recommended collaborating for action research projects as a vehicle for improving student achievement, teamwork, and morale. As part of the collaboration, they suggested that teachers who are working on action research projects have a critical friend who will challenge their ideas along the way. A critical friend can help the research process in several ways according to the authors:

> provides another set of eyes, is a trusted friend who asks proactive questions, encourages and supports reflection, offers suggestions and advice when requested, spends time with the researcher throughout the project, and does not impose personal judgments or evaluations. (ATA, 2000, p. 34)

Shosh and Zales (2005) also recommended working with small groups for more sensitive advice. They felt that large groups work for brainstorming, but triads were better for more specific issues of how to carry out the plan and troubleshoot problems.

Given et al. (2010) wrote that sharing their action research projects with others strengthened the collaborative relationships. "This act of going public, via displays of children's

work and teacher reflections for colleagues and parents, catalyzed each group to work through the challenges and tensions exposed by this process" (Given et al., 2010, p. 40). Butterfield (2009) also reported increased collaboration as a result of the monthly staff meetings where teachers would share their action research projects. "There was a reported and observable increase in sharing and questioning amongst staff in the school and ability to link teaching and learning of reading with progression throughout the school" (Butterfield, 2009, p. 324).

Sharing action research projects took a variety of forms in the literature. There were many examples of teachers who shared their action research projects with other educators in their schools (Giles et al., 2010; Glanz, 2005; Lubawski & Sheehan, 2010; Warrican, 2006). Plateel et al. (2010) also recommended speaking with students about the action research projects and the teachers, in turn, reported this as being a noteworthy aspect of the project. "Several teachers reported a significant change in their teaching and better communication with their students because of it" (Platteel et al., 2010, p. 447). Sharing the results of action research projects was also recommended by the Alberta Teachers' Association (2000). Publishing articles on the completed action research projects was also mentioned (Capobianco et al., 2006; Goodnough, 2010). In addition, Goodnough (2010) discussed presenting findings at national conferences.

Summary of the Literature Review

The literature shows a variety of purposes for conducting action research including motivation and increasing student achievement. The action research projects found within the literature tended to be part of coursework for graduate school (Friebele, 2010; Lubawski & Sheehan, 2010) or part of a school district mandate (Sheridan-Thomas, 2006). The professional

resources that teachers utilized to plan their action research projects included journal articles, professional books, electronic journals, websites, and other professionals. The plans showed a great deal of variety in their timelines. Some projects spanned weeks while others were utilized for years. The topic choices of the plans also varied to include reading, language arts, science, social studies, and mathematics.

The data sources that teachers utilized as part of their action research projects often included test scores, journal entries, observations, and work samples. Teachers conducting action research projects often report favorable findings, but may also include amendments to their original plans as problems arise. The reflections that teachers make after conducting their action research include information about their practice and about their students' thought processes. Teachers often make the decision to maintain the changes that were initiated as part of the action research project after the project has ended. Monroe et al. (2007) followed up with teachers who had conducted action research as part of their student teaching and found that they did not maintain the changes after the action research was completed and their first year of teaching began. Collaboration between teachers during the action research process is seen to have a positive impact on the outcomes as teachers gain insight from one another and deepen the reflective process. However, teachers sometimes have fears of appearing unsure in front of colleagues from the same school. Teachers can also collaborate with university facilitators as part of their projects.

CHAPTER 3 METHODOLOGY AND PROCEDURES

Introduction

This chapter presents a more detailed look at the methodology and procedures that were employed to analyze the action research reports that teachers in this particular Florida school district wrote at the conclusion of the 2009-2010 school year. The descriptive statistics were found for all of the action research reports that were completed as an aggregate. The overall scores for the action research reports were calculated by combining the scores on the various subscales: Purpose of the Study, Professional Resources, Plan, Data and Evidence Sources, Results, Instructional Decisions and Professional Reflection, and Sharing. The schools in this school district were grouped according to K-5, 6-8, 9-12, and the descriptive statistics for the reports completed by teachers within each of these categories were also found for the overall reports as well as particular subscales in order to answer the research questions.

The remainder of this chapter is divided into the subsequent seven sections. The first section begins with a problem statement and is followed by a section containing a description of the population. The third section explains the data collection process while the fourth section details the instrumentation. In the fifth section, the research questions are reviewed. This is followed by data analysis for the various questions in the sixth section. A conclusion is then provided in the seventh section of the chapter.

Problem Statement

Schools are given the challenging task of ensuring that the student subgroups as identified by NCLB are achieving at increasing rates each year. Teachers have been asked to use data to drive their instruction. Therefore, the problem studied was whether the teachers in this school district who completed action research projects met the standards that the school district had set concerning the action research process, use of collaboration, and focus on student subgroups. This was accomplished by utilizing the Action Research Rubric. The rubric incorporated elements of the action research process with the need to target AYP subgroups and differentiate instruction to provide for their academic growth.

Population

The target population for this study consisted of the 96 teachers who participated in professional development workshops on differentiated instruction and action research in this Central Florida public school district during the 2009-2010 school year. The teachers were chosen by their principals to attend workshops on differentiating instruction during the summer of 2009. In the fall of 2009, these teachers attended additional professional development workshops on using action research as a process to help document student improvement as a result of differentiated instruction. The workshops on action research were conducted by a facilitator from outside of the school district. The teachers who participated included those at the elementary, middle school, and high school levels.

Out of the 69 completed action research reports that were submitted to the professional development department at the end of the 2009-2010 school year, 53 of them were from

elementary school teachers. Ten of the completed action research reports were completed by middle school teachers. This left five that were completed by teachers at the high school level. Approximately, 78% of the finished action research studies were completed by elementary school teachers. Fourteen percent were written by middle school teachers, and approximately 7% were high school educators. Only two of the 69 projects were completed by male teachers. Therefore, the vast majority of the projects, 67, were completed by female teachers.

Ten of the elementary school teachers taught kindergarten (See Table 3). Meanwhile, there were six first grade teachers and six second grade teachers who completed action research and submitted reports. There were nine third grade teachers, eight fourth grade teachers, and five fifth grade teachers whose reports were included. Other elementary teachers who participated included a fifth grade science resource teacher and a dual language teacher. In addition, there were several exceptional student education (ESE) teachers including a third grade ESE teacher, an ESE teacher who taught grades 3-5, a fourth grade ESE teacher, three fifth grade ESE teachers, and a varying exceptionalities ESE teacher. The ESE teacher and dual language teacher were grouped together for the purposes of this table since both groups of teachers are legally required to document the differentiation of instruction that they provide for students who may also receive accommodations in the classroom and during FCAT testing.

Table 3 *Elementary Teachers Submitting a Completed Action Research Report*

Type of Teacher	Number
ESE or ELL	8
Kindergarten	10
First Grade	6
Second Grade	6
Third Grade	9
Fourth Grade	8
Fifth Grade	5
Science Resource	1
TOTAL	53

The 11 middle school teachers who completed reports included an art teacher, a guidance counselor, two intensive reading teachers, a literacy coach, a sixth grade mathematics teacher, a sixth grade language arts teacher, a physical education teacher, a seven grade science teacher, an eighth grade science teacher, and an eighth grade social studies teacher (See Table 4). The high school teachers included a computer teacher, a ninth grade English teacher, a tenth grade English teacher, a mathematics teacher, and a science teacher (See Table 5).

Table 4 *Middle School Teachers Submitting a Completed Action Research Report*

Type of Teacher	Number
Literacy Coach	1
Intensive Reading	2
Physical Education	1
Social Studies	1
Science	2
Guidance	1
Art	1
Mathematics	1
Language Arts	1
TOTAL	11

Table 5 *High School Teachers Submitting a Completed Action Research Report*

Type of Teacher	Number
Science	1
Computer	1
English	2
Mathematics	1
TOTAL	5

Teacher Meetings

After meeting for the initial action research planning sessions in the fall of 2009, the teachers met with the facilitator again in January of 2010 to discuss how their action research was progressing. The meetings in January were held over the course of two Saturdays and the researcher was able to attend the meetings held on January 30, 2010. There were two sessions

held on that day. One began at 8:30 am and the second began at 12:30 pm. Both meetings held on this day lasted approximately three hours. At the beginning of both sessions, the facilitator introduced the researcher and it was explained that the researcher would be taking notes on the day's session as well as reading their final action research reports as part of this study.

In addition to providing a summary of their action research plans, the teachers were asked other questions. They were asked to discuss how they differentiated instruction using resources, time, intensity, or instructional techniques as part of the action research plan. Interestingly, one of the middle school science teachers in the morning session indicated that she utilized differentiation as she had students select their preferred way of creating a model of an animal or plant cell including three dimensional models or posters. However, in her written action research plan she did not document having the students create cell models and differentiation was not clearly established. In the afternoon session, an intensive reading teacher discussed working with a selective mute on building her fluency and vocabulary, but did not specifically discuss this student in her final report. Some of the teachers appeared to provide more detail in the discussions with the facilitator than in their written reports.

When the topic of subgroups was addressed, the facilitator explained to the teachers that research shows that schools can achieve at higher levels by targeting subgroups of students and that certain strategies work better with certain subgroups than others. One of the teachers during the first session then made the connection that as a result of the work with this subgroup, other non-targeted groups increase in achievement as well. This is in keeping with studies by Brighton (2009), Giles et al. (2010), and Sowa (2009). The facilitator did note that when she had initially discussed documenting student subgroups in the fall some of the teachers discussed feeling

worried that identifying a specific racial group in need of targeted instruction might be seen as prejudiced in spite of the fact that AYP reports student progress by various racial groups in addition to the aggregate group.

At another point in the session, teachers were asked what types of data they had collected as part of their action research projects. The researcher made a tally of the teachers' responses and the use of surveys, observations, test scores, and work samples matches the most popular data and evidence sources that were mentioned in the written action research reports. Teachers were also reminded by the facilitator that while action research is good for the individual teacher the real gain is in sharing with colleagues. Some teachers shared how they discussed their research with their departments or teams. However, another teacher admitted that she mostly worked by herself.

Teachers were also asked to discuss what changes they had made in their classrooms after observing changes in the evidence. One teacher reported that the students that she targeted were able to do more during whole group instructional situations as a result of the time they spent in targeted activities. Another teacher stated that she planned on targeting more subgroups in her instruction. A teacher who focused on mathematics for her action research project had increased the amount of time that she devoted to instructing mathematics. A fourth teacher reported that as she implemented new strategies her behavior changed, as a result her students' behavior changed, and both the students and teacher had an improvement in attitude. This was in keeping with the study by Cannon (2006) which found that when conducting research teachers' attitudinal changes often follow their behavioral changes.

Teachers were also asked about other reflections that they had learned through the process. One teacher felt that she was more proactive as she used other teachers as resources. Another female teacher stated that she was better tuned into her kids and stated, "Myself, I, have become a better learner." A mathematics teacher reflected that "I've learned to use what I have and what I know. I am utilizing myself better." A physical education teacher reported that she learned that her students, "really do enjoy fitness" despite their initial reluctance. The topic of reflection included insights about the students, the process, and the self-reflection concerning the teachers themselves.

Some of the teachers who were at the meetings on January 30, 2010 did not have final action research projects published on the school district website at the end of the year. For example during the morning session, a male fifth grade teacher discussed his work with students on memorizing their multiplication facts and his final plan was not shared on the school district website. In the afternoon, a second grade teacher discussed how she was developing skill based board games to help her differentiate reading instruction for her students and her report was not found on the school district website either. Before the afternoon session, an elementary teacher discussed with the researcher that she had fallen behind with her action research due to her mother's health, but she expressed a desire to complete an action research report during the second semester. The ultimate reasons as to why the teachers did not complete action research reports are unknown. There were 96 teachers who began the process in the summer of 2009 and by the end of the 2009-2010 school year 69 action research reports were published on the school district website. There was only one action research report that was published on the website for the 2008-2009 school year before the workshops on differentiated instruction and action research

had been completed. No other action research reports were submitted from teachers outside of this group of teachers who had worked with the facilitator. Therefore, the number of action research reports that were formally conducted and reported in the school district (69) and the rubric scores may have been influenced by providing a facilitator to help guide the process and have collaborative sessions for the action researchers.

Data Collection Process

Teachers' action research reports were submitted to the school district's professional development department. The professional development department reviewed the documentation and awarded the teachers professional development hours for their work. The school district personnel then placed the action research reports on the school district website to promote sharing the results with others.

An outline of the proposed study was submitted to the University of Central Florida Institutional Review Board which determined that the study did not meet the definition of human research (See Appendix D), had exempt status, and the researcher had approval to proceed. Then permission to use the action research reports as part of the research study was obtained from the school district's director of planning, evaluation, and accountability (See Appendix E).

Once the director of planning, evaluation, and accountability granted her permission, the documents were downloaded as Microsoft Office Word documents. Some of the Microsoft Office Word documents had additional attachments that were either saved as Microsoft Office Excel files or scanned documents. The attachments were usually either data files containing test

scores or student work samples. The school district had removed the students' names to help protect their anonymity.

A spreadsheet was then developed to document the characteristics of the 69 individual action research reports. The reports were numbered, therefore, removing any teacher's name from the spreadsheet to help preserve their anonymity. Then the reports were read and scored according to the Action Research Rubric. The subscales were listed in order on the spreadsheet: Purpose, Professional Collaboration and Resources, Plan, Data and Evidence, Results, Instructional Decisions and Reflections, and Sharing. The cells containing these subscales were linked to find their sum which was the overall score of the project on the Action Research Project Rubric.

In the cell next to the scores on the rubric the teacher's school level was documented: elementary, middle, or high school. Then the teacher's position was documented in the next cell. For example, teachers were categorized as regular classroom teachers in grade 5, intensive reading teachers, or ESE teachers among other categories. Next, the topic of the action research was documented: reading, mathematics, science, physical education, writing. In the final cell, the gender of the teacher was recorded.

The action research reports were then carefully read a minimum of two times and scored using the rubric before going on to the next action research report. A report was read initially and scored. Then the report would be reread after a minimum of 24 hours and rescored to check for discrepancies in the scoring. If discrepancies were found the report would be reread a third or fourth time after another 24 hour waiting period between readings. The multiple readings were conducted in order to establish reliability while looking for all of the elements that were

listed as part of each of the seven subscales. The scores on each of these subscales were recorded in a Microsoft Office Excel spreadsheet. The subscales were then summed on the spreadsheet for the overall score of each report on the Action Research Rubric.

After all of the action research reports were scored, descriptive statistics for all 69 reports were found. The reports were then sorted based upon elementary, middle school, and high school level and the descriptive statistics were found again to note trends within each school level. They were also resorted according to ESE/ELL, kindergarten, first, second, third, fourth, and fifth grade teachers and the descriptive statistics were found for these groups of teachers. These groupings were selected to look for patterns within the large group of elementary teachers. As part of the final sorting of the action research, the reports were sorted based upon which FCAT tested subject was addressed: mathematics, reading, science, or writing.

Instrumentation

The scoring of the action research reports using the Action Research Rubric constituted the beginning of the data collection process. The Action Research Rubric was developed as a result of using a rubric developed by C.E. Pearl in 2008. Pearl's rubric is published in Bruce and Pines's (2010) book, *Action Research in Special Education: An Inquiry Approach for Effective Teaching and Learning*. Pearl granted permission to use her rubric as the basis for the Action Research Rubric (Appendix C). Pearl wrote in the email that her rubric was adapted from Miller's (2000) Evaluation Instrument for Action Research Project.

The Action Research Rubric was developed by examining the structure of Pearl's rubric and the elements that the teachers were asked to include in the template for their action research

form (Appendix A). The Action Research Rubric contains the following seven subscales: Purpose of the Study, Professional Collaboration and Resources, Plan, Data and Evidence Sources, Results, Instructional Decisions and Professional Reflections, and Sharing. The subscales were put in this order based upon the sequential steps of the action research process in which they would transpire. These steps are included in the rubric as a reminder of the overall process that teachers had completed.

The reports could receive a score from 1 to 5 on each subscale in the Action Research Rubric. The elements listed at the level 3 of each subscale included the characteristics that were asked for on the action research form provided by the school district. The elements listed for levels 4 and 5 went beyond the essential requirements asked for by the school district with the elements listed at level 5 going farthest beyond the standard. The elements listed at levels 2 and 1 were below the minimum requirements asked for on the action research form. The level 1 category was reserved for research containing the fewest characteristics required for the particular subscale.

After scores were obtained for each of the subscales, the seven scores were summed to acquire the overall score for the report. Therefore, the overall scores for the report could range from seven to thirty-five. Higher scores on the Action Research Rubric were meant to indicate a higher quality report on the school district's action research form.

Research Questions

The following research questions guided this study:

1. What are the descriptive statistics of various teacher professional variables using the action research report scores on the Action Research Report Rubric?
2. To what extent do teachers report collaborating with others or use professional resources to design their action research?
3. To what extent do teachers report sharing the findings of their action research with just a few teachers, their team, their school, or at the school district level?
4. To what extent do teachers target students in their action research based on one of the AYP student subgroups such as race, economic disadvantage, English proficiency, or Exceptional Student Education services?
5. To what extent do teachers differentiate instruction by altering the resources, time, intensity, or instructional techniques used with the students who were targeted for the action research study?
6. To what extent, do teachers measure change with various types of data or evidence (attitude surveys, observations, tests, or work samples)?

Data Analysis

After the scores on the Action Research Rubric subscales were hand-entered on a Microsoft Office Excel spreadsheet, the mathematical features of Excel were utilized to arrive at the overall score of each report. In addition, the statistical applications of Excel were used to arrive at the descriptive statistics for the overall group of action research reports and each of the

various subscales. This process was repeated to find the descriptive statistics for the overall reports and subscales at the elementary, middle school, and high school levels.

The descriptive statistics included as part of this study include the mean, median, mode, and range. Because the literature review could not produce any studies which reviewed a number of action research reports using a rubric and offering a report on the scores that they obtained, this project was exploratory in nature. Therefore, the purpose of providing the descriptive statistics on the data was to note the relative strengths and weaknesses of the reports based upon the rubric's subscales and to note any patterns in the overall scores at each level of school: elementary, middle or high school.

Data Analysis for Research Question 1

What are the descriptive statistics of various teacher professional variables using the action research report scores on the Action Research Report Rubric?

The data analysis for Research Question 1 centered on finding the descriptive statistics for various teacher professional variables using the action research report scores on the Action Research Rubric. The overall scores on the Action Research Rubric were used to answer this question.

To find the descriptive statistics of the overall group, the scores of all of the action research reports (N=69) were used to determine the mean, median, mode, and range. Then the action research reports were sorted using the Excel functions to isolate the projects of the elementary school teachers (N=53), middle school teachers (N=11), and high school teachers (N=5). Additional sorting by teacher characteristics was used to find the descriptive statistics for on the overall scores on the Action Research Rubric for reports submitted by ESE/ELL (N=8),

kindergarten (N=10), first grade (N=6), second grade (N=6), third grade (N=9), fourth grade (N=8), and fifth grade (N=5) teachers.

An additional sorting of the data was used to group the action research by the subject area of their concentration. This was done in order to analyze the tests based on areas of the curriculum that were tested on FCAT. Therefore, it led to finding the descriptive characteristics for action research projects that concentrated on mathematics (N=18), reading (N=40), science (N=4) and writing (N=7).

Data Analysis for Research Question 2

To what extent do teachers report collaborating with others or use professional resources to design their action research?

The second Research Question was aimed at identifying the extent to which teachers used professional resources to guide their action research. Resources included printed materials such as journal or books, electronic media such as websites, or other professionals such as workshop presenters or reading coaches. Collecting data to answer this research question was accomplished by using the Professional Collaboration and Resources of the Action Research Rubric. The possible scores on this subscale range from 1 to 5. Reports that received a Level 3 had the two professional resources that were required by the Professional Development Department. Receiving a Level 2 on the subscale meant that there were two listed resources, but the information regarding them was vague. For example, instead of naming the website or providing an address for the reader of the action research report the author might have written "comprehension website." Level 1 on the subscale meant that there was only one resource listed. At Level 4, the reports contained three resources with adequate information so that someone else

could locate them. Reports were given a Level 5 on the Professional Collaboration and Resources Subscale if they had four or more properly identified resources.

The descriptive statistics were first found for all of the action research reports (N=69) on the Professional Collaboration and Resources Subscale. The reports were then sorted and the Professional Collaboration and Resource descriptive statistics were found for the elementary (N=53), middle (N= 11), and high (N=5) school levels. This process was then repeated for ESE/ELL (N=8), kindergarten (N=10), first grade (N=6), second grade (N=6), third grade (N=9), fourth grade (N=8), and fifth grade (N=5). Finally, the process was repeated based upon the FCAT tested subject areas of mathematics (N=18), reading (N=40), science (N=4) and writing (N=7).

Data Analysis for Research Question 3

To what extent do teachers report sharing the findings of their action research with just a few teachers, their team, their school, or at the school district level?

The purpose of the third Research Question was to identify the extent to which teachers shared their action research reports with their colleagues. This was measured using the subscale for Sharing on the Action Research Rubric. If the teachers did not mention sharing the findings with others beyond the required in-service classes and publication on the school district website, the action research received a Level 1 on the subscale for Sharing. By sharing the work with 1-3 other teachers, the report obtained a Level 2 on the subscale. A score of Level 3 equated to a teacher sharing the research and its results with his or her grade level or team. If the sharing extended to the school level, the research received a Level 4 on the Sharing Subscale. Finally, those reports that were shared at the school district level or beyond through presentations and

publications in addition to the required in-services classes and publication on the school district website earned a Level 5 on the subscale.

In order to answer the Research Question 3, the descriptive statistics for all (N=69) of the completed action research reports on the Sharing Subscale was obtained. Then, the descriptive statistics for the elementary (N=53), middle (N=11), and high (N=5) school reports were found using the Sharing Subscale. This was followed by examining the descriptive statistics for the ESE/ELL (N=8), kindergarten (N=10), first grade (N=6), second grade (N=6), third (N=9), fourth grade (N=8), and fifth grade (N=5) teachers. In a further attempt to answer the third Research Question, the descriptive statistics on the Sharing Subscale for the reports involving mathematics (N=18), reading (N=40) science (N=4), and writing (N=7) were determined.

Data Analysis for Research Question 4

To what extent do teachers target students in their action research based on one of the AYP student subgroups such as race, economic disadvantage, English proficiency, or Exceptional Student Education services?

The fourth Research Question sought to determine the extent to which teachers connected the purpose of their research to at least one AYP subgroup. This was measured by the Purpose of the Study Subscale. To receive a Level 5 on this subscale, the data must clearly support the need to conduct the action research, an AYP subgroup was identified, and there was a strong link between the data and need to target the subgroup. While the data supported the action research and targeting the selected AYP subgroup at Level 4 on the Purpose of the Study Subscale, the link between these elements might not be as strong. At Level 3, the need was somewhat supported by the data, but there was a weak or unclear link between the problem, subgroup, and

need to target the subgroup. If a project received a Level 2 on the Purpose of the Study Subscale, the need was unclear and not supported by the data and an unclear explanation for how the subgroup was chosen was provided. A Level 1 on the subscale would indicate that the need or problem was unclear without data support and an AYP group had not been identified.

Once again, the descriptive statistics were first found on the aggregate group of action research (N=69). Then the descriptive statistics on the Purpose of the Study Subscale were found for the elementary (N=53), middle (N=11), and high (N=5) school level reports. Next, the descriptive statistics were found for the ESE/ELL (N=8), kindergarten (N=10), first grade (N=6), second grade (N=6), third grade (N=9), fourth grade (N=8), and fifth grade (N=5) reports. Then the descriptive statistics were found for the Purpose of the Study Subscale for reports which focused on mathematics (N=18), reading (N=40), science (N=4), and writing (N=7).

Data Analysis for Research Question 5

To what extent do teachers differentiate instruction by altering the resources, time, intensity, or instructional techniques used with the students who were targeted for the action research study?

The Research Question 5 was written in order to help determine to what extent the teachers differentiated the instruction for their targeted group of students as part of the action research. The differentiation might have been accomplished by altering the resources, time, intensity, or instructional techniques that were used with the students. The Planning Subscale was used to measure the extent to which differentiation took place. Since the teachers who developed these action research reports all attended professional development workshops on differentiated instruction during the summer of 2009 and the workshops on action research were a follow-up to this endeavor, the teachers were asked to clearly establish differentiation

involving time, intensity, or instructional techniques for the students targeted in their action research plan. A report that offered differentiation and could be replicated even though it might have omitted some tools and details would receive a Level 3 on the Planning Subscale. An action research report which did not clearly establish differentiation, yet included an explanation of how the research was conducted although the information might be unclear at points would receive a Level 2 on the Planning Subscale. Level 1 was reserved for action research plans that did not include differentiation and were unclear in regards to the procedures, timelines, materials and type of data collection. Those action research reports that clearly established differentiation and included detailed instructions and tools for replicating the research constituted Level 4 on the subscale. Finally, action research reports receiving a Level 5 on the Planning Subscale had detailed descriptions of the procedures, copies of the tools required to complete the research, and established more than one type of differentiation.

Once again the descriptive statistics including the mean, median, mode, and range were found on the overall group of action research reports from the central Florida school district (N=69). The descriptive statistics on the Planning Subscale were then found for the elementary (N=53), middle (N=11) and high (N=5) school level reports. Next, the level of differentiation was examined for the reports submitted by ESE/ ELL (N=8), kindergarten (N=10), first (N=6), second (N=6), third (N=9), fourth (N=8), and fifth (N=5) grade teachers on the Planning Subscale was ascertained. Finally, the descriptive statistics on the Planning Subscale were found for action research reports conducted in the area of mathematics (N=18), reading (N=40), science (N=4), and writing (N=7) to determine the extent to which differentiation was included in the reports.

Data Analysis for Research Question 6

To what extent, do teachers measure change with various types of data or evidence (attitude surveys, observations, tests, or work samples)?

The sixth research question involved determining the extent to which teachers used a variety of data and evidence to measure change. The Data and Evidence Subscale was used to measure the variety in the types of data and evidence that teachers utilized as part of their action research. A Level 3 on this subscale corresponded to providing three data and evidence sources with enough information so that someone else could also administer the instruments. If there were only one or two data and evidence sources with enough information so that someone else could administer the instruments, the report would obtain a Level 2 on the Data and Evidence Subscale. A Level 1 on the subscale corresponded to a report that only had one data source without providing enough information so that the reader could administer the instrument. Action research that included a minimum of three data and evidence sources of varying types such as tests, teacher observation, and student work samples while also providing enough information so that someone else could replicate their use obtained a Level 4 on the Data and Evidence Subscale. Those reports that received a Level 5 on the Data and Evidence Subscale had the same attributes as those of a Level 4, but also included an explanation for why the various types of data sources were chosen.

The descriptive statistics for the aggregate group (N=69) of action research reports were initially found on the Data and Evidence Subscale. Then the scores for the elementary (N=53), middle (N=11), and high (N=5) school level reports were examined using the mean, median, mode, and range of the Data and Evidence Subscale. After this, the reports were then resorted to ascertain the descriptive statistics of the reports submitted by ESE/ ELL (N=8), kindergarten

(N=10), first (N=6), second (N=6), third (N=9), fourth (N=8), and fifth (N=5) grade teachers. Finally, the projects were reviewed by subject: mathematics (N=18), reading (N=40), science (N=4), and writing (N=7).

Summary

This chapter contained the ways that the teachers' action research reports were analyzed. Information regarding the characteristics of the teachers who participated was included as well as details regarding the instrumentation. Then the details were provided for how the overall scores for the reports on the Action Research Rubric were obtained. Once these overall scores were obtained, descriptive statistics including the mean, median, mode, and range were found for the 69 completed reports and various subgroups. The subscales for Professional Collaboration and Resources, Purpose of the Study, Planning, and Data and Evidence were also examined and the descriptive statistics were found for the aggregate group of reports as well as several subgroups in an attempt to help answer the six research questions. In Chapter 4, the statistics that were calculated to answer the research questions are provided in both narrative and table form.

CHAPTER 4 ANALYSIS OF THE DATA

Introduction

This study examined the action research reports of teachers in a particular Florida school district from the 2009-2010 school year after the teachers received training on both differentiated instruction and action research. The purpose of the study was to the body of knowledge on teacher action research by examining the trends for targeting AYP student subgroups for action research, how the teachers believe the process impacted their teaching, and whether or not they collaborated with their peers during the process. The reports were analyzed using the Action Research Rubric which was developed by the researcher for this study. The Action Research Rubric was created as a modification of Pearl's rubric which is published in Bruce and Pine's (2010) book, *Action Research in Special Education: An Inquiry Approach for Effective Teaching and Learning*. Pearl stated that her rubric is an adaptation of Miller's (2000) Evaluation Instrument for Action Research Project (See Appendix C). The Action Research Rubric was adapted to reflect the characteristics that the school district asked the teachers to include in their reports. As discussed in previous chapters, the Action Research Rubric included seven subscales based upon the various components that the teachers were asked to include in their reports: Purpose of the Study, Professional Collaboration and Resources, Plan, Data and Evidence Sources, Results, Instructional Decisions and Professional Reflection, and Sharing Results. Experts in the field were consulted in the construction of this rubric for content validity. One of the experts specialized in educational research methodology, measurement, and evaluation. Another expert specialized in instructional leadership focused on improving student achievement

and has conducted workshops on action research. The third expert had a focus on preparing teachers and administrators and employee supervision. The final expert had published works on action research, data based decision making, and exceptional student education.

The remainder of this chapter will contain a description of the population which will be followed by an analysis of the descriptive statistics for each of the six research questions. Each of the research questions will be treated in a separate section. The final section of this chapter will be a brief summary of the content.

Population

According to an Active Staff Register that was provided by the Human Resources Department for this school district, there were approximately 2,641 instructional staff members in the elementary, middle, and high schools during the 2009-2010 school year. This report was run in June of 2010 instructional staff members who worked in areas such as school district-wide programs or grant writing were not included in this total because they were not in the population of teachers who had the potential to be chosen for the initial staff development. In the summer of 2009, principals were asked to select teachers to attend a series of workshops on differentiated instruction. There were 96 teachers in this initial group that received instruction on differentiation.

As a follow-up to these workshops, teachers received additional instruction on the process of conducting action research. The instruction was conducted by a consultant from outside of the school district. The consultant conducted a follow-up session with the teachers in the fall of 2009 to aid the teachers in their formation of action research plans. The teachers then

met again with the consultant in January of 2010 to provide updates on how the research was progressing and share their experiences with other teachers in the group. The teachers were then given the task of completing their action research and the accompanying report (See Appendix A). Upon completion of this report and submittal to the school district's professional development department, the teachers received 30 continuing education hours. The school district's professional development department then placed the finished reports on the school district website with the names of the students removed to protect their anonymity. The publishing of the reports on the school district website was meant to promote communication and collaboration between teachers in the school district.

The total number of finished reports submitted to the school district's professional development department was 69. These 69 reports were analyzed using the Action Research Rubric for this study. Of the 69 reports that were submitted, 67 of them were completed by female teachers and two were completed by male teachers. Out of these completed reports, 53 were from elementary teachers, 11 were completed by middle school teachers, and five were submitted by high school teachers.

The group of 53 elementary teachers included one dual language teacher, seven ESE teachers, and a science resource teacher in addition to 10 kindergarten, six first grade, six second grade, nine third grade, eight fourth grade, and five fifth grade teachers (See Table 2). The middle school teachers included a literacy coach and two intensive reading teachers in addition to a physical education teacher, an art teacher, a social studies teacher, a language arts teacher, a mathematics teacher, a guidance counselor, and two science teachers (See Table 3). The high school teachers included a science teacher, a mathematics teacher, two English teachers, and a

computer teacher (See Table 4). As a group, the elementary teachers were approximately 77% of the teachers who completed an action research report. The middle school teachers were about 16% and high school teachers were about 7% of the total number of teachers who submitted final action research reports in this Central Florida school district.

Research Question 1

What are the descriptive statistics of various teacher professional variables using the action research report scores on the Action Research Rubric?

Table 6 shows the descriptive statistics for the action research report scores on the Action Research Rubric when looked at as an aggregate group (N=69) and by school level: elementary, middle school or high school. As an aggregate group, the teachers' reports (N=69) had a mean of 21.36, a standard deviation of 4.32, and a range of (11, 32). The reports completed by elementary teachers (N=53) had a mean of 21.21 and standard deviation of 4.29. The range for the elementary teachers' reports on the Action Research Rubric was (11, 31). The middle school teachers' reports (N=11) had a mean of 21.09 and a standard deviation of 5.09. The range for the reports submitted by middle school teachers was (14, 32). The reports submitted by high school teachers (N=5) had a mean of 23.6, a standard deviation of 2.51, and a range of (21, 26).

Table 6 *Descriptive Statistics for Reports Using Action Research Rubric by School Level*

School Level	N	Mean	SD	Median	Mode	Range (7, 35)
Elementary	53	21.21	4.29	22	21	(11, 31)
Middle	11	21.09	5.09	21	20	(14, 32)
High	5	23.6	2.51	24	21	(21, 26)
Total	69	21.36	4.32	21	21	(11, 32)

The reports submitted by the elementary teachers were disaggregated into grade level or ESE/ELL subgroups to search for patterns within this larger group in Table 7. The ESE/ELL teachers' reports (N=8) had a mean of 23.63 (s=2.39) and range of (21, 28). The ESE/ELL reports were bimodal with 21 and 25 occurring twice in the dataset. The kindergarten teachers' reports (N=10) had a mean of 18.9 (s= 4.31). The kindergarten data was bimodal with both 13 and 19 appearing twice in the data set, and the range for the kindergarten reports was (13, 26). The first grade teachers' reports (N=6) had a mean of 23.33 (s=5.43) and a range of (13, 28). The descriptive statistics for the second grade teachers' reports (N=6) were a mean of 21.67 (s=2.07) and a range of (19, 24). The group of nine third grade teachers submitted reports with a mean of 21.89 (s=3.18) and a range of (17, 26). The fourth grade teachers' reports (N=8) had a mean of 20.5 (s= 5.86) and a range of (11, 31). As a group, the fifth grade teachers' reports (N=5) had a mean of 19.4 (s= 4.98) and a range of (13, 23).

Table 7 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Reports by Elementary Teachers Using Action Research Rubric*

Group of Teachers	N	Mean	SD	Median	Mode	Range (7,35)
ESE/ELL	8	23.63	2.39	23.5	21 and 25	(21, 28)
Kindergarten	10	18.9	4.31	19	13 and 19	(13, 26)
First	6	23.33	5.43	25.5	26	(13, 28)
Second	6	21.67	2.07	21.5	24	(19, 24)
Third	9	21.89	3.18	23	24	(17, 26)
Fourth	8	20.5	5.86	20.5	21	(11, 31)
Fifth	5	19.4	4.98	23	23	(13, 23)

The descriptive statistics were then examined by FCAT subject area to determine if there were patterns in the reports' scores on the Action Research Rubric. The results are shown in Table 8. The action research reports centering on mathematics (N=18) had a mean of 22.39 (s= 5.39) and a range of (11, 32). The mathematics reports' data were bimodal with 21 and 24 appearing 3 times each in the data set. The group of 40 reading reports, had a mean of 21.45 (s= 3.88) and a range of (13, 26). The science reports (N=4) had a mean of 18.5 (s=3.87) and a range of (15, 24). The science reports did not have a mode. Finally, the action research reports that concentrated on writing (N=6) had a mean of 19.83 (s=3.92) and a range of (13, 25) on the Action Research Rubric.

Table 8 *Descriptive Statistics for Reports Based on FCAT Tested Subject Area of Focus*

Subject	N	Mean	SD	Median	Mode	Range (7, 35)
Mathematics	18	22.39	5.39	22	21and 24	(11, 32)
Reading	40	21.45	3.88	22	21	(13, 26)
Science	4	18.5	3.87	17.5	N/A	(15, 24)
Writing	6	19.83	3.92	20.5	21	(13, 25)

Research Question 2

To what extent do teachers report collaborating with others or use professional resources to design their action research?

Table 9 contains the descriptive statistics for the reports as an aggregate group and by school level on the Professional Collaboration and Resources Subscale. As an aggregate group (N=69), the reports had a mean of 3.36 (s=1.38) on the Professional Collaboration and Resources Subscale with a range of (1, 5). The aggregate group was bimodal with 3 and 5 both occurring 20 times in the data set. The elementary reports (N=53) had a slightly higher mean of 3.45 (s=1.32) and a range of (1, 5). The middle school reports (N=11) had a mean of 2.82 (s=1.66) and range of (1,5). The high school reports (N=5) had a mean of 3.6 (s= 1.34) and range of (2, 5). The high school reports were also bimodal with 3 and 5 both occurring in the data set twice.

Table 9 *Descriptive Statistics for the Professional Collaboration and Resources Subscale by School Level*

School Level	N	Mean	SD	Median	Mode	Range (1,5)
Elementary	53	3.45	1.32	3	3	(1, 5)
Middle	11	2.82	1.66	2	2	(1, 5)
High	5	3.6	1.34	3	3 and 5	(2, 5)
Total	69	3.36	1.38	3	3 and 5	(1, 5)

In table 10, the descriptive statistics for the Professional Collaboration and Resources Subscale for grade level or ESE/ELL subgroups of reports by elementary teachers in displayed. The group of ESE/ELL teachers' reports (N=8) had a mean of 3.75 (s= 0.89) and range of (3, 5). The kindergarten reports (N=10) had a mean of 2.7 (s=1.42) which was the lowest mean on the Professional Collaboration and Resources Subscale for the subgroups of elementary teachers. The kindergarten teachers' reports had a range of (1, 5). The kindergarten reports were also bimodal on the Professional Collaboration and Resources Subscale with both 1 and 3 occurring three times. The reports of the six first grade teachers had a mean of 3.83 (s= 1.33) and range of (2, 5). The second grade teachers' reports (N=6) had a mean of 3.3 (s= 1.37) and a range of (1, 5). The second grade teachers' reports were bimodal with both 3 and 4 occurring twice. The third grade reports had a mean of 3.67 (s=0.87) and range of (3, 5). The fourth grade teachers' reports (N=8) had a mean of 3.63 (s=1.51) and range of (1, 5). The fifth grade teachers' reports (N=5) were the smallest subgroup of elementary reports, and they had the highest mean of 4 (s=1.73) and the range was (1, 5).

Table 10 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Reports by Elementary Teachers Using the Professional Collaboration and Resources Subscale*

Group of Teachers	N	Mean	SD	Median	Mode	Range (1,5)
ESE/ELL	8	3.75	0.89	3.5	3	(3, 5)
Kindergarten	10	2.7	1.42	3	1 and 3	(1, 5)
First	6	3.83	1.33	4	5	(2, 5)
Second	6	3.33	1.37	3.5	3 and 4	(1, 5)
Third	9	3.67	0.87	3	3	(3, 5)
Fourth	8	3.63	1.51	4	5	(1, 5)
Fifth	5	4	1.73	5	5	(1, 5)

The descriptive statistics on the Professional Collaboration and Resources Subscale for the reports by FCAT subject are reported in table 11. The mathematics reports (N=18) had a mean of 3.61 (s=1.33) and a range of (1, 5). The descriptive statistics on the Professional Collaboration and Resources Subscale for the reading reports (N=40) were a mean of 3.45 (s= 1.32) and a range of (1, 5) and a median of 3. The reading reports were bimodal with both 3 and 5 occurring most often in the data set. The four science reports had a mean of 2 (s= 2) and a range of (1, 5). There were three science reports that earned a 1 on the Professional Collaboration and Resources Subscale and one report that had a score of 5. Finally, the writing reports (N=6) had a mean of 3 (s=1.41) and a range of (1, 5).

Table 11 *Descriptive Statistics for the Professional Collaboration and Resources Subscale Based on the FCAT Tested Subject Focus*

Subject	N	Mean	SD	Median	Mode	Range (1, 5)
Mathematics	18	3.61	1.33	4	5	(1, 5)
Reading	40	3.45	1.32	3	3 and 5	(1, 5)
Science	4	2	2	1	1	(1, 5)
Writing	6	3	1.41	3	3	(1, 5)

Research Question 3

To what extent do teachers report sharing the findings of their action research with just a few teachers, their team, their school, or at the school district level?

The Sharing Results Subscale was used to measure the extent to which teachers shared the findings of their action research with their colleagues. Table 12 shows the results for the reports when grouped together by elementary, middle, and high school levels as well as the entire group of reports. As an aggregate group (N=69), the reports had a mean of 1.88 (s=1.02) and a range of (1, 4). The elementary school reports (N=53) had a mean of 1.87 (s=1.00) and like the aggregate group they had a range of (1, 4). The middle school reports (N=11) had a mean of 2.18 (s=1.25). They also had a range of (1, 4). The high school reports (N=5) had a mean of 1.4 (s= 0.55) and range of (1, 2).

Table 12 *Descriptive Statistics for the Sharing Results Subscale Using Action Research Rubric by School Level*

School Level	N	Mean	SD	Median	Mode	Range (1,5)
Elementary	53	1.87	1.00	1	1	(1, 4)
Middle	11	2.18	1.25	2	1	(1, 4)
High	5	1.4	0.55	1	1	(1, 2)
Total	69	1.88	1.02	1	1	(1, 4)

The results for the subgroups of elementary teachers on the Sharing Results Subscale are displayed in Table 13. The ESE/ELL reports (N=8) had a mean of 2 (s=1.07) and the range was (1, 3) while the dataset was bimodal with 1 and 3 each appearing four times in the dataset. The kindergarten reports (N=10) had a mean of 1.5 (s= 0.85) and a range of (1, 3). The reports submitted by first grade classroom teachers (N= 6) had a mean of 2.83 (s=0.75) and a range of (2, 4). The second grade reports (N=6) had a mean of 2.17 (s=1.33) and a range of (1, 4). When the descriptive statistics for third grade reports (N=9) were calculated, the mean was 1.56 (s=0.88) and the range was (1, 3). The fourth grade reports (N=8) had a mean of 1.88 (s=0.99) and a range of (1, 3). The final group of elementary reports were those from the fifth grade classroom teachers (N= 5). The fifth grade reports had a mean of 1.6 (s=0.89) and a range of (1, 3).

Table 13 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Elementary Teachers Using the Sharing Results Subscale*

Group of Teachers	N	Mean	SD	Median	Mode	Range (1,5)
ESE/ELL	8	2	1.07	2	1and 3	(1, 3)
Kindergarten	10	1.5	0.85	1	1	(1, 3)
First	6	2.83	0.75	3	3	(2, 4)
Second	6	2.17	1.33	2	1	(1, 4)
Third	9	1.56	0.88	1	1	(1, 3)
Fourth	8	1.88	0.99	1.5	1	(1, 3)
Fifth	5	1.6	0.89	1	1	(1, 3)

The Sharing Results Subscale descriptive statistics for the action research reports when grouped upon the subject areas that FCAT tests is shared in Table 14. The reports dealing with the subject area of mathematics (N=18) had a mean of 2.11 (s=1.31) and a range of (1, 4). The reading reports (N=40) had a mean of 1.8 (s=0.97) and a range of (1, 4). The smaller group of science reports (N=4) had a mean of 1.75 (s=0.96) and a range of (1, 3). Finally, the writing reports (N=6) had a calculated mean of 2 (s=1.26) and a range of (1, 4).

Table 14 *Descriptive Statistics for Sharing Results Subscale Based on FCAT Tested Subject Area*

Subject	N	Mean	SD	Median	Mode	Range (1,5)
Mathematics	18	2.11	1.31	2	1	(1, 4)
Reading	40	1.8	0.97	1	1	(1, 4)
Science	4	1.75	0.96	1.5	1	(1, 3)
Writing	6	2	1.26	1.5	1	(1, 4)

Research Question 4

To what extent do teachers target students in their action research based on one of the AYP subgroups such as race, economic disadvantage, English proficiency, or Exceptional Student Education services?

The Purpose of the Study Subscale of the Action Research Rubric was used to determine the extent that teachers targeted students in their action research based upon AYP subgroups including race, economic disadvantage, English proficiency or Exceptional Student Services. The results of the aggregate group as well as the results broken down by the elementary, middle, and high school levels are shown in Table 15. As a total group (N= 69), the reports had a mean of 4.19 (s=1.43) and a range of (1, 5). The elementary reports (N=53) had a mean of 4.17 (s=1.42) and the same range as the aggregate group, (1, 5). The middle school reports (N= 11) had a mean of 3.91(s=1.70) and the range of the middle school reports was also (1, 5). The high school reports (N=5) had a mean of 5 (s=0). Therefore, the median and mode were 5 and there was not a range of scores since all of the high school reports had a score of 5 on the Purpose of the Study Subscale.

Table 15 *Descriptive Statistics for the Purpose of the Study Subscale Using the Action Research Rubric by School Level*

School Level	N	Mean	SD	Median	Mode	Range (1, 5)
Elementary	53	4.17	1.42	5	5	(1, 5)
Middle	11	3.91	1.70	5	5	(1, 5)
High	5	5	0	5	5	N/A
Total	69	4.19	1.43	5	5	(1, 5)

Table 16 provides the descriptive statistics that were calculated for the subgroups of elementary reports using the Purpose of the Study Subscale. The ESE/ELL reports (N=8) all received a Level 5 on this subscale. Therefore, the mean, median, and mode for the ESE/ELL reports were all 5 (s=0) and there was no range. The kindergarten reports (N=10) had a mean of 4.1(s=1.52) and range of (1, 5). The first grade reports (N=6) received a mean of 4 (s=1.67) and a range of (1, 5). The second grade reports (N=6) had a mean of 4.33 (s=1.03) and a range of (3, 5). Meanwhile, the third grade reports (N=9) had a mean of 4.56 (s=1.33) and a range of (1, 5). The fourth grade reports (N=8) had a mean of 3.25 (s=1.98) and a range of (1, 5). Finally, the fifth grade reports (N=5) had a mean of 3.6 (s=1.34) and range of (2, 5). The fifth grade dataset was bimodal with 3 and 5 each appearing twice.

Table 16 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Elementary Teachers Using the Purpose of the Study Subscale*

Group of Teachers	N	Mean	SD	Median	Mode	Range (1,5)
ESE/ELL	8	5	0	5	5	N/A
Kindergarten	10	4.1	1.52	5	5	(1, 5)
First	6	4	1.67	5	5	(1, 5)
Second	6	4.33	1.03	5	5	(3, 5)
Third	9	4.56	1.33	5	5	(1, 5)
Fourth	8	3.25	1.98	4	5	(1, 5)
Fifth	5	3.6	1.34	3	3 and 5	(2, 5)

The descriptive statistics for the action research reports on the Purpose of the Study subscale as broken down by FCAT test subjects is shown in Table 17. The reports that were about mathematics (N=18) had a mean of 4.11 (s=1.45) and a range of (1, 5). The reading reports (N=40) had a mean of 4.55 (s=1.04) and the range of the reading reports was also (1, 5). The science reports (N=4) had a mean of 3 (s=2.31) and a range of (1, 5). The science report data was bimodal with both 1 and 5 occurring twice. Finally, the writing reports (N=6) had a mean of 3.33(s=1.97). Like the other subgroups based upon FCAT tested subjects, the writing reports had a range of (1, 5) on the Purpose of the Study Subscale.

Table 17 *Descriptive Statistics for the Purpose of the Study Subscale Based on the FCAT Tested Subject Focus*

Subject	N	Mean	SD	Median	Mode	Range (1, 5)
Mathematics	18	4.11	1.45	5	5	(1, 5)
Reading	40	4.55	1.04	5	5	(1, 5)
Science	4	3	2.31	3	1 and 5	(1, 5)
Writing	6	3.33	1.97	4	5	(1, 5)

Research Question 5

To what extent do teachers differentiate instruction by altering the resources, time, intensity, or instructional techniques used with the students who were targeted for the action research study?

The Planning Subscale on the Action Research Rubric was utilized to determine the degree to which teachers differentiated instruction for the students who were targeted as part of the purpose for the action research. Table 18 displays the descriptive statistics for the aggregate group of action research reports on the Planning Subscale along with the subgroups of school levels: elementary, middle, and high school. The collective group of reports (N=69) had a calculated mean of 2.62 (s=0.93) and a range of (1, 5). As a group, the elementary reports (N=53) had a mean of 2.57 (s=0.93) and the range was (1, 5). The middle school reports (N= 11) had a mean of 2.82 (s=0.98) and a range of (2, 5). Finally, the high school reports (N=5) had a calculated mean of 2.8 (s=0.84) and range of (2, 4). The dataset for the high school reports was bimodal with 2 and 3 both occurring twice in the dataset.

Table 18 *Descriptive Statistics for the Planning Subscale Using the Action Research Rubric by School Level*

School Level	N	Mean	SD	Median	Mode	Range (1, 5)
Elementary	53	2.57	0.93	2	2	(1, 5)
Middle	11	2.82	0.98	3	2	(2, 5)
High	5	2.8	0.84	3	2 and 3	(2, 4)
Total	69	2.62	0.93	2	2	(1, 5)

The descriptive statistics for the subgroups of elementary reports are provided in Table 19. The ESE/ELL reports (N=8) had a mean of 3.25 (s=1.04) and a range of (2, 5). The kindergarten reports (N=10) had a mean of 2.1(s=0.57) and a range of (1, 3). The group of reports submitted by first grade teachers (N=6) had a mean of 3.17 (s=1.47) and a range of (2, 5). The second grade reports (N=6) had a mean of 2.33 (s=0.52) and a range of (2, 3). The third grade teachers' reports (N=9) had a mean of 2.22 (s=0.67) and a range of (1, 3). The fourth grade reports (N=8) had a mean of 2.75 (s=0.71) and a range of (2, 4). Finally, the fifth grade reports (N=5) had a calculated mean of 2.4 (s=1.14) and a range of (1, 4).

Table 19 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Elementary Teachers Using the Planning Subscale*

Group of Teachers	N	Mean	SD	Median	Mode	Range (1, 5)
ESE/ELL	8	3.25	1.04	3	3	(2, 5)
Kindergarten	10	2.1	0.57	2	2	(1, 3)
First	6	3.17	1.47	2.5	2	(2, 5)
Second	6	2.33	0.52	2	2	(2, 3)
Third	9	2.22	0.67	2	2	(1, 3)
Fourth	8	2.75	0.71	3	3	(2, 4)
Fifth	5	2.4	1.14	2	2	(1, 4)

In Table 20, the descriptive statistics are provided for the action research reports by FCAT subject area on the Planning Subscale of the Action Research Rubric. The reports that focused on mathematics (N=18) had a mean of 2.89 (s=1.13) and a range of (1, 5). The reading reports (N=40) had a mean of 2.58 (s=0.87) and a range of (1, 5). The action research reports dealing with science (N=4) had a mean of 2 (s=0). Since all of the science reports received a 2 on the Planning Subscale, there was no range. Finally, the writing reports (N=6) had a mean of 2.33 (s=0.52) and a range of (2, 3).

Table 20 *Descriptive Statistics for the Planning Subscale Based on FCAT Tested Subject Focus*

Subject	N	Mean	SD	Median	Mode	Range (1, 5)
Mathematics	18	2.89	1.13	3	2	(1, 5)
Reading	40	2.58	0.87	2	2	(1, 5)
Science	4	2	0	2	2	N/A
Writing	7	2.33	0.52	2	2	(2, 3)

Research Question 6

To what extent, do teachers measure change with various types of data or evidence (attitude surveys, observations, tests, or work samples)?

In order to determine the extent to which teachers used a variety of data and evidence types to calculate change in student achievement during action research, the Data and Evidence Subscale of the Action Research Rubric was utilized. The descriptive statistics for the aggregate group of action research reports and the reports by school level are presented in Table 21. The cumulative group of reports (N= 69) had a mean of 3.55 (s=1.18) and a range of (1, 5). The elementary reports (N= 53) had a mean of 3.47 (s=1.17) and a range of (1, 5) on the Data and Evidence Subscale. The middle school reports (N=11) had a mean of 3.55 (s=1.37) and a range of (1, 5). Finally, the high school reports (N=5) had a mean of 4.4 (s=0.55) and a range of (4, 5).

Table 21 *Descriptive Statistics for the Data and Evidence Subscale Using the Action Research Rubric by School Level*

School Level	N	Mean	SD	Median	Mode	Range (1, 5)
Elementary	53	3.47	1.17	4	4	(1, 5)
Middle	11	3.55	1.37	3	5	(1, 5)
High	5	4.4	0.55	4	4	(4, 5)
Total	69	3.55	1.18	4	4	(1, 5)

Table 22 shows the descriptive statistics that were calculated for the subgroups of elementary reports using the Data and Evidence Subscale. The ESE/ELL group (N=8) had a mean of 3.63 (s=1.30) and a range of (2, 5). The kindergarten reports (N=10) had a mean of 3.1(s=1.37) and a range of (1, 5). The first grade reports (N=6) had a calculated mean of 3.33 (s=1.21) and a range of (2, 5). The first grade reports were bimodal with 2 and 4 both occurring twice in the dataset. The reports from the second grade classroom teachers (N=6) had a mean of 3.67 (s=1.03) and a range of (2, 5). The third grade teachers (N=9) had some similar descriptive statistics to the second grade group. The third grade reports had a mean of 3.67 (s=1) and the range was (2, 5). The fourth grade reports (N=8) had a mean of 3.63 (s=1.30) and a range of (2, 5). The final group of elementary reports from fifth grade (N=5) had a mean of 3 (s=1) and a range of (2, 4). The fifth grade reports were bimodal with 2 and 4 occurring twice in the dataset.

Table 22 *Descriptive Statistics for Grade Level or ESE/ELL Subgroups of Elementary Teachers Using the Data and Evidence Subscale*

Group of Teachers	N	Mean	SD	Median	Mode	Range (1, 5)
ESE/ELL	8	3.63	1.30	3.5	5	(2, 5)
Kindergarten	10	3.1	1.37	3	2	(1, 5)
First	6	3.33	1.21	3.5	2 and 4	(2, 5)
Second	6	3.67	1.03	4	4	(2, 5)
Third	9	3.67	1	4	4	(2, 5)
Fourth	8	3.63	1.30	3.5	5	(2, 5)
Fifth	5	3	1	3	2 and 4	(2, 4)

In Table 23, the descriptive statistics on the Data and Evidence Subscale for reports based on FCAT subject areas are displayed. The reports which centered on mathematics (N=18) had a mean of 3.56 (s=1.20) and a range of (2, 5). The dataset for the mathematics reports was tri-modal with 2, 4 and 5 all occurring five times. The reading reports (N=40) had a mean of 3.45 (s=1.13) and a range of (1, 5). The action research reports concerning science (N=4) had a mean of 3.5 (s=1.73) and a range of (2, 5). The small group of science reports was bimodal with 2 and 5 occurring twice in the dataset. Finally, the writing reports (N=6) had a calculated mean of 4 (s=1.26) and a range of (2, 5).

Table 23 *Descriptive Statistics for the Data and Evidence Subscale Based on FCAT Tested Subject Focus*

Subject	N	Mean	SD	Median	Mode	Range (1, 5)
Mathematics	18	3.56	1.20	4	2, 4, and 5	(2, 5)
Reading	40	3.45	1.13	4	4	(1, 5)
Science	4	3.5	1.73	3.5	2 and 5	(2, 5)
Writing	6	4	1.26	4.5	5	(2, 5)

Summary

This chapter began with a description of the population of teachers who completed the action research reports that were studied. Then, the results of the action research reports as they were assessed using the Action Research Rubric were reported. The results were presented for the collective group of reports using descriptive statistics. The results were also provided for various subgroups of reports in order to observe additional patterns in the descriptive statistics. The results were studied for the elementary, middle, and high school reports. Subgroups within the elementary reports were also analyzed: ESE/ELL, kindergarten, first grade, second grade, third grade, fourth grade, and fifth grade. The reports were also sorted to analyze the descriptive statistics for the reports by FCAT tested subject areas including mathematics, reading, science and writing. In addition to reporting the descriptive statistics for the reports on the entire Action Research Rubric, the descriptive statistics for the reports using several of the subscales was provided as they pertained to the research questions. In the fifth chapter, the results and

implications for these findings will be discussed along with an analysis for further areas of study that are suggested by the analysis.

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter presents a summary of the findings from the research on the action research reports of the Florida school district, conclusions are then drawn after reviewing these findings, and recommendations for future research and practice in this area are provided. Each of the research questions will be analyzed in a separate section. Examples of responses from the action research reports that apply to the research questions are also given (See Appendices F-J). In addition, observations from the researcher's attendance at the January 30, 2010 meetings of teachers providing status updates on the progression of their action research projects are also included as they relate to the various research questions. After providing analysis for the various sections, overall conclusions about the action research reports are provided. This leads to the implications of this study and recommended topics for future study for researchers who are interested in investigating the topic of teacher action research are provided.

The remainder of this chapter is divided into seven sections. First the statement of the problem which led to this study is given. Then the methodology is reviewed including the population, data collection, instrumentation, and data analysis. In the third section, the summary and discussion of the findings for each of the six research questions are provided. In the fourth section, a discussion of observations from the teacher meetings with the consultant from outside of the school district on January 30, 2010 is offered. This is followed by a section containing conclusions that can be made. In the sixth section, implications and recommendations can be found. Finally, in the seventh section, recommendations for future research are provided.

Statement of the Problem

One of the challenges that schools have been given as part of NCLB is to ensure that all students are making adequate yearly progress in their academic areas. In order to meet this end, teachers have been asked to use data to drive their instruction. Therefore, the problem to be was whether the teachers in this school district who completed action research projects met the standards that the school district had set concerning the action research process, use of collaboration, and focus on student subgroups. In order to study this, the researcher used the action research reports that were completed by 69 teachers in a particular school district in Florida. The Action Research Rubric that was developed for this study incorporated the elements of the action research process with the use of AYP subgroups and differentiated instruction. These were all components that the teachers were asked to include in their reports for their school district.

Methodology

Population and Data Collection

The Active Staff Register provided by the Human Resources Department of the selected school district indicated that there were 2,641instructional staff members across the elementary, middle, and high school levels during the 2009-2010 school year. Prior to the beginning of the school year, principals chose teachers to attend a series of professional development workshops on differentiated instruction. These workshops were conducted by a consultant from outside of the school district. As a follow-up to these classes, the teachers were then invited to attend a

series of workshops on action research in the fall. These workshops were led by another facilitator from outside of the school district. The purpose of these workshops was to provide the teachers with a structured and meaningful way to apply the strategies of differentiation in their classrooms. Teachers were also provided with copies of two texts to help them learn the process of action research and allow them to envision how to enact action research in their classrooms. The texts were "Becoming an Action Researcher" (Rawlinson & Little, 2004) and "Becoming an Action Researcher to Improve Your Learning" (Little & Rawlinson, 2002).

In January of 2010, the facilitator who worked with teachers on structuring their action research plans met with the teachers again. The teachers were asked to provide a status update on the progress of their action research. The facilitator guided the discussion among teachers and they reported on their efforts, discussed unexpected issues that might have arisen, and brainstormed solutions to problems that might have presented themselves. They also reviewed the Action Research Form and the various components that were to be included in each section. After these meetings, the participating teachers were given the charge of finishing their action research, completing their reports, submitting to them to their principals and the school district's Professional Development Department. Once the principal approved the action research report, the Professional Development Department removed any student identifiers and published them on the school district website. After gaining approval for the study from the Institutional Review Board and the school district's approval through the Director of Planning, Evaluation, and Accountability, the researcher downloaded the 69 completed action research reports.

Instrumentation

The reports were read and assessed using the Action Research Rubric. The Action Research Rubric was an adaptation of a rubric developed by Cynthia Pearl with her permission (See Appendix C). Pearl attributed her rubric as being an adaptation of the work of from K.J. Miller. Pearl's version was published in Bruce and Pine's (2010) book on action research in special education. The Action Research Rubric was adapted by taking the Action Research Form that was given to the teachers by the school district's Professional Development Department and making sure that the Action Research Rubric reflected the expectations of the school district (See Appendix A). Once these adaptations were made the rubric was given to experts in the field for content validity. One of the experts specialized in educational research methodology, measurement, and evaluation. Another expert specialized in instructional leadership focused on improving student achievement and has conducted workshops on action research. The third expert has a focus on preparing teachers and administrators and employee supervision. The final expert has published works on action research, data based decision making, and exceptional student education.

The Action Research Rubric contained seven subscales: Purpose of the Study, Plan, Professional Collaboration and Resources, Data and Evidence, Results, Instructional Decisions and Professional Reflection, and Sharing Results. The scale for the seven subscales was 1-5. A score of 3 on the subscale indicated that the report contained the required elements associated with that subscale. Receiving a 1 or 2 on a subscale would indicate that the report was missing some of the characteristics that the school district had required. Those receiving a 1 had the fewest elements associated on that scale. Meanwhile, the reports receiving a 4 or 5 on the

subscale had more than the basic elements that the school district had required. Those receiving a 5 went farthest beyond the minimal requirements of the school district.

All seven of the subscales were combined for a total score on the Action Research Rubric that could be up to 35 points if a report received a 5 on all of the seven subscales. A report could receive anywhere from 7-35 points on the Action Research Rubric. A report that had received a 3 on all of the subscales, thus reflecting that had met the requirements of each subscale without adding extra elements received a 21 on the Action Research Rubric.

Data Analysis

The reports were read at least two times while using the Action Research Rubric to carefully look for the elements of the seven subscales. A report was read and scored by the researcher initially. Then after a minimum of 24 hours the report was reread and rescored. If discrepancies in the scoring existed, this process was repeated in an effort to establish intra-rater reliability.

The scores were input by hand-on a Microsoft Excel spreadsheet which totaled the subscales for the overall score on the Action Research Rubric. In the next cell, the level of the school was recorded in the cell to the right of the overall score on the Action Research Rubric. This could be elementary, middle, or high school. Then in the adjacent cell to the right of the level the teacher's classroom position was recorded. Some positions that were included were intensive reading, classroom teacher grade four, or tenth grade English. The next cell was used to record the subject area of the action research. The five subjects that were found in this study were: mathematics, physical education, reading, science, and writing.

After the 69 reports were read and scored, descriptive statistics were calculated including the mean, standard deviation, and range for the entire group as the scores pertained to the six research questions. After being examined as an aggregate group the reports and their scores were analyzed by school level: elementary, middle, and high school. They were also divided into subgroups according to the various elementary teachers: ESE/ELL, kindergarten, first, second, third, fourth, and fifth grade teachers. Because there was only one science resource teacher at the elementary level the data from this teacher's report was not included in the subgroups of elementary reports. Therefore, only 52 scores were reported for this sorting of the data.

Finally, they were sorted according to FCAT tested subject areas: mathematics, reading, science, and writing. When the reports were grouped by FCAT tested subject areas this omitted one report that was focused on physical education. Therefore, only 68 scores were reported for this sorting of the data.

Summary and Discussion of Findings

This study was guided by the six research questions. This section summarizes the findings and provides analysis and discussion for each of the six research questions.

Research Question 1

What are the descriptive statistics of various teacher professional variables using the action research report scores on the Action Research Report Rubric?

The overall scores for the reports (N=69) on the Action Research Project were used to answer this question. The mean for the aggregate group of reports was 21.36 (s=4.32). When the reports were examined by school level, the high school reports (N=5) had the highest mean of 23.6 (s=2.51) when compared to the mean for the elementary (N=53, m= 21.21, s=4.29) and middle school (N=11, m=21.09, s=5.09) reports. The median of the high school reports (median= 24) was also higher than the median for the elementary (median= 22) or middle school (median= 21) reports. The range for the high school reports (21, 26) was tighter with less variance than the range for elementary (11, 31) or middle school (14, 32). It is important to note that the reports were assessed by the researcher in the order in which the school district displayed them on their website. The website displayed the reports by teachers' last name. Therefore, the five high school reports were not assessed sequentially using the Action Research Rubric.

When the elementary reports were subdivided into reports based upon the type of elementary teacher, it was found that ESE/ELL (N=8, m= 23.63, s=2.39) had a slightly higher mean than the first grade (N=6, m= 23.33, s=5.43) reports. However, the first grade reports had a higher median (25.5) and mode (26) than the ESE/ELL reports (median= 23.5, mode=21 and 25). Yet, the first grade reports had a wider range (13, 28) than the ESE/ELL reports' range (21, 28). When examined more closely, it was noted that the first grade reports had an outlier with

one report receiving a 13 on the Action Research Rubric. The remaining 5 first grade reports all had a score of 22 or higher, above the aggregate group's mean (N=69, m= 21.36, s=4.32).

The action research reports that focused on mathematics (N= 18, m=22.39, s=5.39) had the highest mean when the reports were sorted by FCAT subject area. The mathematics reports' data set also had the highest and lowest scores for any of the reports in the aggregate group with a range of (11, 32). The science reports (N=4, m= 18.5, s=3.87) had the lowest mean and the reading (N=40, m= 21.45, s=3.88) and writing (N=6, m= 19.83, s=3.92) means on the Action Research Rubric were somewhere between the means of the mathematics and science reports.

A score of 21 on the Action Research Rubric was used as a point of reference when examining the data since it was possible to achieve by having a three, a mark used by examining the school district's expectations, on each of the seven subscales. The aggregate group of action research reports (N=69) were successful in meeting this standard with a mean of 21.36 (s=4.32) and a median and mode of 21. When the reports were subdivided by school level: elementary, middle, and high, they were all able to meet this standard as well. As the elementary groups were further examined by breaking them down by the type of teacher, four groups including the ESE/ELL (N=8, m=23.63, s=2.39), first grade (N=6, 23.33, s=5.43), second grade (N=6, m= 21.67, s=2.07), and third grade (N=9, m=21.89, s=3.18) reports also met or exceeded this baseline. The kindergarten (N=10, m=18.9, s=4.31), fourth (N=8, m=20.5, s=5.86) and fifth (N=5, m=19.4, s=4.98) reports had means lower than 21, but it was beyond the scope of this study to comment as to whether this was a statistically significant difference.

Finally, the examination of reports by FCAT subject area would indicate that the mathematics (N=18, m=22.39, s=5.39) and reading (N=40, m=21.45, s=3.88) met this standard

while the science (N=4, m= 18.5, s=3.87) and writing (N=6, m= 19.83, s=3.92) were below this threshold. It should be noted that mathematics and reading are FCAT tested subject areas in grades 3-10 in Florida (Florida Department of Education, n.d.). Historically, science is only tested in grades 5, 8, and 11 and writing is tested in grades 4, 8, and 10 (Florida Department of Education). Therefore, the reports concerning subject areas that were tested annually from grade 3 to grade 10 had higher means on the Action Research Rubric than the subject areas that were only tested three times from grade 3 to grade 11.

According to the literature on action research, some of the factors that might have led to the success of the action research reports could be the use of a facilitator to conduct workshops on how to conduct action research and following up after the initial workshops to guide the teachers through the action research process (Guiles et al., 2010; St. Clair et al., 2009).

The fact that the reports concerning reading and mathematics had higher means on the overall Action Research Rubric might be indicative of the fact that teachers in grades 3-10 know that these subject areas will be assessed each year as part of FCAT. Therefore, teachers might have experienced a greater number of professional development workshops on preparing students for mathematics and reading standardized testing. This increased about of knowledge might have contributed to the higher scores that the action research projects pertaining to these topics received. With this increase in knowledge, the teachers increased the likelihood that they could produce a well rounded project that scored at or above the baseline of 3 on the subscales of the Action Research Project Rubric.

When examining the projects by school level, finding that the high school reports had the highest mean was unexpected. Three of the five projects completed by high school teachers

concerned reading, one focused on mathematics, and one concentrated on writing. In recent years, there has been concern that teachers at the high school level did not provide enough instruction on the process of reading. While the number of high school teachers in this sample was small, most of the reports in this group focused on reading and received high scores on the Action Research Rubric. It would be interesting to find out if the principals asked these high school teachers to participate in this endeavor because they had openly embraced other new initiatives like incorporating reading instruction into content area lessons.

Research Question 2

To what extent do teachers report collaborating with others or use professional resources to design their action research?

The Professional Collaboration and Resources Subscale was utilized to help answer this research question regarding the level of collaboration with others and the use of professional resources in the design. The collaboration could entail consulting with an ESE teacher on utilizing techniques to help a mainstreamed student or working with a reading specialist to offer ideas for helping a group of struggling readers with decoding. The professional resources could have entailed journals, professional books, or websites that were consulted to help structure the action research plan and the subject area specific techniques that were used to aid instruction of targeted skills.

As an aggregate group (N=69) the reports had a mean of 3.36 (s=1.38) on the Professional Collaboration and Resources Subscale. The aggregate group was bimodal with 3 and 5 both appearing an equal number of times showing that the data is skewed toward the upper

part of the rubric's scale. All levels on the Professional Collaboration and Resources Subscale could be found in the reports (See Appendix F). As a school level, the middle school reports (N=11, m=2.82, s=1.66) had the lowest mean. Meanwhile, the elementary (N=53, m=3.45, s=1.32) and high school reports (N=5, m=3.6, s=1.34) were both above the aggregate mean.

When the elementary reports were subdivided, the fifth grade reports (N=5, m=4, s=1.73) had the greatest mean. The dataset for the fifth grade reports had four reports receiving a 5 on the subscale, one that received a 4, and one report that received a 1. The kindergarten reports (N=10, m=2.7, s=1.42) had the lowest mean on the Professional Collaboration and Resources Subscale. The kindergarten reports were bimodal with 1 and 3 both occurring most often in the dataset indicating that the scores were skewed toward the lower end of the scale. The other elementary subgroups, ESE/ELL (N=8, m=3.75, s=0.89), first grade (N=6, m=3.83, s=1.33), second grade (N=6, m=3.33, s=1.37), third grade (N=9, m=3.67, s=0.87), and fourth grade (N=8, m=3.63, s=1.51), all had means above a Level 3. The second grade (N= 6, m=3.33, s=1.37) and kindergarten reports (N=10, m=2.7, s=1.42) were the only elementary subgroups that were found to be below the aggregate group's (N=69, m=3.36, s=1.38) mean.

When the reports were examined based upon FCAT subject area, the mathematics (N= 18, m= 3.61, s=1.33) and reading (N= 40, m=3.45, s=1.32) reports were both above the aggregate (N=69) mean of 3.36. Once again, these were the subject areas that were tested on an annual basis from grades 3-10 (Florida Department of Education, n.d.). The subject areas of science (N=4, m=2, s=2) and writing (N=6, m=3, s=1.41) had means that were less than this aggregate mean although this research did not explore whether it was statistically significant difference.

If a Level 3 is used as a standard for whether the reports were able to meet the school district's expectations on the Professional Collaboration and Resources Subscale, the aggregate (N=69) mean of 3.36 (s=1.38) would indicate that the standard was met. In fact, the aggregate group was bimodal with 3 and 5 both occurring in the data set an equal number of times. Since this would indicate that the data were skewed toward the higher end of the scale, using collaboration and professional resources to help with the planning of action research could be seen as strengths for the group of teachers. Middle school (N=11, m=2.82, s=1.66) was the only school level below this standard. The kindergarten dataset (N=10, m=2.7, s=1.42) was the only elementary subgroup with a mean below 3. Finally, the science (N=4, m=2, s=2) related reports were the only FCAT subject area reports below this standard. It should be noted that there were reports that listed data sources such as FCAT test scores or Florida Assessments for Instructions in Reading (FAIR) data as professional resources. This would indicate that some teachers were confusing the term *data sources* with *professional resources*.

Because the aggregate mean (N=69, m= 3.36, s=1.38) was above 3, the teachers appear to be in agreement with Brighton's (2009) finding that a review of literature is important for teachers to examine the possible courses of action to take. Professional books (Celani et al., 2006; Lubawski & Sheehan, 2010) and information from professional development classes (Subramaniam, 2010) were often cited as professional resources for teachers in this school district. In addition, lessons learned at school district institutes and websites were popular sources of information (Piper et al., 2010). There were also quite a few reports where teachers wrote of utilizing other teachers as professional resources for identifying ways to help instruct students in targeted areas. In the literature, Sheridan-Thomas (2006) wrote of middle school

science teachers that consulted teachers in their school's mathematics department for ways to help students with graphing concepts. Other professional resources such as journal articles (Celani et al., 2006; Lubawski &Sheehan, 2010), professional papers from groups such as the National Council for Teachers of Mathematics (Piper et al., 2010), or documents from the United States Department of Education (Friebele, 2010) were found in the literature, but they were not frequently cited sources for the teachers who completed the Action Research Reports examined in this study.

There were several action research projects that included data sources such as FCAT scores as professional resources on the Action Research Form. In the narrative portion of the Action Research Form, the teachers would list some of the professional books that they had used or colleagues that they had consulted. Therefore, they were given credit for having professional collaboration and resources although they had not specifically listed them in the appropriate portion of the form. This would indicate that the vocabulary of action research was still not fully understood by a segment of the teachers although they unknowingly included the elements when explaining the process.

Research Question 3

To what extent do teachers report sharing the findings of their action research with just a few teachers, their team, their school, or at the school district level?

The Sharing Subscale of the Action Research Rubric was used to measure the extent to which teachers reported sharing their action research projects with others. The aggregate group and all of the various subgroups had means below 3 on this subscale. The aggregate group (N=69) had a mean of 1.88 (s=1.02). The aggregate group range of (1, 4) indicates that none of

the reports met the Level 5 on the Sharing Subscale (See Appendix G). When the reports were examined by school level the middle school group (N=11, m=2.18, s=1.25) was the only group that had a mean at or above 2. The high school reports (N=5, m=1.4, s=0.55) only had a range of (1, 2) while the elementary (N=53, m=1.87, s=1.00) and middle school groups both had a range of (1, 4).

In the subgroups of elementary reports, only the ESE/ELL (N=8, m=2, s=1.07), first grade (N=6, m=2.83, s=0.75) and second grade (N=6, m=2.17, s=1.33) were at or above 2. The first grade reports were the elementary subgroup most closely grouped around the center of the scale with a median and a mode of 3 and a range of (2, 4). With a mode of 3, the first grade reports were the only elementary subgroup that did not have a mode of 1. In fact, none of the first grade reports had received a 1 on the Sharing Subscale.

The mathematics (N=18, m=2.11, s=1.13) and writing (N=6, m=2, s=1.26) were the subject areas which had means at or above 2 on the Sharing Subscale. Additional tests would be needed to indicate whether these means are significantly higher than the means for reading (N=40, m=1.8, s=0.97) and science (N=4, m=1.75, s=0.96). Overall, the fact that the aggregate and all various subgroups by school level, elementary subgroups, and FCAT subject area had means below 3 would indicate that this an area where most of the teachers who completed action research reports could improve. However, it is unknown whether teachers could have shared their action research reports with others after they turned in their reports to their principals and the Professional Development Department.

Without knowing how teachers may have shared their action research reports after submitting them to their principals and the Professional Development Department, the data based

on the Sharing Results Subscale seem to be leaning toward what St. Clair et al. (2009) would term "the individual entrepreneurial educator." On the other hand, those teachers that share their findings with a larger group of educators are working toward using the democratic potential of sharing to enrich students outside of their classroom (St. Clair et al., 2009). Those teachers who both completed action research and shared their findings with others beyond the school district website and required meetings made the extra effort to help create democratic change in the community (Adelman, 1993). Dewey urged for "educators to be both consumers and producers of knowledge about teaching" (Cochran-Smith & Lytle, 1993, p. 9).

Further study would need to be completed in order to assess whether any of the aspects of the school culture led to the low aggregate score on the Sharing Results Subscale. Sharing and collaboration of action research can be inhibited by other teachers' fears that the action research might threaten the school's long established culture and practices (Holly, 1987; Lloyd, 2002). Another potential deterrent from sharing results from an action research project could be a lack of time (Lloyd, 2002; Whitford et al., 1987).

Teachers might not have preformed as well as expected on the Sharing Results Subscale due to the fact that the action research process was a new endeavor for the teachers and they did not feel confident enough in the process to share their experiences with others. Another reason that teachers might have neglected to share their results is because the final reports were due at the end of the school year when teachers often feel the stress of the various deadlines that are upon them. In response, they might have turned in the finished report and done on to the other tasks on their end of the year lists. Collaboration and sharing requires time and without specifically designating time to work with others teachers can fall into the trap of working

independently with the hopes of being more efficient. Whether this makes them more efficient and effective in the long run is questionable. After all, sharing action research findings with a colleague may lead to discussions and reflections that result in more effective and efficient teaching for both participants. However, in the heat of the moment the teachers may not have appreciated this long term view.

When stressful situations transpire, people often revert to their old habits. In education, working independently might be considered an old habit due to the conventional paradigm of teachers closing their doors and working separately from one another. Either the stressors of finishing the action research reports, finishing the school year, or a combination of the two might have inhibited the amount of sharing of results that the teachers demonstrated as they completed their action research reports.

Research Question 4

To what extent do teachers target students in their action research based on one of the AYP subgroups such as race, economic disadvantage, English proficiency, or Exceptional Student Education services?

The aggregate group (N=69, m=4.19, s=1.43) of reports and all of the various subgroups that were examined had means at or above 3 on the Purpose of the Study Subscale. In fact, the high school (N=5) and ESE/ELL (N=8) groups both had means of 5. Therefore, all of the reports within these subgroups earned a 5 on the Purpose of the Study Subscale. The finding that all reports by ESE/ELL teachers received a 5 on the Purpose of the Study Subscale which was used to help determine if AYP subgroups were being targeted was in keeping with the fact that ESE and ELL teachers specifically work with students who are members of AYP subgroups.

In addition, 5 was a mode for the aggregate group and all subgroups analyzed on the Purpose of the Study Subscale. There were two subgroups that were bimodal. The fifth grade reports (N=5, m=3.6, s=1.34, mode= 3 and 5) and science reports (N=4, m=3, s=2.31, mode= 1 and 5) both had two modes. These datasets were both relatively small. In fact the science reports data only consisted of two reports receiving a 5 and two reports receiving a 1 on the Purpose of the Study Subscale.

The medians of the aggregate group and the majority of the subgroups were 5 on the Purpose of the Study Subscale. The exceptions were the fourth grade reports (N=8, m=3.25, s= 1.98, median=4), the fifth grade reports (N=5, m=3.6, s=1.34, median= 3), science (N=4, m=3, s=2.31, median=3), and writing (N=6, m=3.33, s=1.97, median=4). This is a testament to the fact that the scores on the Purpose of the Study Subscale were skewed toward the higher end of the scale. However, the range of the aggregate group did encompass the entire scale (1, 5) and the purposes and AYP subgroups identified in the action research reports contained a varying amount of detail (See Appendix H).

The teachers who conducted the action research did not make what Saul and Launius (2010) termed "the most common egregious mistake made by fledgling teacher-researchers" (p. 27) by posing a question as part of their purpose statement that would require a large-scale experiment in order to answer. The initial professional development workshops spent on understanding the process of action research and developing potential ideas for the study led the teachers in the proper direction. The literature indicated that finding a suitable topic which is narrow enough in focus for a teacher to investigate in his or her classroom a source of aggravation for teachers who embark on action research (Goodnough, 2010; Little & King,

2008). Understanding the process itself also creates frustration for teachers who are new to the process of action research (Platteel et al., 2010).

Many of the teachers used previous year's FCAT scores to help determine the purpose of the study. This is most similar to the work of Lubawski and Sheehan (2010) in the literature review. Lubawski and Sheehan (2010) had targeted six tenth-graders who were in danger of failing the MCAS, a graduation requirement, due in part to their reading comprehension.

As the reports were examined it was also noted that as a topic choice, reading was the most popular with 40 reports focusing on this area. This is in keeping with the fact that improvement in reading education was a focus of NCLB (U.S. Department of Education, 2004a). The second most popular area of action research for this study was mathematics which is tested in grades 3-10 annually as part of the FCAT. The areas of writing and science are only tested three times from third grade until the end of high school on FCAT. Thus, only six reports focused on writing and four reports focused on science. The only other action research report that was submitted as part of this study focused on physical education. This report dealt with childhood obesity, a topic that has gained increased attention in the last several years. As a response, the Florida legislature passed Senate Bill 610 and it was signed by then Governor Crist on June 2, 2008 (Florida Department of Education, 2008). According to the Florida Department of Education, this law required public elementary schools to provide 150 minutes of physical education a week and "one class period per day of physical education for one semester of each year for students enrolled in grades 6-8 beginning in the 2009-2010 school year" (Florida Department of Education, p. 3). However, it is not a part of the FCAT which was developed in

response to NCLB. Clearly, the teachers in this school district had made the connection between FCAT and writing their action research plans. This was a strong point for the reports.

The fact that the reports scored highly on the Purpose of the Study Subscale might be a testament to the fact that teachers have been given training on identifying and collecting data on student subgroups that are used in calculating AYP. These action research projects were completed seven to eight years after NCLB was signed into law. In this interim, the teachers appear to have gained an understanding of the student subgroups which are examined as part of the AYP formula. They have been able to perform better than the literature predicted on setting a specific attainable purpose.

Since the ESE/ELL teachers work specifically with students that were within the student subgroups which were examined as part of AYP, it was not surprising that the teachers within this category of elementary school teachers all received a 5 on the Purpose of the Study Subscale. As part of the process of making an Individual Education Plan (IEP) for students receiving ESE services, ESE teachers write measurable goals for their students. As part of the action research process, they were grouping students with similar needs and creating a common goal for them based upon data.

Research Question 5

To what extent do teachers differentiate instruction by altering the resources, time, intensity, or instructional techniques used with the students who were targeted for the action research study?

The Planning Subscale was used to help determine the extent to which teachers utilized differentiation as they planned their action research. The school district had originally begun working with this group of teachers on differentiating instruction in the summer of 2009. The

aggregate group (N=69, m=2.62, s=0.93) had a mean of less than 3. In fact, most of the subgroups that were examined also had means less than 3. The exceptions were the ESE/ELL (N=8, m=3.25, s=1.04) and first grade reports (N=6, m=3.17, s=1.47). ESE teachers are normally part of the Individual Education Plan teams in schools that plan specially designed services and instruction for students who qualify for ESE services (Florida Department of Education, 2010). Through this practice, the ESE teachers are actively writing plans for differentiated instruction for their various students regularly. It was expected that this group of teachers would have a mean score on the Planning Subscale that was higher than the aggregate mean due to their experiences with IEPs.

The aggregate group of reports (N=69) contained reports that received all of the possible numbers on the Planning Subscale, 1-5 (See Appendix I). The aggregate group had both a median and a mode of 2. Some of the subgroups, however, had medians or modes of 3 on the Planning Subscale. These subgroups included: middle school (N=11, m=2.82, s=0.98, median=3, mode=2), high school (N=5, m=2.8, s=0.84, median =3, modes= 2 and 3), ESS/ELL (N=8, m=3.25, s=1.04, median =3, mode=3), fourth grade (N=8, m=2.75, s=0.71, median=3, mode=3), mathematics (N=18, m=2.89, s=1.13, median=3, mode=2).

Several of the reports that received below a 3 on the Planning Subscale had been able to identify a subgroup of students who required additional help for a specific skill as they set a purpose for the study. Thus, the high aggregate mean on the Purpose of the Study Subscale (N=69, m= 4.19, s=1.43). However, after identifying the subgroup of students who would benefit from instruction in the specified area, the instructions did not indicate that the subgroup was receiving differentiated instruction by establishing how the instruction of these students

differed from whole group instruction. The plans lacked detail in how the resources, time, intensity, or instructional techniques differed than that of the entire class. More research in this area would need to be conducted in order to determine if the teachers in this study felt like those Koutselini (2008) studied in Cyprus who feared the logistics of providing differentiated instruction and whether using it would truly benefit all of the students.

It is beyond the scope of this study to determine if the difference in the aggregate mean (N=69, m= 2.62, s=0.93) differed from the expected score of 3 in a statistically significant way. However, this might be an area for future research since the action research reports were established as a follow up activity for workshops on differentiated instruction. Further discussion with the teachers might also indicate whether more support in the area of differentiate instruction was needed, or if the differentiation was taking place but was not clearly communicated in the details of the action research reports.

The fact that the reports did not have higher scores on the Planning Subscale was closely aligned with the fact that the Action Research Reports grew out of an original set of workshops on differentiated instruction. Therefore, it was an expectation that the plans would include examples of differentiated instruction for the student subgroup. Instead, many teachers identified a student subgroup in their purpose of the study, but the overall plan was written as if the whole class was going to be treated in the same manner. The newness of the action research process might have led the teachers to only report on how the new instructional techniques that was being introduced into the classroom impacted the student subgroup although the entire class had been taught in that manner. If the same group teachers were to write action research reports in the following school year, they would be expected to have a better grasp of the action research

process itself. Therefore, they might improve in their use of differentiation since they would be able to focus more energy on those aspects.

It was surprising that the high school (m=2.8, s=0.84) and middle school (m=2.82, s=0.98) reports had higher scores on the Planning Subscale than the elementary plans (m=2.57, s=0.93). It was unknown to the researcher whether the teachers in the high schools and middle schools had greater amounts of support and facilitation from the administrators. Greater support for the process of action research in these areas might account for the difference in means on the Planning Subscale across school levels. Another finding that was surprising, was that the math reports (m=2.89, s=1.13) scored better on the Planning Subscale than the reading reports (m=2.58, s=0.87). Traditionally, students have been ability grouped as part of their reading groups especially at the elementary level. Therefore, it would have expected the reports based upon reading would have done better on the Planning Subscale for this reason.

Research Question 6

To what extent, do teachers measure change with various types of data or evidence (attitude surveys, observations, tests, or work samples)?

The final Research Question was written to determine the extent to which teachers used a variety of data and evidence sources to measure change in their students while conducting action research. This was measured by using the Data and Evidence Subscale of the Action Research Rubric. The aggregate group of reports (N=69, m=3.55, s=1.18) had a mean above a Level 3. The range spanned the entire subscale (1, 5), but the median and the mode were both 4 indicating that the data were skewed toward the higher end of the scale (See Appendix J).

All of the subgroups had a mean of at least 3 on the Data and Evidence Subscale. Two of the groups had a mean at or above 4, high school (N=5, m=4.4, s=0.55) and writing (N=6, m=4, s=1.26). Most of the medians and modes of the subgroups were at or above a Level 3. The exceptions were the kindergarten group (N=10, m=3.1, s=1.37, median=3, mode=2), first grade (N=6, m=3.33, s=1.21,median=3.5, modes= 2 and 4), fifth grade (N=5, m=3, s=1, median=3, modes= 2 and 4), mathematics (N=18, m=3.56, s=1.20, median=3, mode= 2, 4, and 5), and science (N=4, m= 3.5, s=1.73, median= 3.5, and modes= 2 and 5). The fact that four out of five of these subgroups had at least one other mode in addition to the Level 2 that was either a Level 4 or Level 5 further promotes the fact that the reports were not skewed toward the lower end of the subscale even when analyzed by subgroups.

In the literature review, the work of Glanz (2005) and Ostorga and Estrada (2009) advocated using multiple data sources in action research in order to view the situation from multiple angles and observe nuances that may otherwise remained unnoticed by using one data source. With a mean above 3 on the Data and Evidence Subscale, the aggregate group of action research reports appeared to be in agreement with this sentiment. Many of the specific types of data and evidence sources that were mentioned in the literature review were utilized by the teachers in the action research reports. Some major examples included standardized test scores which served as an impetus for action research (Glanz, 2005; Langerock, 2000). Teacher made tests were also mentioned in both the literature review and action research reports (Glanz, 2005; Robins et al., 2009).

Some computerized tests that were often cited in the action research reports that did not appear in the literature review included FAIR and STAR Math. The Florida Center for Reading

Research (n.d.) described FAIR as a computerized reading assessment that is free for public school students in Florida in grades K-12 in order to aid in screening, progress monitoring, and the provision of diagnostic information. STAR Math from the company, Renaissance Learning, is a computerized test that is linked to a state's standards and tests in order to provide information on screening, instructional planning, skills mastery, and standards benchmarking (Renaissance Learning, n.d.). Both FAIR and STAR Math provided the type information that can help teachers determine students' strengths and weaknesses in order to target skills for small group instruction and predict their success at meeting expectations on state mandated tests. Other reports indicated that teachers utilized FCAT scores for baseline data, but were unable to use FCAT scores as posttest data due to the fact that the scores had not been reported to the schools at the time that the action research reports were completed.

Student work samples were discussed in the literature (Glanz, 2005; Langerock, 2000; Patterson & Crumpler, 2009; Shosh & Zales, 2005; Warrican, 2006) as well as the action research reports. Some of the teachers even included files of scanned work samples. This included first graders' work on mathematics word problems, writing samples from kindergarten ELL students, and middle school students' interest survey, fitness calendars, and activity logs. The work samples show both how the students change over time and how the students within one class vary.

Teacher observations were also included in both the literature (Dymond et al., 2006; Patterson & Crumpler, 2009; Richards, 1987; Robins et al., 2009; Shosh & Zales, 2005; Warrican, 2006) and in the action research reports themselves. The action research reports also contained the use of student surveys, and surveys had also appeared in the literature (Glanz,

2005; Langerock, 2000; Richards, 1987; Shosh & Zales, 2005; St. Clair et al., 2009). However, videotaping students was not noted in the action research reports even though it was mentioned in the literature (Patterson & Crumpler, 2009; Zang et al., 2010). Overall, a variety of data sources were found in both the literature in the action research reports.

It was not surprising that the reports did well on the Data and Evidence Subscale. Teachers in Florida were required to use various progress monitoring instruments that had been provided by the state or the school district in the past several years. Schools often asked teachers to chart students' progress on these assessments and meet with administration to discuss students' academic growth throughout the year. Often these meetings were used to track whether students were on grade level, to predict their level of success on FCAT, and make decisions for whether students should be retained or promoted. Data had become an increasingly common part of teachers' dialogue so the fact that the Action Research Reports received high scores on the Data and Evidence Subscale was to be expected.

Conclusions

This research study sought (a) to determine the descriptive statistics for the action research reports based on the teacher variables; (b) to find the extent to which teachers used collaboration or resources to complete their projects; (c) to ascertain if teachers shared their projects with other professionals; (d) to discover the extent to which teachers connected the purpose of their project with AYP subgroups; (e) to establish the extent to which teachers used differentiation with their targeted students; and (f) to verify the extent to which teachers used a variety of data and evidence to measure change. An examination of the literature on the process

of action research including the purpose of action research, professional resources that are used to complete the process, details that are included in action research plans, data and evidence sources that are used, results, instructional decision and reflections, and collaboration and sharing that transpires throughout the process was conducted. Then the action research projects completed by teachers in a Florida school district were read, scored using the Action Research Rubric, and analyzed to answer the research questions. The following conclusions were drawn:

1. As an aggregate group (N=69, m=21.36, s=4.32), the projects had a mean above 21 points. Some of the subgroups of reports with the highest scores were reports by high school teachers, ESE/ELL teachers, first grade teachers, and reports on the subject of mathematics. Reports with lower means on the Action Research Rubric included those by kindergarten teachers, fifth grade teachers, and those dealing with either the subject of science or writing
2. On the Professional Collaboration and Resources Subscale, the aggregate group (N=69, m=3.36, s=1.38) met the expected level of performance. The subgroups with the highest mean on the Professional Collaboration and Resources Subscale included the fifth grade teachers, the first grade teachers and the ESE/ELL teachers. The subgroups that were below a Level 3 on the Professional Collaboration and Resources Subscale included those by middle school teachers, kindergarten teachers, and those concerning the subject of science.
3. As an aggregate group (N=69, m= 1.88, s=1.02), the reports were below the anticipated Level 3 on the Sharing Results Subscale. The three subgroups that had a mean above a Level 2 on this subscale include those by first grade teachers, middle

school teachers, and second grade teachers. The reports with the lowest means were those by high school teachers, kindergarten teachers, and third grade teachers.

4. The aggregate group of reports (N= 69, m= 4.19, s=1.43) exceeded the anticipated Level 3 on the Purpose of the Study Subscale. The subgroups with the highest means on the Purpose of the Study Subscale were those by ESE/ELL teachers, third grade teachers, and those on the topic of reading. It is important to note that while the reports concerning science and writing and those by fourth grade teachers were at the lower end for reports on this subscale the means of these groups met or exceeded Level 3.
5. The Planning Subscale was used to determine the extent to which teachers utilized differentiation in their action research. The aggregate group (N=69, m= 2.62, s=0.93) did not meet the expected level of performance. The subgroups that did reach a Level 3 or higher on the Planning Subscale were those by the ESE/ELL teachers and the first grade teachers. The reports with the least amount of differentiation were those concerning science or those written by kindergarten or third grade teachers.
6. As an aggregate group (N=69, m=3.55, s=1.18), the reports met the targeted Level 3 on the Data and Evidence Subscale. The reports by the high school teachers and those concerning the topic of reading even exceeded Level 4 on this subscale. The reports by the fifth grade teachers and the kindergarten teachers were the lowest for this subscale, but they were at or above a mean of 3.
7. Most successful reports by various categories

a. Most successful reports by school level: high school reports. They had the highest means for all of the questions with the exception for the question on the level of their sharing.
b. Most successful reports by elementary subgroup: ESE/ELL reports. They had the highest means on the overall rubric, Planning Subscale and Purpose of the Study Subscale while remaining above the aggregate mean in the other categories.
c. Most successful reports by FCAT subject area: Mathematics. They had the highest means on the overall Action Research Rubric along with the Professional Collaboration and Resources Subscale, Sharing Results Subscale, and Planning Subscale.

8. The formal training on differentiated instruction and the action research process increase the number of action research projects completed and submitted to the Professional Development Department from one in the 2008-2009 school year to 69 in the 2009-2010 school year.

Implications and Recommendations

Ralph W. Tyler (1930) advocated the use of action research as a way to enable teachers to continue to grow in their professional techniques throughout the course of their careers. He knew that teaching methods would evolve over the years, but stated that the "methods by which intelligent people investigate and solve new problems are not so changeable" (Tyler, 1930, p. 206). Corey (1954) defined action research as a practice through which "the people who actually teach children or supervise teachers or administer school systems attempt to solve their problems

by using the methods of science" (p. 375). In a review of Corey's book, *Action Research to Improve School Practices*, Cushman (1953) summarized Corey's assertion for action research as being a stronger catalyst for change in classrooms than conventional research by those outside of the classroom "partly due to the fact that the questions studied are not the same as those that trouble teachers, but a more important reason is that the researchers have not been school practitioners and, conversely, school practitioners have not been researchers" (p. 500).

At the beginning of the twenty-first century, action research was still being advocated as a way to enable teachers to progress in their professional skills. Kemmis (2010) likened education to the field of medicine, because he felt that individuals in both professions need to be consistently seeking out new methods in order to stay current in their prospective fields. "If this is the collective responsibility of professional practitioners for their practice, then critical, collaborative action research is one way for practitioners to fulfill their stewardship for their generation" (Kemmis, 2010, p. 420).

The beginning of the twenty-first century also coincided with the *No Child Left Behind Act* at the beginning of George W. Bush's presidency in 2001. Part of the legislation contained the challenging goal of leading all children to proficiency in reading and mathematics by the 2013-2014 school year as measured on statewide assessments on state standards (Taylor et al., 2010). Teachers are often identified as being a major key to students' success with the call for highly qualified teachers in key subject areas being part of NCLB. In Florida, schools are required to report scores on state mandating tests in aggregate and by various subgroups including: white, black, Hispanic, Asian, American Indian, economically disadvantaged, English language learners (ELL), and students with disabilities (FDOE, 2009). Taylor et al. (2010)

explained that schools that report a lack of proficiency in the aggregate group of students or in two or more subgroups are deemed to have wide scale problems, while those that report a lack of proficiency in one subgroup are seen as inadequate in meeting the needs of a segment of the population.

This study attempted to determine if the teachers in the studied Florida school district used data and evidence to differentiate instruction and find solutions to address the learning needs of the subgroups of students in their classroom. This was accomplished by developing the Action Research Rubric in response to the both the structure of the action research process which the teachers had been taught and the other characteristics that the school district had asked teachers to include. There seemed to be a greater willingness of the teachers at the elementary level to participate in the process. The Active Staff Roster for 2010 that the Human Resources Department was able to provide for this study lists 24 elementary schools, 10 middle schools, and seven high schools were listed. There were 53 elementary reports, 11 middle school reports and five high school reports were submitted on action research as part of this study. The fact that there were more than twice as many teachers that completed action research reports than there were elementary schools in the school district indicated that there may have been contextual factors within these schools that were unknown to the researcher that led to the increased number of elementary reports. The administrators of elementary schools appeared to have a much easier time recruiting teachers who were interested in the concept of differentiating instruction and completing action research.

The 11 middle school reports were completed by teachers at six out of the ten different middle schools and the five high school reports came from three of the seven high schools in the

school district. Since there were so many fewer action research reports from the middle and high school levels, it would seem that the teachers who participated in completing action research reports might have contextual factors such as administrators at these schools that may have been already supporting the move toward differentiating instruction within their schools. This might have helped to garner the participation of teachers in the summer workshops and following year's action research initiative.

When answering the six research questions, the high school reports were found to score the highest on five of the questions. The only question where the high school reports did not score highest concerning the level at which the teachers reported sharing their results with their colleagues. This only reinforces the notion that the high school teachers who participated in this study might have differed from their peers. Awareness that their peers might not be involved in differentiated instruction may have limited their sharing of the results with their peers.

The reports by the ESE/ELL teachers were the highest for elementary teachers on three of the six research questions. The ESE/ELL teachers were above the aggregate group of teachers on all six of the research questions. This was in keeping with the fact that ESE/ELL teachers traditionally work with small groups of students, write goals for their students based on data, and use a variety of techniques to meet the needs of their students. Another group of elementary teachers, the kindergarten teachers, scored below the aggregate mean on all six of the research questions. These teachers also traditionally work with small groups of students and use of variety of techniques. However, they are the group that is farthest removed from FCAT testing.

When considering the reports by FCAT subject area, the reports focused on mathematics were strongest. They had the highest scores on four of the six research questions. This might

mean that the teachers had recently had some professional development on mathematics. Five of the 18 mathematics reports came from one single elementary school. For this particular school to have such a high percentage of the entire group of mathematics action research reports, would seem to indicate that mathematics data and instructional techniques have been emphasized at this school.

The implications of this study for school leaders include the fact that professional development on the process of action research can have a powerful impact on the way that teachers formally view data in order to implement structured change within their classrooms. It proves that action research is a tool to allow teachers to explore professional resources, target the needs of subgroups of students, and examine multiple data sources.

The process of using data to identify students' area of need, planning instruction based upon this area of need, and gathering data after the instruction transpires to check for student growth, is aligned with performance pay initiatives in the field of education. The Action Research Rubric could be used to help measure the extent to which teachers engage in the process of value added teaching, collaboration, and professional reflection.

The teachers' writing abilities impacted the data that was collected in this study since the researcher could only use the information that the teachers wrote in the Action Research Reports and could not ask for further clarification of what teachers meant in their reports. Therefore, the teachers' comfort with completing the process and written communication could impact their scores on an instrument like the Action Research Rubric.

However, this study also revealed some areas where educational leaders need to provide extra support in order to help teachers develop their professional skill sets. The concentration

that teachers placed on learning the action research process, connecting the purpose to an AYP subgroup, and using a variety of data and evidence sources overrode the levels of differentiation in instruction within the action research plans or the sharing of results after the action research reports were completed. The ability to differentiate instruction is an advanced level of teaching. While many of the teachers who participated in this study surely had the ability to differentiate instruction, the focus required to implement the action research process since it was a new technique may have shifted their attention away from differentiated instruction. Ironically, differentiated instruction was the original focus of the professional development in which these teachers participated.

If educational leaders were to present another meeting with the facilitator where the teachers were reading their action research plans to one another before implementation to specifically check with one another for differentiation of time, intensity, or instructional techniques for the targeted group of students as compared to the rest of the class, teachers may have done better on the Planning Subscale. A meeting that focused specifically on this step would seem appropriate due to the fact that providing teachers with a better understanding of differentiation of instruction was the genesis for the professional development workshops. By providing time for the teachers to discuss and share their plans to one another, educational leaders would also be encouraging another opportunity for sharing. This prospect would also provide the teachers with another chance to strengthen their camaraderie. In turn, they might be more open to communicating their results to one another at the end of the process. This would provide a greater likelihood of improving the statistics for the Sharing Results Subscale.

Recommendations for Future Research

After reviewing the literature and the data analysis that were derived in this study, the teachers were found to be successful on the overall action research process. The aggregate group of teachers was also shown to be proficient in utilizing professional resources, setting a purpose for the study, and employing data and evidence to measure change. As an aggregate group, the teachers' reports were below the anticipated mean on the subscales dealing with sharing their results with others and producing a plan with document differentiation for the subgroup. This study did not seek to determine whether there was a statistically significant difference between the aggregate means and the anticipated means on any of the six research questions. Future studies in this area might determine whether a statistical significance exists in these areas, whether similar projects in other school districts or states produce similar results, or what qualitative data might add to the understanding of these results. A list of additional areas of research for those interested in action research and AYP subgroups is included in the following section.

The following list of recommendations for future research is based upon the data analysis of the current study:

1. This study could be repeated with teachers from a different school district and/or state with or without a facilitator.
2. This study could be repeated with the goal of determining if the means on the Action Research Rubric and its subscales for the aggregate group differ from the anticipated means with statistical significance.

3. This study could be repeated to determine if teachers from the same schools have similar patterns of scoring on the Action Research Rubric.
4. This study could be repeated with the addition of grouping teachers by the grade that their school received from the state of Florida based upon FCAT data to seek additional patterns.
5. This study could be repeated with a questionnaire for teachers to complete on their school culture to help determine whether school culture impacts teachers' scores on the Action Research Rubric.
6. This study could be repeated with the goal of determining whether those teachers who score high on the Sharing Subscale also score high on the Planning Subscale as Ostorga and Estrada contended.
7. This study could be repeated with an additional component which seeks to determine the rate at which the action research reports are downloaded off of the school district website the following school year to determine if the website is promoting sharing of best practices.
8. This study could be repeated as a longitudinal study to determine if the number of completed action research projects changes over time and whether the scores increase over time.
9. This study could be repeated as a longitudinal study with additional instruction on action research and areas where the teachers scored lower on the rubric to determine if the extra professional development improves scores in a statistically significant way.

10. This study could be repeated as a longitudinal study with a survey on the school or school district culture to determine if the culture improves with increased usage of action research.
11. This study could be repeated again with a subgroup of teachers that better reflects demographics of the population of the school district's teachers.
12. This study could be repeated again as a longitudinal study with an additional measure of the students' success rate on state mandated testing to see if students' success improves with an increased usage of action research in the classroom.
13. This study could be repeated again with teachers being asked to indicate the number of students who were received differentiated instruction in order to help establish how many students were impacted by the studies.

APPENDIX A: ACTION RESEARCH FORM

OFFICE USE ONLY

A FLORIDA SCHOOL DISTRICT'S ACTION RESEARCH PROJECT Component 4-401-002

Point Value: 10-30

TO BE COMPLETED BEFORE ACTION RESEARCH IS INITIATED

Teacher Researcher Name		Emp. ID	
School or Department			
Issue or Topic	Problem statement, goal, actions to be taken		
Research Hypothesis	Research question		
Principal's Signature		Date	

TO BE COMPLETED AT CONCLUSION OF ACTION RESEARCH

RESEARCH PROCESS

1. What student data formed the baseline?
2. What research resources, i.e., books, documents, were studied?
3. What student demographic groups were used and how were they selected?
    - AYP subgroups (gender, ethnicity, poverty, ELL)
4. What strategies were implemented during the study? What changes did you make as a result of findings along the way?
5. What was the timeline for the study?

Approved		**Disapproved**		**Comments**			
Principal's Signature				**Principal assigns 10-30 points**		**Date**	

Director of Staff Development Signature		**Date Acknowledged**	

A FLORIDA SCHOOL DISTRICT'S

ACTION RESEARCH PROJECT - SHARING THE RESULTS

[Complete online and email to:]

Title of Action Research Project			
Name of Teacher Researcher			
Name of School		Grade Level	

Answer the following questions in your abstract. <u>DO NOT USE teacher or student names</u>.

1. **Classroom Problem:** Provide a description of your identified classroom problem.
2. **Research Process:** Provide a detailed description of your research process.
   - Actions that you took
   - Differentiation of data-based instruction
3. **Collection and Analysis:** Provide a narrative summary of your collected and analyzed data.
   - Use at least 3 forms of data or evidence.
   - Support your analysis with subgroup data, perhaps in a graphic display.
   - Did the strategies work better with males or females? English language learners or English proficient students? Student of poverty or those with financial assets?
   - You may want to scan and attach samples of student work as evidence of the problem/baseline data and positive change.
4. **Action:** Provide a summary of your instructional decisions based on your analyzed data.
5. **Professional Reflection:** What did you learn through this process? How did conducting action research impact your teaching?

6. **With whom did you share your action research?**
    - Collaborate with others?
    - Provide professional development for others on action research?
    - Share results in PLC or teams?

ABSTRACT of the Action Research Project:

Source: A Guide to Becoming an Action Research – Department of Education

APPENDIX B: ACTION RESEARCH RUBRIC

Action Research Rubric

Component	5	4	3	2	1
**Step One: Identify the Problem, Target Students, and Data					
Purpose of the Study	Need/problem is clearly identified and supported with data. The AYP subgroups that were targeted are identified and an explanation for how they were targeted is clearly explained. A strong link between the data and a need to target the identified subgroup is given.	Need /problem is identified, supported with data. An AYP subgroup has been chosen and an explanation for how they were selected is given. The link between the problem, subgroup, and need to target the subgroup is adequate.	Need /problem is identified, somewhat supported with data. An AYP subgroup has been chosen and an explanation for how they were selected is given. The link between the problem, subgroup, and need to target the subgroup is unclear or weak.	Need and problem is unclear and is not supported with data. An AYP subgroup has been targeted, but an unclear explanation for how they were chosen is given.	Need and problem is unclear and is not supported with data. An AYP subgroup is not identified.
Step Two: Develop and Implement an Action Research Plan					
Professional Collaboration and Resources	Four or more professional resources are provided. Details regarding the titles of the workshops, articles, books, or websites or the names of the coaches or other individuals used as resources are adequate.	Three professional resources are provided. Details regarding the titles of the workshops, articles, books, or websites or the names of the coaches or other individuals used as resources are adequate.	Two professional resources are provided. Details regarding the titles of the workshops, articles, books, or websites or the names of the coaches or other individuals used as resources are adequate.	Two professional resources are provided. Details regarding the titles of the articles, books, or websites or the names of the coaches, workshop presenters, or other individuals used as resources are vague.	One professional resource is provided. Details regarding the title of the article, book, or website or the name of the coach, workshop presenter, or other individual used as a resource are vague. Ex: "an article about phonics"
Plan	Comprehensive information is provided. Setting and participants are clearly described. Procedures, timelines, materials, and type of data collection are fully described (can easily be replicated with what is provided). Multiple types of differentiation are established (resource, time, intensity, instruction, etc.).	Important information is provided but is not comprehensive through the entire document. Procedures, timelines, materials, and type of data collection are described (can be replicated). All of the tools are provided, but some of the specifics on how to administer them might be omitted. Differentiation is clearly established.	Important information is provided. Setting and participants are described. Procedures, timelines, materials, and type of data collection are described (can be replicated, but not all tools and information are provided). Differentiation is clearly established (resource, time, intensity, instruction, etc.).	Information is provided, but may seem unclear at points. Setting and participants are described. Procedures, timelines, materials, and type of data collection are provided. Some elements and their descriptions may be missing or confusing (difficult to replicate as written). Differentiation is not clearly established.	Information is limited. Setting and participants are not clearly described. Procedures, timelines, materials, and type of data collection are unclear (difficult to replicate as written). Differentiation is not clearly established.
Step Three: Collect Data					
Data and Evidence Sources	A minimum of three data and evidence sources. The sources include various types of assessments (tests, teacher observation, student work samples,	A minimum of three data and evidence sources are used. The sources include various types of assessments (tests, teacher observation, student work	A minimum of three data and evidence sources are used. Enough information is provided so that someone else could administer the instruments.	One or two data and evidence sources are used. There is enough information so that someone could replicate their use.	One data source or piece of evidence is mentioned. There are not enough specifics in the report to replicate the use of the instrument.

	etc.) The reason that these data and evidence sources were chosen is explained. Enough information is provided so that their use can be replicated.	samples, etc.). Enough information is provided so that their use could be replicated.			

Action Research Rubric Continued

Component	**5**	**4**	**3**	**2**	**1**
	Step Four: Organize the Data				
Results	Research steps are clearly pinpointed including any modifications to the procedures. Three or more forms of data are discussed .Actual collected data are included and are accurately labeled, scored and dated. Well formatted, comprehensive data display is provided (i.e., graph, table, chart etc.). Narrative summarizes results and highlights salient features of collected data and data display.	References to research steps are included and modifications to the procedures are explained. Three or more forms of data are provided. Both student samples and a graphic display are provided (i.e., graph, table, chart etc.). They might be lacking labels, scores, and dates.	References to research steps are included. Three forms of data are discussed. Either student work samples or a graphic display is provided (i.e., graph, table, chart etc.). A narrative summary of the results is provided.	References to research steps are included. Data is referenced but is not provided in a graphic display or student work samples. Fewer than three forms of data are discussed. The narrative summary is limited.	Minimal references to research steps are included. Collected data is insufficient to answering the research question. Data are not clearly labeled or scored. Data are not summarized and no data display is presented. Narrative is limited and does not provide a summary of the results.
	Step Five: Analyze the Data and Draw Conclusions				
Instructional Decisions and Professional Reflection	A clear explanation for how the action research will impact future decisions is provided. Implications and limitations of the project are fully discussed. There is a clear link between the data, analysis, and future instructional decisions. Clearly presented evidence shows growth as a teacher through this project.	A clear explanation for how the action research will impact future decisions is provided. An explanation for how the project impacted professional growth is provided. There is a clear link between the data, analysis, and future instructional decisions. The reflection elaborates on how professional growth has taken place as a result of the project.	A clear explanation of how the action research will impact future decisions in the classroom is provided. An explanation for how the project impacted professional growth is provided, but little elaboration is given.	An unclear explanation of how the action research will impact future decisions in the classroom is provided. The discussion of professional growth is not clearly linked to the data or analysis that was provided.	An unclear explanation of how the action research will impact future decisions in the classroom is provided. Discussion of professional growth is limited.
	Step Six: Disseminate Findings				
Sharing Results	The teacher indicated sharing this project at the district level or beyond through presentations or publications in addition to the collaboration required at workshops	The teacher indicated sharing this project at the school level in addition to the collaboration required at workshops and the posting of the final project on the	The teacher indicated sharing this project with his/her grade level or team in addition to the collaboration required at workshops and the posting of the	The teacher indicated sharing this project with 1-3 other teachers in addition to the collaboration required at workshops and the posting of	The only indication of collaboration is sharing this project at the workshops provided as part of the required in-service workshops and the

	and the posting of the final project on the district website. Comprehensive explanation for how the action research will impact future decisions provided. Future topics that may be explored through action research are suggested by the analysis	district website.	final project on the district website.	the final project on the district website.	district website.

*Adapted by Pearl, C. E. (2008) from Miller, K. J. (2000). *Evaluation Instrument for Action Research Project*.

**Action Research Steps adopted from *Improving Student Learning through Classroom Action Research*, Florida Department of Education, Bureau of Exceptional Education and Student Services (2004)

.

APPENDIX C: PERMISSION TO ADAPT RUBRIC

>>> Cynthia 8/24/2010 2:37 PM >>>
Dear Dr. Taylor,

Michelle is welcome to use it. It should be cited as:

Adapted by C.E. Pearl (2008) from K. J. Miller (2000). Evaluation Instrument for Action Research Project.

It is currently in:

Bruce S. M., & Pine, G. J. (2010). Action Research in Special Education: An Inquiry Approach for Effective Teaching and Learning. Teachers College Press, New York.

Thanks
Cynthia Pearl

Cynthia Pearl, Ph.D.
Project Director
University of Central Florida
Department of Child, Family and Community Sciences
College of Education
P.O. Box 161250,
Orlando, FL 32816-1250
Phone: (407) 823-1784
Fax: (407) 823-3859
cpearl@mail.ucf.edu

Action Research Project Rubric			
Components	**Exceeds Criteria**	**Meets Criteria**	**Below Criteria**
**Step One: Identifying and Investigating a Classroom Problem			
Literature Review	Four or more sources clearly linked to this research are included. Sources are from peer reviewed journals and are cited and referenced APA style. (18-20 pts.)	Five-seven sources linked to this research are included. Most sources are from peer reviewed journals and are cited APA style with minor errors. (14-17 pts.)	Four or less sources are provided. Most sources are not from peer reviewed journals. There are APA errors in citations and references. (13 or less pts.)
Purpose of the Study	Need/problem is clearly identified, supported with data, and clearly linked to research literature. A very clear explanation of the rationale and support for use of the intervention is provided. Specific research question is identified. (9-10 pts.)	Need /problem is identified, somewhat supported with data, and linked to research literature. Some explanation of the rationale and support for use of the intervention is provided. Research question is identified. (7-8 pts.)	Need and problem is unclear and is not supported with data. Explanation of the rationale and support for use of the intervention is lacking. A research question is not identified or is not clear. (6 or less pts.)
Step Two: Developing and Implementing an Action Research Plan			
Method	Comprehensive information is provided. Setting and participants are clearly described. Procedures, timelines, materials, and type of data collection are fully described (can easily be replicated with what is provided). (18-20 pts.)	Important information is provided. Setting and participants are described. Procedures, timelines, materials, and type of data collection are described (can be replicated, but not all tools and information are provided). (14-17 pts.)	Information is limited. Setting and participants are not clearly described. Procedures, timelines, materials, and type of data collection are unclear (difficult to replicate as written). (13 or less pts.)
Step Three: Collecting and Analyzing Data			
Results	Research steps are clearly pinpointed including any modifications to the procedures. Actual collected data are included and are accurately labeled, scored and dated. Well formatted, comprehensive data display is provided (i.e., graph, table, chart etc.). Narrative summarizes results and highlights salient features of collected data and data display. (18-20 pts.)	References to research steps are included. Some actual collected data are included. The majority of the data are clearly labeled, scored and dated. Data display is provided (i.e., graph, table, chart etc.). A narrative summary of the results is provided. (14-17 pts.)	Minimal references to research steps are included. Collected data is insufficient to answering the research question. Data are not clearly labeled or scored. Data are not summarized and no data display is presented. Narrative is limited and does not provide a summary of the results. (13 or less pts.)
Step Four: Using and Sharing the Results			
Discussion	Comprehensive summary of evidence is provided. Implications and limitations of the research are fully discussed as well as recommendations for future study. Outcomes are clearly and specifically linked to professional literature. Clearly presented evidence shows growth as a teacher through this project. (18-20 pts.)	Summary of evidence is provided. Some implications and limitations of the research are discussed. Professional literature is mentioned, but is not clearly linked. Some evidence is included to show growth as a teacher through this project. (14-17 pts.)	Summary of the evidence is limited. Discussion does not include implications and limitations of the research or recommendations for future study. Link to professional literature not established. Discussion of professional growth is limited. (13 or less pts.)
Written Presentation	Writing style flows with APA style and organized with appropriate headings. Manuscript is portfolio ready, suitable for submission for publication. (9-10 pts.)	Manuscript has a few errors in grammar, punctuation, or spelling. Some headings are used. Manuscript is portfolio ready. (7-8 pts.)	Manuscript has many errors in grammar, punctuation, or spelling. It is not organized with headings. Manuscript is not portfolio ready. (6 or less pts.)
TOTAL 100			

*Adapted by Pearl, C. E. (2008) from Miller, K. J. (2000). *Evaluation Instrument for Action Research Project.*

**Action Research Steps adopted from *Improving Student Learning through Classroom Action Research*, Florida Department of Education, Bureau of Exceptional Education and Student Services (2004).

APPENDIX D: INSTITUTIONAL REVIEW BOARD APPROVAL

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

NOT HUMAN RESEARCH DETERMINATION

From : **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To : **Michelle M Madden**

Date : **February 16, 2011**

Dear Researcher:

On 2/16/2011 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review:	Initial Submission Form
Project Title:	AN ANALYSIS OF ACTION RESEARCH FOCUSED ON DIFFERENTIAL INSTRUCTION AND STUDENT SUBGROUPS IN ONE FLORIDA DISTRICT IN 2009-2010
Investigator:	Michelle M Madden
IRB ID:	SBE-11-07453
Funding Agency:	None

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of the IRB Chair, Joseph Bielitzki, DVM, this letter is signed by:

Signature applied by Janice Turchin on 02/16/2011 10:21:40 AM EST

IRB Coordinator

APPENDIX E: DISTRICT APPROVAL

[redacted] COUNTY SCHOOLS

Leading our Children to Success

[redacted] Fax: [redacted]

Superintendent: [redacted]

School Board Members:
District 1 [redacted]
District 2 [redacted]
District 3 [redacted]
District 4 [redacted]
District 5 [redacted]

May 18, 2011

Ms. Michelle Marie Madden
520 Club Drive
Winter Springs, FL 32708

Dear Ms. Madden:

This letter serves as final approval to conduct your research study entitled, "An Analysis of Action Research Focused on Differential Instruction and Student Subgroups in One Florida District in 2009-2010."

Per information submitted in your request, please note/adhere to the following:

1. This research project will be conducted to fulfill requirements of a doctoral dissertation for the University of Central Florida under the advisement of Dr. Rosemarye Taylor.
2. The confidentiality of the district, school, teacher-researchers and all student-related data will be maintained at all times in the research study and future presentations. Current reference to "one Florida school district" is acceptable.
3. Teacher Action Research Projects for 2009-2010 will be analyzed for this research study.
4. A copy of the completed research project will be submitted to the district after final approval from the University of Central Florida.

Should you have additional questions, please do not hesitate to contact me at [redacted]. I wish you success with your doctoral program and hope your work will provide useful information for action research projects and student learning.

Yours truly,

[redacted]

[redacted], Ph.D.
Director of Planning, Evaluation and Accountability

C: [redacted], Superintendent
[redacted], Chief Academic Officer
[redacted], Chief of Administration
[redacted], Director of Professional Development
[redacted] Program Specialist

"Equal Opportunity in Education and Employment"

APPENDIX F: PROFESSIONAL RESOURCES EXAMPLES

Examples of Data Provided for the Professional Collaboration and Resources Subscale

Rubric Score	Data Provided	Level	Position	Subject	Gender
5	-FDLRS 2 year program -Summer Institute (June 2009) -Training of Trainers -Harcourt Reading Series (5th) -Differentiation in Practice by Carol Ann Tomlinson / Caroline Cunningham Eidson -Differentiation in Action by Judith Dodge -The K-12 Literacy Leadership Fieldbook by Rosemarye T. Taylor / Glenda A. Gunter	Elementary	Fifth Grade	Reading	Female
4	-CraftPlus Writing Curriculum - Lucy Caulkins Writer's Workshop Curriculum -Ohio State Literacy Collaborative	Elementary	Kindergarten	Writing	Female
3	-American Pediatric Association website (height/ weight chart) - American Heart Association website (lesson plans)	Middle School	Physical	Health Education	Female
2	-Literacy Coach -Internet searches -Professional development books	Middle School	Intensive	Reading Reading	Female

Examples of Data Provided for the Professional Collaboration and Resources Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
1	-“I Read, But I Don’t Get It”	Elementary	Fifth Grade	Reading	Male

APPENDIX G: SHARING RESULTS EXAMPLES

Examples of Data Provided for the Sharing Results Subscale

Rubric Score	Data Provided	Level	Position	Subject	Gender
5	N/A				
4	-Professional Learning Community & -First Grade Team	Elementary	First	Reading	Female
3	-Fourth Grade Book Study Group	Elementary	ESE	Mathematics	Female
2	-Two other Career and Technology Education (CTE) Teachers	High School	Computer	Reading	Female
1	-Collaborating with other teachers is not mentioned, but teachers shared with one another at the January progress meetings on action research and posted their final reports on the district website.	Middle School	Social Studies	Reading	Female

APPENDIX H: PURPOSE OF THE STUDY SUBSCALE EXAMPLES

Examples of Data Provided for the Purpose of the Study Subscale

Rubric Score	Data Provided	Level	Position	Subject	Gender
5	-Six out of thirteen students scored below a level 3 on the Math FCAT for the 2008-2009 School year. The largest area of concern after reviewing the data area breakdowns were the measurement section. -4th Grade ESE students were selected because I am a 4th Grade ESE teacher and they are on my case load.	Elementary	ESE	Mathematics	Female
4	- Projects were not being completed correctly and students were not meeting size requirements. I found this was due to lack of knowledge and lack of practice when it came to measurement skills. -8th grade Art classes 58 students total -38 males and 20 females -29 White, 9 Black, 13 Hispanic, 2 Multi-racial, 3 Asian, 2 American Indian -19 free and reduced lunch	Middle School	Art	Mathematics	Female

Examples of Data Provided for the Purpose of the Study Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
3	-Inclusion classroom--Free/reduced lunch, ESOL, ESE, along with other students in the classroom. -Students are struggling with comprehension questions that require them to use critical thinking skills. Scores tend to be higher when they are able to look back and "find" the answer. When having to make an outside application, they do not score as well. Many lack the concept of process of elimination where they sort out what is not correct and work their way to the correct solution.	Elementary	Second Grade	Reading	Female
2	- I had observed some distressing factors involving families facing poverty-related circumstances that were affecting their child's education. I observed parents not attending scheduled parent-teacher conferences and students being withdrawn from my class due to unstable home-life environments. - Caucasian, Hispanic and African American students	Elementary	Kindergarten	Reading	Female

Examples of Data Provided for the Purpose of the Study Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
1	- Third grade students were evaluated. They were sorted by homeroom with teams of students in heterogeneous groups. -My goal was to engage all students in hands on activities	Elementary	Third Grade	Science	Female

APPENDIX I: PLANNING SUBSCALE EXAMPLES

Excerpts of Data Provided for the Planning Subscale

Rubric Score	Data Provided	Level	Position	Subject	Gender
5	-When I polled the non-advanced students about what strategies they used, I was given blank stares and faces. With more prompting the students said they did many problems in their heads, they guessed if they didn't know, and they only did the problem once (if their answer wasn't a choice, they picked the closest one). I decided this was due to a lack of knowledge and practice in test-taking skills. -We continued working on the word problem of the day and the twelve powerful words, incorporating the think aloud strategy to help students make more informed test-taking choices.	Middle School	Math- Gr. 6	Mathematics	Female
4	- The first strategy I used from participating in the math book study implementing a student interest survey to gain insight into the student's attitudes towards math. Pre-assessments and exit cards were used several times throughout a lesson to assess learning. Open-ended question are usually used often in reading but I found that it can	Elementary School	ESE	Mathematics	Female

Excerpts of Data Provided for the Planning Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
	also be used in math. This assisted in investigating math ideas and how students need to explain how they got an answer, not just give the answer. During the 3rd semester we tried tiered lessons, lessons that allow students to focus on the same concept or skill but according to the level of readiness. For example students were given a RAFT project on the skill time (**R**ole, **A**udience, **F**ormat, and **T**opic).				
3	- The research process involved having students rotate among three groups with 20 minute durations. One station provided stand-alone computer based activities where the students progressed at their own rate. The other 2 centers were teacher-directed, one focused on the Harcourt skills presented in the whole group portion as required by the county, and the other focused on the skills specified in the READ 180 syllabus. There were two teachers.	Elementary	Fifth Grade	Reading	Female
2	-My goal is that my ESE students will learn all letter sounds and will be able to write a story with a character, setting, and three events by the end of the school year. I plan to find and use	Elementary	First Grade	Reading	Female

Excerpts of Data Provided for the Planning Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
	children's literature books to read aloud to my students that model the letter sounds and story elements in order to enhance the connection between reading and writing; to improve their retention of both concepts. -I went through my plans and made a list of all the special letter sounds that I teach, as well as writing lessons, and found books to help model each of the skills. I then made a list of the skills and the books that can be used with it. -I also created picture writing prompts for students that relate to the read alouds. (Example: If we read a book about a cat, then we would write a story about a cat.)				
1	-The students in a third grade mainstream classroom participated in action research during the 2009-2010 school year focusing on increasing reading comprehension through vocabulary acquisition. -Students received 10 new vocabulary words per week – five one day and five another. Between word introduction, review and reinforcement activities students interacted with new vocabulary daily.	Elementary	Third Grade	Reading	Female

APPENDIX J: DATA AND EVIDENCE SUBSCALE EXAMPLES

Example of Data from the Data and Evidence Subscale

Rubric Score	Data Provided	Level	Position	Subject	Gender
5	- The Star math was my solid assessment to show one year's growth and the other assessments were to direct me in planning effective and meaningful lessons to meet the needs of all the math students in my classroom. -I began my tasks determining what and how much my students knew about the concept at hand by using a pre assessment. I kept it to 3 – 5 questions to see how familiar they were and their proficiency and readiness level, as well as, making a quick determination for grouping my students. -By the end of the lesson before a final assessment I used peer tutoring for chapter reviews and this gave both the student in their comfort zone and the student that felt challenged with the lesson the opportunity for discussion about math. I found they enjoyed the peer tutoring and did keep their focus especially since the advantage student had the opportunity to be a teacher and the challenged student felt comfortable discussing and learning from their peer before the final assessment. I found that whole group discussions and small group work provided	Elementary	Fourth Grade	Mathematics	Female

Example of Data from the Data and Evidence Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
	opportunities to share ideas and talk about what has been learned. - The data collection I used in this action research was pre- assessments, exit cards, chapter assessments, and Star Math.				
4	- A 20-item teacher – made pretest/ posttest word problems had been made as baseline data of the research. Items were collected from FCAT/ACT/SAT and CPT sample tests. It had been verified, examined and validated by a co-teacher in the department. - The use of math riddles, logic and puzzles as bell ringers also made students think logically, at the same time motivates them to find the solution with fun and excitement.	High School	Math	Mathematics	Female
3	- After administering and grading the first two weekly Harcourt reading story tests, it was noted that less than 20% of students could produce a written response worth the full 2 points. -After this initial instruction, the Daily FCAT Practice books were used to practice written responses. Two station times per week were devoted to this activity. Lower level	Elementary	Fourth Grade	Reading	Female

Example of Data from the Data and Evidence Subscale (Continued)

Rubric Score	Data Provided	Level	Position	Subject	Gender
	students were instructed by my teaching partner, while the other students were paired to complete the activities. During this time I circulated among the pairs of students, directing them on how to find answers, and evaluating their responses.				
2	- FAIR assessments: baseline, midyear and final.	Elementary	Fifth Grade	Reading	Male
1	- My methodology involved creating a survey to discover more data about my students' families.	Elementary	Kindergarten	Reading	Female

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