

AN INVESTIGATION INTO THE EFFECTS OF LONG-TERM STAFF DEVELOPMENT ON
TEACHER PERCEPTIONS AND READING ACHIEVEMENT OF YOUNG CHILDREN

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Dissertation Proposal Prepared for the Degree of
DOCTOR OF EDUCATION

UNIVERSITY OF NORTH TEXAS

May 2003

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Boatman, Vikki, *An Investigation into the Effects of Long-term Staff Development on Teacher Perceptions and Reading Achievement on Young Children*. Doctor of Education (Early Childhood Education), May 2003, 158 pp., 27 tables, 6 illustrations, reference list, 167 titles.

The effectiveness of long-term staff development (Reading Academy Project—RAP) on students' reading scores on the Texas Assessment of Academic Skills (TAAS) test was examined to determine if teachers transferred newly learned teaching strategies into practice and changed their beliefs about reading instruction. In a four-year cohort longitudinal study in an East Texas rural community, the effects of long-term staff development on third grade students' TAAS test reading scores, teacher practices, and teacher beliefs were explored. Populations included a teacher group ($N = 17$), an experimental ($N = 419$), and a control ($N = 419$) group of students. Children's groups were matched pairs based on five demographic characteristics and membership or non-membership in one or more of six categories. An application survey and four end-of-the-year surveys provided teacher data regarding classroom practices. One interview question provided information about teacher beliefs.

Results indicate students who had a RAP teacher for at least one year scored significantly higher on the TAAS reading test in the third grade than those without a RAP teacher. Examination of students having more than one year with an academy teacher failed to produce statistically significant differences in TAAS test reading scores; however, an upward trend was noted.

Statistically significant differences were found in 6 of the 20 items on the survey investigating classroom practices. All teachers reported the RAP affected them positively, and 82% confirmed that changes took place in their classroom practices, student behaviors, and

teacher responsibilities. Validation of or strengthening existing beliefs accounted for 76% of the teacher responses.

Recommendations include adding a population of kindergarten through third graders and following them through high school to determine ultimate reading success, continue surveying teachers to see if effective strategies persist, add a parental involvement component, and replicate this investigation in suburban and metropolitan areas.

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CHAPTER I

INTRODUCTION

Background

The scrutiny of educational reform has intensified over the last decade. Issues facing educators, politicians, and parents today prompt an awareness of staff development effectiveness and maximizing student achievement. Staff developers grow increasingly aware of the challenges relating to educational needs. Efforts to analyze and improve current staff development practices remain a major focus for educators and staff developers alike.

Former President George H. Bush, in the 1990 State of the Union Address, provided political support for reforming education in America. Specific expectations for educators, parents, and Americans in general were stated.

Education is the one investment that means more for our future because it means the most for our children. Real improvement in our schools is not simply a matter of spending more: It's a matter of asking more--expecting more--of our schools, our teachers, of our kids, of our parents, and ourselves. . . .By the year 2000, every child must start school ready to learn (Bush, G. H., 1990, p. 1)

Efforts to pass a bill to reform education in America's schools died in the 102nd Congress, the result of disagreement with President Bush. Democrats argued about basic elements of the legislation such as school choice, and the education bill remained disputed during Bush's term; however, in 1993, President Clinton's Education Secretary Richard W. Riley revived the issue by proposing a new school reform plan. "Clinton sought \$420 million in fiscal 1994 to institute a system of voluntary national goals, standards and tests. The initial draft of the bill did not include

opportunity-to-learn standards, but House Democrats insisted they be added to the bill" (*Congressional Quarterly Almanac*, 1994, p. 397).

Then, the 103rd Congress, in its second session in 1994, cleared the bill for America's first national education goals. Christened "Goals 2000: Educate America Act" (House Resolution 1804), the law described 8 goals, "six proposed by Clinton and the last two added by the House" (*Congressional Quarterly Almanac*, 1994, p. 397).

The goals stated that by 2000

- All children would start school ready to learn.
- At least 90 % of students would finish high school.
- Students would leave grades four, eight, and twelve with demonstrated competence in English, math, science, foreign languages, civics and government, economics, arts, history and geography.
- Teachers would have access to programs for the continued improvement of their skills.
- The United States would be first in the world in math and science achievement.
- Every adult would be literate and possess the skills to compete in a global economy.
- Every school would be free of drugs and violence.
- Every school would promote involvement of parents in their children's education

(*Congressional Quarterly Almanac*, 1994, p. 397).

These national goals became the foundation for America's educational reform, revealing that educational improvement was in the forefront of the political leaders' minds, both presidential and legislative, transcending political affiliation.

President Clinton's fight for educational reform was voiced in the opening remarks at the April 1997 White House Conference on Early Childhood Development and Learning. Support for new research about children's learning processes was articulated:

It seems to me . . . the most important thing we can actually do is to share with every parent in America the absolutely stunning things we are learning from new scientific research about how very young children learn and develop. . . . This research has opened a new frontier . . . in discovering that the earliest years of life are critical for developing intellectual, emotional, and social potential. (Clinton, W. J. 1997, p. 1, 2)

The zeal of both Republican and Democrat presidents sustained the national reform efforts. Their bipartisan stand enabled state governments to take a more active role in educational reform at the state level by offering financial support to their local school districts. "District, state, and federal efforts at improving the nation's K-12 education system have focused on one overarching goal—to make sure all students meet high academic standards" (Lewis, 2000, p. 1).

Not only did the national government seek active legislation on behalf of children, so did the State of Texas. In January 1996, Governor George W. Bush established the Texas Reading Initiative, a "comprehensive plan aimed at improving reading instruction" (*Texas Team Reports*, September 1998, p. 1). Governor Bush stated, "[a]ll students will read on grade level or higher by the end of the third grade and continue reading on or above grade level throughout their schooling" (Bush, G. W., n.d., p. 1). He called for parents, educators, school board trustees, administrators, legislators, and business and community leaders to embrace and support the idea. Though the Texas Assessment of Academic Skills (TAAS) revealed one in four children failed in basic reading, Bush refused

...to believe that in a state as great as Texas, we can master rocket science but not

reading scores. Reading is to the mind what food is to the body. Nothing is more basic or more essential. And . . . nothing is going to take a higher priority. (Bush, G. W., August, 1996, p. 1)

In 1997-98 the 75th Texas Legislature appropriated almost \$7 million and an additional \$25 million in 1998-99, to aid Texas schools in meeting the Texas Reading Initiative challenge. Then, in 1999, the Texas Legislature appropriated over \$229 million for the sole purpose of supporting the Texas Reading Initiative (Bush, G. W., January, 1996). School districts, in conjunction with Educational Service Centers (ESC) and universities, were encouraged to create "academy-like" reading laboratories and programs for children and to develop reading programs based on research. Requests for Applications were originally disseminated for one year funding (1998-99); however, when the State of Texas reviewed evaluations and saw benefits to children, an additional \$18 million was awarded for a continuation year (1999-2000).

Governor Bush stated neither he nor the state would interfere with the manner in which local school districts sought to improve reading; however, districts remained accountable for TAAS test results. "We expect the TAAS reading scores to show continued improvement toward our goal--that every child should read at grade level by the end of third grade and should continue to read on grade level throughout school" (Bush, G. W., August, 1996, p. 12). Since the Governor stated he would not interfere with the manner in which districts sought to improve reading, local school districts in Texas had the flexibility to create a Reading Academy that would best meet individual district needs. Many districts elected to meet student needs by instituting student academies while other districts preferred to meet student needs via teacher academies. Both academies were designed to "increase student learning and development" (Killion, 2000, p. 1).

"The good news is that we know more than ever about the qualities of teacher professional development that contribute to high levels of learning for all students" (Sparks, 2001, p. 1). This knowledge supported Secretary Rod Paige's proclamation that, "[r]eform is no longer about access or money. It is no longer about compliance or excuses. It is about improving student achievement by improving the quality of the education we offer American students" (Strategic Plan 2002-07, p. 7). In January 2002, President George W. Bush signed into law the "No Child Left Behind Act of 2001" legislation. Since the enactment of the Elementary and Secondary Education Act (ESEA) in 1965, this is perhaps the most sweeping reform of the ESEA. It serves as a mandate for the transformation of the Education Department, demanding "achievement in return for investment" (Strategic Plan 2002-07, p. 8) and "redefines the federal role of K-12 education and will help close the achievement gap between disadvantaged and minority students and their peers" (No Child Left Behind, n.d., p. 3). The Act is based on four principles: "stronger accountability for results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work" (No Child Left Behind, p. 3).

Additionally, in March of 2002, Secretary Paige presented the Education Department's new Strategic Plan 2002-07, designed to "ensure equal access to education and to promote educational excellence throughout the nation" (Strategic Plan 2002-07, 2002, p. 2). The plan outlines six goals:

Goal One: Create a Culture of Achievement

Goal Two: Improve Student Achievement

Goal Three: Develop Safe Schools and Strong Character

Goal Four: Transform Education into an Evidence-Based Field

Goal Five: Enhance the Quality of and Access to Postsecondary and Adult Education

Goal Six: Establish Management Excellence (Strategic Plan 2002-07, p. 3)

Goal Two: Improve Student Achievement, assumes a boost in teacher and principal quality, which infers a need to reform staff development as well as improve pre-educators' education. The impending turn of the century led political leaders, educators, and parents to take a closer look at the nation's educational needs, providing the impetus for the reform.

Interest in Staff Development

The states and national governments' on-going interest in student achievement has prompted educators to reexamine pre-service education and in-service training (Lewis, 2000; Paige, 2002; Rényi, 1996, Wenglinsky, 2000).

Gone are the days when teachers graduated from college expecting to be permanently equipped with all of the skills and knowledge needed for a career in the classroom...As educators and policymakers grapple with how best to reform U.S. education, a consensus appears to be emerging that [staff] development is strongly tied to teacher quality, which is in turn crucial to student success. (Sullivan, 1999, p. 2)

With so much attention being given to teacher quality and student achievement (Ganser, 2000; Lewis, 2000; Rényi, 1996; Sparks, 2001), staff development plays a crucial role in obtaining higher teacher quality which results in increased student achievement. According Sparks (2001, p.1), "[i]t is also critical that teachers be engaged in sustained, intellectually rigorous professional learning throughout their careers if day-to-day instruction is to continue at a high level."

High-quality professional development that is long-term, aligned with district and school goals, focused on knowledge in a specific subject, and actively engages groups of teachers in learning new skills and knowledge can have a significant impact on the quality of teaching

according to a report from the U.S. Department of Education (U.S. Department of Education, 2000, p. 1).

“States cannot improve schools through mandating high standards and tough tests unless they give teachers the tools, support, and training to help them change their practice” (Sparks & Hirsh, 2000, p. 1). “Despite a decade and a half of reform talk, teachers mostly continue to teach as they have in the past. In the absence of substantial professional development and training, many teachers naturally gravitate to the familiar methods they remember from their own years as students” (Sparks & Hirsh, 1999, p. 1). A 1998 study from the National Center of Education Statistics (NCES) reflects that “only a little more than half of teachers say they are using instructional strategies aligned with high standards (56 %) and assisting all students to achieve (52 %). [NCES: *What Happens in Classrooms?* 1998]” (Sparks & Hirsh, 1999, p. 1). A videotape study revealed that although teachers claimed to use reform methods, they “still teach with traditional practices” (Sparks & Hirsh, 1999, p. 1). Evidence of so many teachers still teaching “with traditional practices” and not aligning instructional strategies with high standards certainly substantiates the need for high-quality staff development (Sparks & Hirsh, 2000).

Staff Development and Student Achievement

Research supports the relationship between staff development and student achievement. MacGilchrist (1996) conducted a yearlong school improvement plan, which revealed that changes in classroom practices were brought about by staff development. Sparks and Hirsh

(2000, p. 1) quoted Joyce, “[s]taff development can raise student achievement when it addresses the academic content that teachers teach, their teaching repertoire, and the amount of practice they provide students in particular areas.” Sanders’ study (in Sparks & Hirsh, 2000) revealed, “that teacher effectiveness influenced student behavior more than any other factor” (p. 1) and teacher effectiveness can be brought about through successful staff development (Murphy, 2000a). A Texas study of 900 districts reflects “that teacher expertise explained 40 % of the difference in student achievement” (Sparks & Hirsh, 2000, p. 1).

Guskey (1997) stated measurements of student learning are extremely rare when determining the effectiveness of staff development, but collectively, researchers acknowledge that staff development should be designed specifically to increase student learning (Guskey, 1997; Joyce, Showers, & Rolheiser-Bennett, 1987; Killion, 2000; Sparks, 2001). In its call for a national plan for improving staff development, the National Staff Development Council reported “that powerful [staff] development focuses on improving student learning” (Sparks, 2000a, p. 1).

Joyce, Showers, and Rolheiser-Bennett identified three developments in educational research that support student learning through staff development. First, in her doctoral dissertation entitled “Four Models of Teaching: A Meta-analysis of Student Outcomes”, Rolheiser-Bennett found a significant increase in the number of educational researchers who produced an abundance of research that can be applied to practice (Joyce, Showers, & Rolheiser-Bennett, 1987). Second, inquiries by Joyce and Showers (1987) and Huberman and Miles (1984) in Joyce, Showers, and Rolheiser-Bennett (1987), provided guidelines for staff development programs “that enable teachers to increase their repertoire of teaching skills dramatically and to use those skills effectively” (Joyce, Showers, & Rolheiser-Bennett, 1987, p. 12). Third, there is no limit to the kinds of learning or amount of learning that “can be expected if the content of

staff development is learned well and applied effectively” (Joyce, Showers, & Rolheiser-Bennett (1987, p. 12). More recently, Murphy (2000b) asserted “[s]taff development efforts must closely align with school improvement plans and thrive within existing school operations and structures” (p. 1) since successful staff development guarantees teachers will adopt new practices (Murphy, 2000a).

Experts affirm that effective staff development is critical to student learning (Guskey, 1997; Joyce, Showers & Rolheiser-Bennett, 1987; Killion, 2000; Murphy, 2000a; Sparks, 2001). While educators are vigilant in their efforts to improve both staff development and student achievement, the national government provides support through the *No Child Left Behind Act of 2001*. Maximizing staff development to strengthen student achievement remains a challenge for both educators and legislators.

Professional Call to Improve Staff Development

Lieberman (1995, p.1) stated "[t]he conventional view of staff development as a transferable package of knowledge to be distributed to teachers in bite-sized piece needs radical rethinking. It implies a limited conception of teacher learning that is out of step with current research and practice." Teachers are more likely to learn in the same manner as students, through active involvement and thinking about and articulating what they learned (Lieberman, 1995; Raack, 2000). With an increase in the number of teachers teaching outside their area of specialization, "[t]he need for high-quality professional development...is all the more pressing " (U. S. Department of Education, 1999, p. 2).

According to the deputy executive director of the National Staff Development Council Stephanie Hirsh, "only 10% of what teachers learn in traditional [staff] development activities is ever used in the classroom...Yet traditional forms of [staff] development persist" (Lewis, 2002).

The National Plan for Improving Professional Development argued

that improving the quality of teaching and leadership requires a new and more powerful form of professional development and that this nation can no longer hope that a random selection of courses and consultants will provide teachers with the knowledge and teaching skills they need to bring all student[s] to high standards (Sparks, 2000a, p. 1).

Then, in 2001, the NSDC revised their 1995 Standards for Staff Development. These revisions are the outcome of what the NSDC and broader community of staff developers have learned about professional learning since 1995. Three questions guided the revision:

- What are all students expected to know and be able to do?
- What must teachers know and do in order to ensure student success?
- Where must staff development focus to meet both goals? (NSCD Standards for Staff Development, n.d. d., p. 1).

The original 27 Standards for Staff Development have been reduced to 12 and remain divided into three categories: context, process, and content. Of the 12 newly stated standards, two in particular prove essential to teacher preparation. “Staff development that improves the learning of all students: Prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and *hold high expectations for their academic achievement* [italics added],” (NSDC, 2001, p. 1). Staff development also “[d]eepens educators’ content knowledge, *provides them with research-based instructional strategies* [italics added] to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately” (NSDC, 2001, p. 2).

In the on-going battle to reform staff development in such a way that it improves teachers' performance and enhances student achievement and learning, educators must give serious thought to available research. Staff developers must rethink traditional staff development and make necessary changes to support teachers in their learning and implementation of effective teaching strategies.

Staff development is clearly an integral component of the educational system (Guskey, 1997; Guskey & Sparks, 1996; Joyce & Showers, 1988; Sparks & Loucks-Horsley, 1989), yet the majority of these opportunities remain one-hour, one time workshops (Bellanca, 1995; Killion & Harrison, 1997; NSDC. n.d. b; Smylie, Bay & Tozer, 1999). Little is known about the specific elements contributing to the most effective staff development and its impact on transferring newly learned skills/strategies/techniques into the classroom. For decades, researchers have been unable to determine the real impact of staff development. They are still unsuccessful in determining effective elements of staff development, specific formats and/or practices which are most efficacious, or the precise contributes professional development plays in improving teaching and learning (Guskey, 1997). Numerous books and articles written about staff development address various components, but few discuss the importance of the combination of several training techniques (components) within a single framework for delivering staff development or preparing the teacher for effective transfer of newly acquired skills/strategies/techniques into his or her own classroom.

Leaders have identified a need for staff development to connect directly to student learning (Cohen & Ball, 1999; Guskey & Sparks, 1996; Joyce & Showers, 1988). Making this connection aids staff developers in providing more meaningful staff development opportunities

for teachers to improve their teaching strategies and techniques in an effort to increase student learning.

Statement of the Problem

Educators deem staff development essential to student achievement (Amenta-Shin, 2000; Iwanicki, 2001; Killion, 2000) and the importance of transfer of teacher training (Ellis, 1965; Fogarty, 1989; Haskell, 2001; Hunter, 1988; Joyce & Showers, 1983; Perkins & Salomon, 1988; Sternberg, 1984); however, a review of literature fails to reveal a significant connection between teachers' transfer of training and student achievement. The problem, then, is a lack of research connecting teachers' educational opportunities with student success, suggesting the need for early childhood professionals to determine information regarding effective staff development models that enable teachers to transfer newly learned skills into their classrooms for the purpose of improving student achievement. This information will enable teachers, administrators, and staff development planners in selecting and participating in effective staff development opportunities.

According to Guskey and Sparks (1996, p. 37), "student learning outcomes should provide the starting point for all school improvement and staff development efforts." Almost 15 years ago Joyce and Showers (1988, p. 27) claimed that, "student learning benefits are so great that the failure to create a strong staff development system is a tragic dereliction."

Purpose of Study

Stephen F. Austin State University (SFASU) in Nacogdoches, in conjunction with Nacogdoches Independent School District (NISD), created a teacher academy designed to focus on staff development, which in turn should directly affect student performance. According to Joyce (1998), "staff development can raise student achievement when it addresses the academic content that teachers teach, their teaching repertoire, and the amount of practice they

provide students in particular areas ” (Sparks, 1998, p. 1). The purposes of this study were to answer the following research questions:

1. To what extent, if any, did having a Reading Academy teacher affect students’ TAAS test reading scores?
2. To what extent, if any, did teachers transfer newly learned information about reading instruction into their classroom practices?
3. To what extent, if any, did teachers report changing their beliefs about reading instruction or the way children learn to read?

Significance of Study

In-service and staff development continue to be extremely important and valued (NSDC, n.d. b.; Sparks, 2001; Sparks & Loucks-Horsley, 1989; U. S. Department of Education, 1996). Participants of the NISD/SFA Reading Academy Grant Project engaged in oral and written interviews. They acquired information specific to reading that was designed to strengthen their knowledge base about how children learn to read. Next, teachers were asked to expand their existing classroom practices to include newly learned research-based strategies. Reflecting on personal practices during peer coaching allowed teachers to effectively evaluate their own transfer of knowledge into practice. Additionally, teachers served as mentors on their home campuses. This study enabled program planners to develop more appropriate staff development opportunities designed to transfer knowledge into practice, directly affecting student achievement. The significance of this inquiry is that it will or will not show that well-conducted staff development results in student achievement.

Definition of Terms

For this study, the following terms were used:

coaching— “[H]ands-on, in-classroom assistance with the transfer of skills and strategies to the classroom” (Joyce & Showers, 1980, p. 380).

implementation— "Implementation consists of the process of putting into practice an idea, program, or set of activities and structures new to the people attempting or expected to change" (Fullan, 2001, p. 69).

observation— “[A] particular aspect of behavior is observed systematically and with as much objectivity as possible” (Leedy & Ormrod, 2001, p. 114).

practice—Practice refers "to doing, acting, carrying out, and/or performing the work of the profession" (Cochran-Smith & Lytle in Lieberman & Miller, 2001, p. 54).

reflective practice—Reflective practice "implies that one considers not only one's action and its consequences, but the beliefs, value and other knowledge which contributed to motivating and creating a rationale for that action" (Briscoe, 1996, p. 315).

staff development—“Staff development is the term that educators use to describe the continuing education of teachers, administrators, and other school employees" (National Staff Development Council, n.d. c., p. 1).

student achievement—Student achievement "assures that all students will learn the challenging content, concepts and skills needed to live, work, and meet the intellectual and social demands of the 21st Century" (Himmelfarb, n.d., p. 1).

teaching strategies—“Strategies for teaching are a part of the ways in which teachers organize and manage instruction, and go to the heart of teaching, their interaction with children”

(Williams & Fromberg, 1992, p. 389); “[a] planned means to achieve change” (Shafritz, Koeppel, & Soper, 1988, p. 451).

training—“A training design includes an expert presenter who selects the objectives, learning activities, and outcomes. Usually the outcomes involve awareness, knowledge, or skill development, but changes in attitude, transfer of training, and 'executive control' need to be included as well” (Models of Staff Development, n. d. p. 1).

transfer—“...learning something in one context and applying it in another” (Fogarty, Perkins, and Barrell, 1992, p. ix).

teaching for transfer—“The ability to coordinate objectives, students, and learning environments with increasing skill and effectiveness....to increase the aptitude to learn in new situations, that is, to comprehend and solve goal-related problems” (Joyce & Showers, 1983, p. 27).

transfer for training—“The effective and continuing application, by trainees to their jobs, of the knowledge and skills gained in training (both on and off the job)” (Broad & Newman, 1992, p. 183).

transfer of learning—“...is the effective application by trainees to their jobs of the knowledge and skills gained as a result of attending an educational program” (Taylor, 1997, p. 5).

Limitations

Information for this study was collected via self-report, observation, and written/oral interviews. As with any self-report document, respondents may have reported information they thought the researchers/staff developers were seeking. Often there is discrepancy between what teachers perceive they are doing and what they actually do. Though observations were conducted by staff develop leaders, the purpose of the observations was not to validate teacher reports.

Another limitation is reflected in the teachers participating in the Reading Academy. This Academy was open to any pre-kindergarten, kindergarten, first grade, second grade, or third grade teacher, or administrator in three local Texas school districts. The first educators to respond to such learning opportunities are usually risk-takers, which often is indicative of “better” or “more innovative” teachers. This precluded randomization.

Teacher/administrator attrition reflects a third limitation of this study. During the first year of the academy, 41 educators joined the academy. Two teachers dropped out after the initial planning meeting stating they felt the workload was too demanding. The total number of participants in year one was 39. At the end of the first year, four teachers moved out of the school district. Before the start of the second year of the academy, five more teachers dropped out; claiming personal reasons precluded them from participating in the second year’s activities. The one administrator also dropped. Twenty-nine teachers participated in year two of the academy. At the end of the second year, three teachers moved out of the district, leaving 26 teachers participating in Year III of the grant. The end of Year III brought about two career changes, two retirements, and two teachers moved out of the district, leaving a total of 20 teachers; however, one teacher moved at mid-year, leaving a total of 19 teachers who finished the last academic year of the project.

Perhaps the greatest limitation is the inability to conduct follow-up studies with teachers. Some moved from the school district and left no forwarding information or made career changes, which affected their participation.

Delimitations

The Reading Academy was delimited to educators in three local East Texas school districts: Lufkin Independent School District, Nacogdoches Independent School District, and

Woden Independent School District, and in grades pre-kindergarten through third grade, with the exception of one grade four teacher who served as a model, and one administrator. Grade-level distribution was not a limitation since the State of Texas designed the grant for independent school districts and teachers of young children.

Summary

Issues of educating tomorrow's leaders and caregivers is no longer just an "educational" concern. Politicians at the state and national levels are increasingly more involved in ensuring each child achieves his or her potential. This political awareness has prompted educators to reexamine both pre-service and in-service training designed to maximize student achievement. Staff developers are increasingly aware of the changes in current staff development practices that will directly influence the future.

CHAPTER II

REVIEW OF LITERATURE

This review of literature included research related to staff development and training including books, journal articles, websites, and the Educational Research Information Clearinghouse (ERIC). A thorough examination of information linked to staff development; transfer of learning, teaching, and training; and the role of change provided the basis for this review. A historical account of staff development and the evolutions of transfer and change contribute to the strength of the review of literature. Definitions of specific educational jargon associated with staff development, transfer, and change furnish the reader with a clear and concise comprehension of the intent in the review.

Staff Development

Definitions

A number of terms are used when referring to “staff development”: in-service, training, teacher-training, professional development, workshops, conferences, or continuing education just to name a few. Just as numerous terms exist in reference to “staff development,” there are likewise as many definitions.

Ryan (1987) stated staff development is “those activities planned for and/or by teachers designed to assist them in more efficiently and effectively planning and attaining designated educational purposes” (p. 3). There is no “absolute” definition for staff development that holds the same meaning for all people.

A National Institute of Education study defined staff development as “any school district activity that is intended partly or primarily to prepare paid staff members for improved performance in present or possible future roles in the school district” (Elam, Cramer, &

Brodinsky, 1986, p. 5). Broadening this definition includes “any activity on the part of the individual, regardless of school district participation, that is intended to advance the individual’s professional stature and performance on the job” (p. 5). Though the terms "staff development" and "professional development" are often used interchangeably, Bellanca (1995) distinguished between the two. Staff development “is the effort to correct teaching deficiencies by providing opportunities [for teachers] to learn new methods of classroom management and instruction, or to ‘spray paint’ the district with hoped-for classroom innovations” (p. 6). Professional development is “a planned, comprehensive, and systemic program designed by the system to improve all school personnel’s ability to design, implement, and assess productive change in each individual and in the school organization” (p. 6). Again, the outcome is to improve student achievement. Bellanca further defines in-service as “the scheduling of awareness programs, usually of short duration, to inform teachers about new ideas in the field of education, or, in the worst case scenario, to fill mandated institution days with any available topic or speaker” (p. 6).

According to the National Staff Development Council (NSDC), staff development not only includes high-quality training programs with intensive follow-up and support, but also other growth-promoting processes such as study groups, action research, and peer coaching, to name a few... [It] is the term that educators use to describe the continuing education of teachers, administrators, and other school employees. (National Staff Development Council, n.d. a., p. 1)

The basic implication for all staff development is to enhance student achievement. This increase is generated by teachers' "opportunities to become intellectually engaged with their subject matter, thus ensuring deeper understanding of key concepts...[and having] the chance to try new approaches in environments that support diversity" (Sullivan, 1999, p. 8).

History of Staff Development

“Historically, in-service education has been reactive rather than proactive” (Harris, 1989, p. 23). As early as the 1850’s teachers participated in two or three day institutes and short evening courses as a means of in-service training (Tyler, 1971). These institutes primarily enabled teachers to bridge the gap between what they knew and what they did in the classroom. In other words, in-service was remedial. Topics included a review of the “common branches” (p. 6) arithmetic, geography, history, spelling, with “comments on points of difficulty, a statement of principles of discipline,” and suggestions for teaching reading, writing, and numbers. During this time, curriculum and teaching procedures as continuous development was not widely accepted. Social and technological changes were slow in the mid 1800s and for the most part, education for all was not widely revered. Though school learning was desirable, it was not necessary for survival. However, the “ideal” teacher was one who continually gained new information.

The influx of immigrants during the late 1800s and early 1900s posed a new problem for educators: many children did not speak English. Their attitudes, habits, and values were different from the American way. Challenges continued to face teachers, but little was done in terms of in-service training to help teachers deal with the problem.

By 1880 and continuing until the First World War, there was powerful support that education “must and can change to meet the changing needs of a modern society” (Tyler, 1971, p. 8). Teachers often attended summer programs in an effort to acquire knowledge and skills thought to be important to teaching. After the First World War and until the Great Depressions of the 1920s, “in-service education was greatly affected by the establishment of quantitative standards for teaching certificates” (p. 10). The decision was made that teachers needed a bachelor’s degree, but the reality was only about half of the teachers in the field met

that requirement. This placed a heavy burden on in-service training to fill “gaps in college degree requirements” (p. 10) from 1918 until the late 1940s and early 50s, which negatively affected the summer institutes, changing them from new and exciting courses meant to provide new insights, understanding, and competence to helping teachers obtain certification.

New problems arose as the Great Depression pursued. Unemployment rates soared. Youth, once able to drop out of school and get a job, were no longer able to find employment. Attendance in secondary schools soared to more than 80%.

The lack of interest in school, the low morale, and the negative motivation toward school achievement on the part of a considerable proportion of high school students stimulated educational leaders to re-examine the high school curriculum and procedures and to try out new ideas. (Tyler, p. 11)

In 1933, an Eight-Year study began, focusing on developing and implementing new educational programs designed specifically for high school students. As an outgrowth of this initiative, the American Council on Education established the Commission on Teacher Education and assisted a selected group of colleges and universities to develop a new program for teacher education and new ways of working with in-service teachers. Teacher training now focused on developing curricula and educational procedures that would better serve the youth of the day. “This involved new approaches to curriculum building, the identification of new content, the development of new instructional materials, the discovery of new teaching-learning procedures, and the education of teachers to understand and to conduct new programs” (Tyler, p. 11).

By 1940, Barr, Burton, and Brueckner (in Harris, 1989, p. 23) emphasized “a vast array of ‘improvement devices,’” including process, procedure, and techniques. The “group process” era was born and included discussions, group therapy, role-playing, and brainstorming.

Workshops replaced institutes, and action research, along with consultants, became “well-conceived” ways of working (Harris, 1989). By the late 1950s in-service achieved recognition as a “distinctive operation” in the school program.

Edmonds, Ogletree, and Wear, in the late 1950s, were among the first to pioneer the concept of “professional growth” (Harris, 1989), emphasizing “the reality of the environment in which the teacher teachers” (p. 24) as the basis of the in-service experience. The idea of “professional growth” clearly departed from the traditional concept of teacher preparation as course work and certification.

The post-sputnik era spurred another form of in-service: curriculum revision. With the aid of federal monies, educators began looking at “program development, innovative programming, organizational restructuring for learning, materials development, and new staffing patterns” (Harris, 1989, p. 24). The changes that ensued greatly stimulated in-service but ignored the needs for personnel to learn and grow as professional practitioners. One good thing that evolved out of this era was the need and approval of local in-service training. Federal programs offered in-service at the local level. Programs were frequently constrained by funding agency guidelines, but they did provide opportunities and money for new designs and creative in-service programs.

The 1970s brought about another dimension to staff development. Staff developers, who worked primarily as trainers and coordinators of training, focused primarily on the delivery of workshops and training. They managed training departments and trained others to be staff developers while coordinating on-site follow up, and evaluation of program effectiveness (Killion & Harrison, 1997).

In the mid-1980s, “the movement toward organization development, school improvement, and systemic change” prevailed (Killion & Harrison, 1997, p. 33). Staff developers assumed the new role of facilitating change efforts of school improvement and other projects.

Beginning in the 1990s, staff development focused on promoting learning organizations and communities that involved all stakeholders, meant to strengthen and improve entire communities. A “shift from bureaucratic organization to more organic organizations that fostered school-based decision making, school improvement planning, teacher leadership, and individual school communities” has redefined staff development (Killion & Harrison, 1991, p. 33). Staff developers became “organization development specialists (Killion & Harrison, 1991, p. 3), fulfilling responsibilities ranging from trainers to process consultants. Teachers are now taking leadership roles in their schools, helping make informed decisions about what is best for children, and voicing their own needs regarding staff/professional development.

Staff Development Opportunities

Bellanca (1995) verified staff development usually includes workshops, conferences, action research projects, and graduate classes or programs. Ganser stated, “[t]he history of staff development reveals a predominance of short-term workshops [but] the most effective professional development efforts are intense and designed to engage teachers intellectually, socially, and emotionally (Corcoran, 1995)” (Ganser, 2000, p. 4). Harris (1989) mentioned in-service takes the form of “training sessions.” Training sessions may be short or long in duration, involve an individual, small group, or mass, and may be highly structured or “fairly freewheeling” (p. 64). Smylie, Bay, and Tozer (1999) noted professional development generally “takes the form of brief one-shot, beginning-of-the-year workshops without follow-up” (p. 50).

Loucks-Horsley and Matsumoto (1999) stated staff development "has been in the format of in-service workshops, largely of short duration" (p. 264). This method of staff development typically offers ideas for classroom management or teaching strategies and techniques that are not specifically tied to specific school or classroom goals or objectives (Smylie, Bay, & Tozer, 1999). These "packaged prescriptions", usually from outside consultants, hold little meaningful relevancy for teachers and "offer few opportunities for ongoing work on specific classroom problems and few opportunities for practice and feedback" (p. 50). In a longitudinal study conducted begun in September 1997 and ending in May 2001 by Smith, Hofer, and Sacerdote, researchers found staff development to be "primarily short-term, 'one-shot' workshops with no funds for participation, no follow-up, and no connection to program development" (p. 1). Studies have show that follow-up is a critical component of staff development (Learning First Alliance, 2000; Sparks, 2000b). "Carefully planned follow-up is required to support the successful implementation of a particular improvement in teaching content or in teaching strategy (Joyce and Showers, 1988)" (Murphy, 2000b, p. 1).

A growing number of researchers debunk the one-shot workshops, claiming their ineffectiveness while maintaining staff development must be carefully planned and designed to increase teachers' knowledge and skills (Killion, 2000; Learning First Alliance, 2000; Lieberman, 1995; Raack, 2000; Sparks, 2001; Sullivan, 1999). The Learning First Alliance, composed of twelve national educational organizations who coordinate their individual efforts to improve public education, state, "[s]ingle workshops unconnected to an overall plan of schoolwide improvement are ineffective. Likewise, the superficial treatment of complex information should be replace by study, practice, implementation, and evaluation of instruction supported by research" (Learning First Alliance, 2000, p. 6).

The United States Department of Education report, "Does Professional Development Change Teaching Practice?", news release on December 18, 2000 stated, "[p]rofessional development that is focused on specific, higher-order teaching strategies...increases teachers' use of those strategies in the classroom" (p. 1). It is obvious that teacher knowledge and skill plays a critical role in student achievement.

The best learning opportunities for teachers are based on well designed staff development activities that offer sustained professional development (Sparks, 2001) and provide time where teachers work together (Learning First Alliance, 2000; Sparks, 2000b); closely align with student improvement (Killion, 2000; Murphy, 2000b); and increase knowledge and skills (Lewis, 2000; U.S. Department of Education, 2000). Staff development opportunities should "support a learner-centered view of teaching and a career-long conception of teachers' learning" (Sparks & Hirsh, 1997, p. 3), using "a variety of staff development approaches to accomplish the goals of improving instruction and student success" (Hirsh, 2000, p. 50). Likewise, opportunities should include professional workshops, grade-level planning groups, professional development plans generated by individual teachers in relation to designated competencies, guided peer observation and feedback, monthly meetings for discussion of professional readings, teacher research groups, and scheduling of demonstration lessons by master teachers. (Learning First Alliance, 2000, p.28)

When well planned, well-defined, and well-implemented staff development is practiced, teachers are more successful, which directly affects students' performances and achievement. Moving from one-session, infrequently-met learning opportunities to mindfully-planned, ongoing staff development, will enable teachers to better meet the needs of America's students by offering high quality programs.

Goal/Purpose of Staff Development

According to Orlich, (1989) the goal of in-service education “is to offer the highest quality program” (p. 370). In order to do this, staff developers must collect “trustworthy information” (p. 370) so decisions, both immediate and future, can be based on empirical data. Additionally, Griffin (1983) asserted staff development programs are designed to “alter the professional practices, beliefs, and understanding of school persons towards an articulated end” (p. 2). A somewhat different view originates with Glickman (1986) who argued the aim of staff development should be to improve teachers’ ability to think.

Joyce and Showers (1980) cited dual purposes of in-service training. A teacher either (1) “fine tunes” his or her skills, or (2) learns skills new to him or her. In fine-tuning one’s skills, a teacher becomes “more affirmative, involve[s] students more, manage[s] logistics more efficiently, ask[s] more penetrating questions, induce[s] students to be more productive, increase[s] the clarity and vividness of [their] lectures and illustrations, and understand[s] better the subject matter” (Joyce & Showers, 1980, p. 380) to be taught. On the other hand, mastery (learning skills new to the individual) requires exploring and understanding the rationale of the skill, developing the ability to execute the new strategy, and mastering novel content.

Rényi (1996, p. 4) stated "the goal of professional development in schools must be to improve results, not simply enhance practice. Teachers are clear about their priority: The goal of professional development for teachers is increased student learning."

Models of Staff Development

The early 1970s staff development research revealed a nearly unanimous dissatisfaction with staff development efforts while maintaining in-service was critical for school programs and practices to improve (Sparks & Loucks-Horsley, 1989) prompted research in the late 70s and

early 80s that focused on the characteristics of effective staff development. The research focused on actual classroom practices rather than attitudes (Berman & McLaughlin, 1978; Kells, 1981; Lawrence, 1974; Yarger, Howey, & Joyce, 1980). A synthesis of research identified the following list of effective practices

- (1) programs linked to student achievement, conducted in a school setting,
- (2) teachers and administrators planning together for in-service activities,
- (3) an emphasis on self-instruction, which differentiated training opportunities,
- (4) teachers actively participating, choosing their own goals and activities,
- (5) an emphasis on concrete training over time: demonstrations, supervised trials, and feedback, and
- (6) ongoing support and assistance as needed or requested (Sparks, Loucks-Horsley, 1989, p. 40).

Based on the above stated findings, executive director of the National Staff Development Council, Dennis Sparks, and Susan Loucks-Horsley, program director for teacher development of the Regional Laboratory of Educational Improvement of the Northeast and Islands, provided educators with “Five Models of Staff Development for Teachers” (Sparks, Loucks-Horsley, 1989). The five models included:

- (a) Individually-guided staff development,
- (b) Observation and assessment,
- (c) Involvement in a development/improvement process,
- (d) Training, and
- (e) Inquiry.

These models, together with Joyce and Shower's components of training, serve as a foundation for the staff development procedures conducted in the dissertation study.

Individually-guided staff development "allows the learner to design learning activities to facilitate growth toward an identified goal" (Hirsh, 2000, p. 50). Teachers may choose to "read professional publications, have discussions with colleagues, and experiment with new instructional strategies, among other activities" (Sparks, Loucks-Horsley, 1989, p. 41). Teachers determine their own goals and select activities that will help them achieve their goals.

Observation and assessment enable "the learner to acquire new knowledge and skills through observation in other classrooms and peer or supervisory coaching" (Hirsh, 2000, p. 50). According to Wise and Darling-Hammond (1985) in Sparks & Loucks-Horsley (1989), teachers generally do not perceive observation and assessment as helpful as most teachers deem it equivalent to evaluation; however, once teachers grasp the forms it can take (peer coaching and clinical supervision), it may become more widely exercised. Joyce and Showers (1980) support peer coaching, claiming this model enables teachers to "transfer new models of teaching into their instructional repertoires" (Showers, 1984, p. 254).

Involvement in a development/improvement process "enables individuals or groups to specify a goal and determine how to address it" (Hirsch, 2000, p. 50). "This model begins with the identification of a problem or need by an individual, a group of teachers...a school faculty, or a district administrator" (Sparks, Loucks-Horsley, 1989, p. 46). Whether determined via formal or informal assessment, the next step is to formulate a response at which point "the plan is implemented or the product developed" (p. 47). Finally, the process is assessed, after which teachers determine if their goal was met or if additional work is necessary.

Training over time “includes exploration of theory, demonstration of practiced, supervised trial of new skills with feedback, and on-the-job coaching and support” (Hirsch, 2000, p. 50-1). Usually the trainer establishes the content and flow of activities and the training is conducted with a clear set of objectives or learner outcomes (Sparks & Loucks-Horsley, 1989). Teachers attend the training session(s) and then practice the newly learned skills in their classrooms during which time participants engage in in-classroom assistance (peer observation and coaching), which Joyce and Showers (1988) deemed essential for the transfer of newly learned, complex teaching skills. “Whatever the anticipated outcomes, the improvement of teachers’ thinking is an important goal” (p. 48).

Inquiry “begins with a problem or question and focuses on the selection, implementation, and analysis of various solutions to the problem” (Hirsh, 2000). “Teacher inquiry may be a solitary activity, done in small groups, or be conducted by a school faculty” (Sparks, Loucks-Horsley, 1989, p. 50) and the process either formal or informal. Steps involved in the process include (1) identify a problem, (2) explore data collection options, and (3) data collection and analyses. Teachers engaged in the inquiry process tend to “learn more about research... experience more supportive and collegial relationships...learn more about [teaching] by becoming better able to look beyond the immediate, the individual, and the concrete” (p. 51).

Components of Training

Years of research (analyzing over 200 studies) led Joyce and Showers to the discovery of five critical components of training. “Alone and in combination, each of these training components contributes to the impact of a training sequence or activity” (1980, p. 380).

The major components of training . . . are

- (1) Presentation of theory or description of skill or strategy;

- (2) Modeling or demonstration of skills or models of teaching;
- (3) Practice in simulated and classroom settings;
- (4) Structured and open-ended feedback (provision of information about performance);
- (5) Coaching for application (hands-on, in-classroom assistance with the transfer of skills and strategies to the classroom) (p. 380).

Presentation of theory refers to the “substance of theory components ... the rationale, theoretical base, and verbal description of an approach to teaching or a skill or instructional technique” (Joyce & Showers, 1980, p. 382) and is typically combined with one or more of the other components. In some instances, it may serve as the primary or sole component of training. Offered alone, presentation of theory rarely results in “skill acquisition or the transfer of skills into the classroom” (p. 382); however, offered “in combination with other training components, it appears to boost conceptual control, skill development, and transfer” (p. 382). Joyce and Showers claim “[i]t is not powerful enough alone to achieve much impact beyond the awareness level, but when combined with the others, it is an important component” (p. 382).

Modeling or demonstration involves observing the teaching skill or strategy either in the classroom setting, on a video or film, or via other media. Modeling seems to influence one’s awareness and knowledge base of skills and demonstration increases mastery of theory (p. 382). Joyce and Showers found research supports modeling and demonstration as an important component in training programs “aimed at acquisition of complex skills and their transfer to the classroom situation” (Joyce & Showers, 1980, p. 382).

Practice under simulated conditions refers to teachers “trying out a new skill or strategy” (Joyce & Showers, 1980, p. 382) with peers and/or small groups of children, away from the full-

time responsibilities of total group classroom management. When

awareness and knowledge have been achieved, practice is a very efficient way of acquiring skills and strategies whether related to the tuning of styles or the mastery of new approaches. Once a relatively high level of skill has been achieved, a sizeable %age of teachers will begin to transfer the skill into their instructional situations, but this will not be true of all persons by any means, and it is probable that the more complex and unfamiliar the skill or strategy, the lower will be the level of transfer. (p. 382)

Feedback includes structured comments and open-ended feedback. Structured feedback refers to “learning a system for observing teaching behavior and providing an opportunity to reflect on teaching by using the system” (Joyce & Showers, 1980, p. 382). Though feedback assumes a variety of configurations (self, observers, peer, coaches; regular or occasional), it is most effective when combined with other components of training. “[F]eedback alone does not does not appear to provide permanent changes, but regular and consistent feedback is probably necessary if people are to make changes in very many areas of behavior and maintain those changes” (Joyce & Showers, 1980, p. 384). Open-ended feedback refers to a more casual discussion following an observation. It seems to heighten awareness of teaching styles and is “useful in providing ‘readiness’ for more extensive and directed training activities” (p. 384).

Coaching, provided by peers, administrators, professors, or curriculum specialists, aids teachers in analyzing what is to be taught and the strategy to be used. When used in conjunction with other components, the “levels of impact are considerable for most teachers up through the skill level” (Joyce & Showers, 1980, p. 384).

In conclusion, Joyce and Showers (1980) attest maximum effectiveness is achieved when several, perhaps all, components are included in training. In fact, these components are so well-

grounded that the work of Joyce and Showers continues to be the mainstay of many authors' works (Hirsh, 2000; Hord, 1994; Learning First Alliance, 2000; MacGilchrist, 1996; Murphy, 2000a). This exemplary model serves well for assisting educators in their endeavors to transfer new knowledge and skills into practice.

Transfer

Definitions

The Merriam-Webster's Collegiate Dictionary (2000) defines transfer "to convey from one person, place, or situation to another: transport" (p. 1249). According to Joyce, Weil, and Showers (1992), transfer referred to "the effect of learning one kind of material or skill has on the ability to learn something new" (p. 386). Fogarty, Perkins, and Barrell (1992) claim transfer "means learning something in one context and applying it in another" (p. ix). Hunter (1988) defined transfer as "the process of past learning influencing the acquisition of new learning" (p. 107). Bereiter suggested, "transfer is not usually thought of as an ability but rather as an event, and the potential for transfer is not usually thought of as residing in the learner but rather in whatever has been learned" (1995, p. 21). Transfer is "a highly complex concept to investigate, measure, and demonstrate" Taylor (2000, p. 3).

Additionally, Calais, Belk, Larmon and Sparks (1999) define transfer of learning as "the application of skills and knowledge learned in one setting or under one set of conditions to another setting and/or under a different set of conditions" (p. 1). The knowledge or skill transferred can be very specific—a math fact; or very general—theory, a principle, or a thinking skill. Haskell (2001) states, "All learning involves transfer from prior learning to a greater or lesser degree" (p. 10). These broad, general definitions provide the foundation for a closer examination of transfer usage in the educational setting.

In the learning environment, different categories of transfer exist: *transfer of learning*, *transfer of teaching*, and *transfer of training*. To better understand the nature of transfer, each category must be defined.

One dictionary defines *transfer of learning* “the carry over or generalization of learned responses from one type of situation to another” (Merriam-Webster’s Dictionary, 2000, p. 1249). Hunter (1971) stated that the transfer of learning is the “ability to learn in one situation and then to use that learning, possibly in modified or generalized form in other situations where it is appropriate” (p. 2). Glass (1992) stated transfer of learning is “an experience learned at one time [and] influences performance on some later task” (p. 36); the ability to use knowledge learned in one situation or setting in another similar setting (Cromier & Hagman, 1987; Royer, 1979; Salomon & Perkins, 1989). According to Taylor (1997), transfer of learning refers to the “effective application by trainees to their jobs of the knowledge and skills gained as a result of attending an educational program” (p. 5). Most recently, Haskell (2001) defined transfer of learning as one’s ability to “apply what we learn in different contexts, and to recognize and extend that learning to completely new situations” (p. 3).

Defining *transfer of learning* implies there is *transfer of teaching*; however, a review of literature finds no written definition of transfer of teaching. There are, nevertheless, numerous books and articles on “how to” teach for transfer: *Teach for transfer* by Hunter (1971), “Teaching for transfer” by Perkins and Salomon (1988), and *How to teach for transfer* by Fogarty, Perkins, and Barrell (1992), to name a few. These “how to” writings elude to a definition of transfer in much the same ways as stated above.

“Intuitively, transfer suggests on-the-job use of what was taught during training” (Stolovitch, 1997, p. 5); hence, *transfer of training*. Garavaglia (1993) defined transfer of

training “as the effective and continued application to trainees’ jobs of the knowledge and skills gained in training” (p. 63). Additionally, Noe (1986) saw training as a planned event designed to bring about permanent change in one’s knowledge, attitudes, and skills. According to Machin and Fogarty (1997), transfer of training relates to the changes and improvements one makes in job-related knowledge and skill to improve job performance as “evidence” of changed work behavior (Foxon, 1997). Saylor and Kehrhahn (2001) define transfer of training as “the application of knowledge and skills that have been newly acquired during training” (p. 3). Understanding the various definitions of transfer aids in understanding the theories behind transfer.

Early Theories of Transfer

Early educators held in high regard the long-held opinion and belief that *formal discipline*, composed of several faculties (attention, judgment, memory, and reasoning), trained, improved, and strengthened learners through the study of subject matter. Formal discipline assumed transfer was very general and widespread; that learning math and Latin “strengthened reasoning and memory” (Ellis, 1965, p. 63; Bereiter, 1995). Geometry was thought especially good for improving logical reasoning and ancient languages believed to sharpen the student’s memory abilities. The generality of such transfer is obvious.

An early study in the turn of the twentieth century placed this theory under “experimental attack” (Ellis, 1965, p. 63). Thorndike and Woodworth failed to find supporting evidence of the *formal discipline* theory. For the next 25 years, numerous investigations found little or no support of the doctrine. Educators gradually abandoned the theory of formal discipline and modified their teaching goals. Teachers began to see the value of each subject matter in its own right.

The attack on formal discipline led to the emerging view that transfer was much more limited in scope. Thorndike and Woodworth determined “transfer of training was limited to those situations in which the two tasks contained ‘identical elements’” (Ellis, 1965, p. 63).

The theory of *identical elements* contended that training in one kind of activity would transfer to another as long as certain features such as aims, methods, and approaches were identical in the two tasks... Thus, hope for widespread transfer decreased and more emphasis was placed upon direct training of desired educational objectives. (Ellis, 1965, p. 63)

In the educational setting, the term *transfer* is historically attributed to Edward Thorndike.

When dealing with transfer of learning and transfer of teaching, authors and researchers refer to the dichotomies of transfer (Joyce & Showers, 1983; Perkins & Salomon, 1988; Sternberg, 1984; Wittrock, 1967). Wittrock (1967) discussed two types of transfer, “near” and “remote”. Near transfer referred to the application of knowledge or skill within the same concept, while remote transfer referred to application to new concepts. Example: a car driver takes his knowledge about driving a car and transfers this knowledge to the experience of driving a truck the first time he gets behind the wheel of the truck (near transfer). However, trying to apply his car driving skills to an airplane is very remote and there is little, if any, knowledge that will enable him to fly an airplane without more learning.

Perkins and Salomon (1988) also discussed two levels of transfer, “low road”, and “high road”. “Low road” transfer referred to applying a skill learned in one setting to a skill in a similar setting. “High road” transfer implied one’s ability to make connections between very different settings. To illustrate “high road” transfer, suppose a person goes on a picnic but forgets to pack a knife for slicing the cheese. Once at the picnic, ready to slice the cheese, and realizing he has

no knife, a man pulls out a credit card (thin and stiff) to slice cheese. Using a credit card for a knife is definitely a different context for which the card was designed (Perkins & Salomon, 1999).

Joyce and Showers (1983) confirmed a similar dichotomy in reference to transfer, describing “horizontal” transfer as a skill that directly shifted from one experience to another while “vertical” transfer required additional learning for the skill or knowledge to transfer. Horizontal transfer occurs when a teacher uses a newly learned skill in the classroom in the same way in which it presented itself during staff development. Vertical transfer occurs when a person significantly adjusts or modifies a newly learned skill in classroom application.

Sternberg (1984) also noted two types of transfer: “spontaneous” transfer and “guided” transfer. Spontaneous transfer seemed to occur automatically in similar situations (low road or horizontal transfer), while guided transfer required specific strategies necessary to guide the transfer into new situations (high road or vertical transfer).

In the many definitions and descriptions of transfer, analogies provide a means by which readers may conceptualize or process the two kinds of transfer. Once the reader has a general knowledge and understanding of the levels of transfer, he must then consider its impact on teaching practices.

Transfer of Learning

Transfer of learning occurs in all experiences. It enables people to function in their world. Day in and day out people apply (transfer) what they learned in one situation or circumstance to a novel situation or circumstance (i.e., Today I learn how to turn on the faucet at the kitchen sink. Tomorrow, I am able to turn the water on at an outdoor hydrant.)

At the most general level, transfer is a phenomenon involving change in the

performance of a task as a result of the prior performance of a different task. It is immediately apparent that this definition scarcely distinguishes ‘transfer’ from ‘learning’. The only hint of difference is that in cases of transfer, the two tasks are said to be ‘different,’ whereas learning often occurs when the ‘same’ task is repeated (Gick & Holyoak, p. 10 in Cromier & Hagman, 1987).

Simply stated, the “kind” of task determines if one “learns” the task or “transfers” learning to a new task.

Learning is associated with education and “[t]he aim of all education...is to apply what we learn in different contexts, and to recognize and extend that learning to completely new situations. Collectively, this is called *transfer of learning*” (Haskell, 2001, p. 3). Haskell states researchers and educational practitioners agree that transfer of learning is one of the most fundamental issues in all education...

there is no more important topic in the world of psychology of learning than transfer of learning. . . . Practically all education and training programs are built upon the fundamental premise that human beings have the ability to transfer what they have learned from one situation to another. . . . There is no point to education apart from transfer. (Deese, 1958, p. 213-217)

However, “general transfer from instructional settings and ‘significant’ transfer in everyday settings, as well as transfer learning to invention and discovery, seldom seem to occur” (Haskell, 2001, p. 10). Haskell cites numerous researchers who agree transfer of learning rarely occurs (Detterman, 1993; Gick & Holyoak, 1987; McKeachie, 1987; Zenger, 1996). Typically, learners are successful in transferring knowledge in highly similar contexts, but fail to transfer

knowledge/skills to a uniquely different situation (Chi, 1989; Gardner, 1991); hence, a problem for both educators and staff developers.

Ellis (1965) claimed transfer of learning takes three different forms. First is *positive transfer*, where “performance on one task may *aid* or facilitate performance on a second task” (p. 3). Next is *negative transfer*, where “performance on one task may *inhibit* or disrupt performance on a second task” (p. 3). Last is *zero transfer*, where “there may be *no effect* of one task on another” (p. 3). Zero transfer is the result of either no effect of one task on another, or equal effects of positive and negative transfer; hence, canceling each other. Hunter (1971), Fogarty, Perkins, and Barrell (1992), and Gick & Holyoak (1987) also reference positive and negative transfer. In positive transfer, old learning accelerated new learning while in negative transfer; old learning interfered with new learning. The obvious desired form of transfer is positive transfer. Macaulay and Cree (1999) add that “[p]ositive transfer occurs when appropriate connections are made. Negative transfer refers to an inappropriate application of past models to new situations and may occur as a result of incomplete or incorrect schemata” (p. 189). Educators and staff developers must consider the issue of positive, negative, and zero transfer when designing instruction. Yet, transfer of learning is influenced by outside factors.

Taylor (2000) discussed factors that influence transfer of learning. “[T]he most significant barrier in the eyes of the instructor was the lack of reinforcement to support trainees in applying training to their jobs” (p. 2), leaving instructors with the feel that trainees simple did not “expend the energy to do something new because no one around them really cared” (p. 2). Secondly, environmental factors such as dealing with time pressures, unsatisfactory authority, or inadequate equipment impedes transfer. Lack of support from administration is another reason learners do not transfer learning into practice. “Some organizations take action only after trainees

return to their jobs; others focused in on the time the trainees were in the classroom itself; and others seemed to be thinking about transfer problems long before the training program began" (Taylor, 2000, p. 3). Other barriers include "elements such as the length of the session, the size of the class, location and time of day" (p. 6).

Transfer of Teaching

The inferred theory behind most educational practice is that transfer takes care of itself...the Bo Peep Theory of Transfer (Fogarty, Perkins, & Barrell, 1992; Perkins & Salomon, 1999). Though no one espouses the Bo Peep Theory, it is implicit in the way teachers behave in the classroom. "It is not that anyone advocates that transfer takes care of itself. Rather, everyday practice presumes that this happens" (Perkins & Salomon, 1999, p. 4), and "[t]he moral is that if we want transfer in education, we have to teach for transfer. Otherwise, we are not going to get nearly as much transfer as we want" (Fogarty, et. al., p. xi). Therefore, teachers must be specific and diligent in helping students become successful in transferring knowledge and skills, which directly affects student achievement.

Hunter (1971) stated the key to successful student achievement relied on one's ability to generalize from one situation to a similar situation; transfer. This ability is "fantastically important for two reasons" (p. 2):

1. The core of higher level thinking skills, inventions, and artistic products lies in one's ability to transfer (Hunter, 1971),
2. Transfer of learning significantly increases or decreases the amount of time necessary to achieve new learning (Hunter, 1971).

"Transfer, however, does not always occur automatically or efficiently. *Significant and efficient transfer predictably occurs only if we teach to achieve it*" (Hunter, 1971, p. 2). Hunter further

claimed transfer is the sought result of formal instruction and schooling. Perkins and Salomon (1999) supported this claim maintaining well-designed instruction increases the likelihood students will transfer knowledge from one setting to another. However, learners must have an opportunity to practice their skills (Macaulay & Cree, 1999; Taylor, 2000) when the experiences are "grounded in reality" (Macaulay & Cree, 1999, p. 192) in such a way that they transfer their new skills. "[S]chool activities,' which do not share contextual features with related out-of-school tasks, typically fail to support transfer to...out-of-school settings" (Putnam & Borko, 2000, p. 4) and do not align with authentic (relevant) activities. Therefore, learning must be relevant to the learner.

Realizing transfer does not happen automatically, teachers must implement teaching strategies designed for transfer. According to Fogarty, Perkins, and Barrell (1992), strategies in teaching for transfer include "hugging" and "bridging". "Hugging" resembles near, low road, horizontal, and spontaneous transfer in that instruction is more like the contexts in which the skills are applied. Learners automatically transfer skills from one learning experience to a similar one. By introducing analogies, helping learners "think through" the analogy, and encouraging them to reflect metacognitively on their own thinking, learners "bridge" their skills from one situation to another. In the "bridging" process, transfer is conscious and thoughtful (Fogarty, et al.; Perkins & Salomon, 1988).

Transfer of Training

To increase one's repertoire is to develop the aptitude to teach: the ability to coordinate objectives, students, and learning environments with increasing skill and effectiveness....The purpose of training for teachers is to increase the aptitude to learn in new situations, that is, to comprehend and solve goal-related problems

(Joyce & Showers, 1983, p. 27).

Transfer of training must be purposeful as teacher training plays a significant role in a teacher's ability to transfer new learning into practice. Transfer of newly learned practices, along with reconceptualizing practices, classroom roles and expectations about student outcomes, enables teachers to positively affect student achievement...the desired goal of education.

According to research, trainers must be thoughtful in ensuring the transfer of training (Broad & Newman, 1992) and proactive in planning activities designed to support transfer before and during training: provide foundation/theory for the reasoning behind the training, build in opportunities for trainees to observe model strategies and techniques, and allow plenty of time for guided practice (Broad & Newman, 1992; Joyce & Showers, 1992). Trainers should also provide support after training has occurred. Joyce and Showers contend peer coaching is perhaps the single most pertinent component to successful transfer of training (1992).

Kelley, Orgel, and Baer (1985) used the 1977 research findings of Stokes and Baer, who reviewed 270 studies that measured transfer of training in the business world) and extracted seven strategies for program developers and trainers to use to produce more rapid acquisition, retention, and transfer of work skills. Of the seven principles discussed, several hold implications for educators.

First, trainers (staff developers) must determine exactly which skills, concepts, and strategies trainees (teachers) are expected to master, as these are the desired behaviors to be transferred into practice (Kelley, Orgel, & Baer, 1985). Reflecting on Pasqual's work on memory spaces, a person can remember approximately five to seven items (or skills), plus or minus two. Therefore, in planning training, trainers must remember to introduce no more than five or six basic skills and to provide repeated practice using those skills. As true mastery is necessary for

transfer, learning five or six basic skills “speeds up learning from session to session and facilitates mastery” (Kelley et al., p. 79).

Kelley, Orgel, and Baer (1985) drew another principle from the work of Goldstein and Sorcher (1974) who emphasized the need to define behavioral definitions that were observable/ doable behaviors. Behavioral definitions inform trainers of the group’s progress, which provides valuable information whether to continue or discontinue the training. Behavioral definitions also define what trainees are to do both during and after the training sessions (Kelley et al., 1985).

A third principle uncovered by Kelly et al. (1985) relates to the amount of practice needed for mastery. Goldstein and Sorcher (1974, p. 58) stated, “when more than one skill is being taught, *negative* transfer (response interference rather than facilitation) is likely to occur if training on the second skill is begun while the first is only partially learned.” Providing strategy and skill practice similar to the desired behavior is essential. Likewise, it remains critical to provide time for mastery of one skill before introducing a second skill dependent upon knowledge, understanding, and application of the first skill. “[T]raining is more likely to be mastered if trainees can use basic skills to solve new problems” (Kelley et al., 1985, p. 80).

Similarly, time spent on teaching both appropriate and inappropriate examples of the skill, concept, or strategy is critical. A ten-year study conducted by the United States Department of Education found of approximately 20 teaching methods, “Becker and Englemann’s direct-instrumentation model, which explicitly teaches the positive and negative instances of a concept or general principle, clearly outperformed all the other instructional models evaluated” in this study (Kelley et al., 1985, p. 81).

Research in education and the business world (Broad & Newman, 1992; Joyce & Showers, 1980, 1983, 1988, 1995) clearly yokes leadership/management and trainees as

significant partners in transfer of training. Without this partnership, trainees revert to their old ways, failing to permanently transfer what they learned during training. Hence, an important population to include in training is administrators.

A 2001 study conducted by Saylor and Kehrhahn, *The Influence of the Implementation of a Transfer Management Intervention on Transfer of Training*, found that "motivation to transfer, perceptions of transfer climate, and the implementation of a transfer design have a direct influence on transfer of training" (p. 9). Teacher efficacy also positively influenced transfer of training. The many factors of transfer significantly impact those whose teach and those who learn.

In conclusion, transfer of *learning*, transfer of *teaching*, and transfer of *training* each play a significant role in nurturing learners; therefore, enabling them to become intelligent and productive citizens in the global society. It is through transfer that change occurs and "[c]hange is essential to improving the quality of learning opportunities for students" (Inos & Quigley, 1995, p. 1).

Teacher Change

Definition

Webster (1983) defined change as "a variation or alteration in form, state, quality or essence; a passing from one state or form to another" (p. 302). Jackson (1992) noted change refers to any number of things, including knowledge, attitudes, beliefs, understanding, and self-awareness. Inos and Quigley (1995) and Fullan (2001) claim change is highly personal.

When discussing change and education, one must consider the difference between rhetorical change and real change. Rhetorical change refers to lip service paid by educators who talk of change and indicate changes "on paper", but make few, if any, (Curtis & Cheng, 2001;

Fullan, 2001). Federal legislation, state regulations and boards of education, as well as district mandates are prime examples of “on paper” demands for change. Real change, on the other hand, "represents a serious personal and collective experience characterized by ambivalence and uncertainty; and if the change works out it can result in a sense of mastery, accomplishment, and professional growth" (Fullan, 2001, p. 32). Curtis and Cheng (2001) attest, "[t]he implementing processes involved with 'real' change...are more intricate and complex" (p. 142) than "on paper" changes.

Evolution of Educational Change

According to Fullan (1991), the evolution of educational change is quite young. He outlined four distinct phases of educational change; each phase identified with a specific label encompassed by a loose time frame. The adoption phase (1960s), Phase One, generated “large-scale curriculum innovations...the advocacy of inquiry-oriented and student-oriented instruction.... new math...open education, individualized instruction, and so forth” (p. 5). Teachers were consumed with “how many” innovations they could manage in a day’s time—the more innovations, the better. Innovations became the mark of success and progress.

“Around 1970, almost overnight, innovation got a bad name” (p. 6) and it was replaced by “implementation—what was happening (or not happening) in practice” (Fullan, 1991, p. 6). Fullan refers to Phase Two (1970-1977) as “'implementation failure' . . . what people were experiencing [failure] and . . . what researchers were writing about” (p. 6). Innovations were blindly adopted with little or no regard to why they were necessary and “no forethought was being given to follow-through” (Fullan, 2001, p. 6).

Phase Three (1978-1982) was heralded as "implementation success" marked by individual success stories related to research and practice, school improvement, staff development (coaching), and leadership. Though this phase was shadowed with some negativism, it really validated confidence levels "by the fact that the evidence was coming from a variety of research and practice traditions that were compatible but were arrived at seemingly independently" (Fullan, 1991, p. 6).

Phase Four (1983-1990) was marked by intensification vs. restructuring. The National Commission on Excellence riveted the nation in its education document *A Nation at Risk* (1983). The report was an attention getter and both galvanized and reinforced a number of major developments. The Carnegie Forum's (1986) *A Nation Prepared: Teacher for the 21st Century*, and the National Governors' Association's (1986) *A Time for Results* were two among several high-powered, nationwide mandates for the action that followed. (Fullan, 1991, p. 6)

Fullan referred to one wave of reform as "intensification". Efforts to intensify "the what and how of teaching" (Fullan, 1991, p. 7) included "[i]ncreased definition of curriculum, specification of teaching and administrative methods backed by evaluation, and monitoring" (p. 7). The "restructuring" wave involved school-based management, enhanced teacher roles related to instruction and decision-making; "integration of multiple innovations" (p. 7); revolutionary reorganization of teacher education; the creation of new teacher roles to include mentors, coaches, and other leadership positions; and revising and developing shared missions and goals of the school and community.

"[L]arge-scale reform has returned" requiring "intensive action sustained over several years to make it possible both physically and attitudinally for teachers to work naturally together

in joint planning; observation of each other's practice; and seeking, testing, and revising teaching strategies on a continuous basis" (Fullan, 2001, p. 7). This reform calls for changes in classroom cultures, schools, districts, universities, "and so on." (p. 9).

Need for Change

Change is inevitable. Change is necessary, especially in education. Students are dropping out at alarming rates and "high proportions of students are alienated" . . . and "[m]any teachers are frustrated, bored, and burned out" (Fullan, 2001, p. 23). Sarason (1971) questioned, "[i]f teaching becomes neither terribly interesting nor exciting to many teachers, can one expect them to make learning exciting to students?" (p.166-167). The lack of interest and excitement among teachers perpetuates apathy in students and apathetic students are not likely to be high achievers.

Low-performing student scores have caused the United States people to look closely at its educational system.

On January 8, 2002, President Bush signed into law the *No Child Left Behind Act of 2001* (NCLB). This new law represents his education reform plan and contains the most sweeping changes to the Elementary and Secondary Education Act (ESEA) since it was enacted in 1965 (*No Child Left Behind*, p. 1).

"Sweeping changes" in the ESEA are indicative of the changes to come in America's schools and the most recent legislative mandates serve as a catalyst for teacher change in an effort to produce capable, proficient students. This inevitability of change necessitates teachers' needs "to increase their capacity for dealing with change because if they don't they are going to continue to be victimized by the relentless intrusion of external change forces" (Fullan, 2001, p. 23).

The Change Process

Johnson (1998), in the fable *Who moved my cheese?*, describes people's varying reactions to change. Some welcome it while others tolerate it. But many people dread it. Johnson delivers a rather simple message about a very complex process.

Hohn (1998) discusses four types of change. First, "[c]hange by exception is where [individuals] allow exceptions to...beliefs but do not change [their] beliefs" (p. 2). For example, an individual may make an exception to an existing belief system having met someone he deems "an exception" to his belief system. Second, an incremental change is one that happens gradually, over time. Such a gradual change will "ultimately alter ...belief systems" (p. 2). Third, pendulum change results "when an extreme point of view is exchanged for its opposite" (p. 2). Finally, paradigm change "involves a changing of assumptions, beliefs, and values about how the world works" (Imel, 2000, p. 1). Inos and Quigley insist "[t]he most powerful impact on the transformation of student learning occurs when teachers change their practices and beliefs" (1995, p. 1), or make paradigm changes.

Resistance to Change

Change is "often met with strident resistance" (Buchanan & Khamis, 1999, p. 1). Richardson (1998) states "[t]he literature suggests that teachers resist doing whatever is being proposed because they want to cling to their old ways. Change makes people feel uncomfortable" (p. 1). Richardson adds that teachers are resistant to change because it is often mandated by another person, making people feel "threatened, defensive, and perhaps rushed" (p. 2). Additionally, "[c]ertain aspects of professional development have exacerbated resistance to change" (Buchanan & Khamis, 1999, p. 1). In-service sessions that "remediate" teachers, failing to recognizing their expertise, meet with resistance. Furthermore, change meets with resistance

when compounded by "political, economic, and other constraints" (Buchanan & Khamis, 1999, p. 2).

Teacher Change

According to literature, teacher change is a "process not a single event" (Friel & Gann, 1993; Fullan, 1991; Guskey, 1986; Hall & Hord, 1987; Shotsberger & Crawford, 1999, p. 1) and it is a personal experience (Inos & Quigley, 1995). Significant "change consists of changes in beliefs, teaching style, and materials" which are highly personalized and come about through personal development (Fullan, 2001, p. 124). Affected teachers need opportunities to work through experiences in such a way that rewards at least match costs. Often times innovative teachers encounter "jealousy and animosity for their efforts and become discouraged in their attempts to make things better" (Inos & Quigley, 1995, p. 2). They often pay a high price "when their colleagues are not ready and hold back" (p. 2). Change is a complex process involving learning (Macduff, 1993) which is dependent upon "what teachers think and do" (Inos & Quigley, 1995, p. 1).

According to Richards (2000), positive change is propagated by "collaboration with colleagues, students, trainers, presenters, and other collaborators [who offer] support, ideas, and. . . encouragement" (p. 3). It can only occur when educators (individually and collectively) pursue "opportunities to reflect, learn, share the vision, and act in concert to implement lasting dynamic change" (Inos & Quigley, 1995, p. 1) and it is necessary to improve the quality of learning for students. Without purpose, teachers will not commit to change (Hargreaves & Fullan, 1998). It is further noted that "learning transfer is the key to individual change" (Bellanca, 1995, p. 19). Transfer, in conjunction with changing practices, can result in higher student achievement, which is ultimately the goal of education.

Basic Assumptions about Change

Researchers Hord, Rutherford, Huling-Austin, and Hall (1987) studied how schools go about improving successfully. They concluded six basic assumptions about change that are the basis of the Concerns-Based Adoption Model (CBAM). First, "*change is a process, not an event*" (Hord, et. al., 1987, p. 5). This process takes place over several years and "is as essential prerequisite of successful implementation of change" (p. 6). Second, "*change is accomplished by individuals*" (p. 6). The focus of implementation should be on the individual since "their role in the process is of utmost importance" (p. 6). Third, "*change is a highly personal experience*" (p. 6). Each person experiencing change responds to it differently. Some people assimilate new information more rapidly than others while some engage the process more readily. "Change will be most successful when its support is geared to the diagnosed needs of the individual users. If change is highly personal, then clearly different responses and interventions will be required for different individuals" (p. 6). Fourth, "*change involves developmental growth*" (p. 6.). Studies show involved individuals seem "to express or demonstrate growth in terms of their feelings and skills" (p. 6). Fifth, "*change is best understood in operational terms*" (p. 6). Teachers are obviously concerned about how change will impact their classroom practices and their students' "values, beliefs, and behavior" (p. 6). Sixth, "*the focus of facilitation should be on individuals, innovations, and the context*" (p. 6). "The real meaning of any change lies in its human, not its material, component" (p. 6–7). Change is found in individuals, not in curriculum, programs, books, or materials.

Dimensions of Change

Change closest to instruction and learning occurs at the teacher level (Fullan, 2001). Therefore, it is critical to understand the dimensions which impact change at the teacher level.

There are at least three ... dimensions at stake in implementing any new program or policy: (1) the possible use of new or revised *materials* (instructional resources such as curriculum materials or technologies), (2) the possible use of new *teaching approaches* (i.e., new teaching strategies or activities, and (3) the possible alterations of *beliefs* (e.g., pedagogical assumptions and theories underlying particular new policies or programs) (Fullan, 2001, p. 39).

Collectively the dimensions represent the means of accomplishing either a specific educational goal or a set of goals and change must occur across all three dimensions if it is going to affect outcomes. Clearly, a teacher "may implement none, one, two, or all three dimensions" (Fullan, 2001, p. 39). A teacher might use new curriculum materials without adjusting his personal teaching approach. Materials may be used, teaching techniques altered without understanding the conceptions or beliefs underlying the change.

Fullan espouses that changes not based on the three dimensions of change "are probably not significant changes at all" (2001, p. 40), suggesting that using new materials or a new textbook without altering teaching strategies is an insignificant change at best. He claims "real change involves changes in conceptions and role behavior, which is why it is do difficult to achieve" (p. 40).

Summary

Selected literature related to staff development and training was reviewed. The foundation for this chapter was a thoughtful examination of information linked to staff development; transfer of learning, teaching, and training; and the role of change. An historical account of staff development, including the evolutions of transfer and change contributed to the strength of this literature review. The readers was furnished with a clear and concise

comprehension of the definitions and terms associated with staff development, transfer, and change.

CHAPTER III

METHODOLOGY

Educators value staff development's role in student achievement (Amenta-Shinn, 2000; Iwanicki, 2001; Killion, 2000) and the importance of transfer of teacher training (Ellis, 1965; Fogarty, 1989; Haskell, 2001; Hunter, 1988; Joyce & Showers, 1983; Perkins & Salomon, 1988; Sternberg, 1984); however, a review of literature failed to reveal a significant connection between teachers' transfer of training and student achievement. Lack of literature support suggests the obligation for research in this area. According to Bellanca (1995), most staff development included workshops, conferences, action research projects, and graduate classes or programs, with a predominance of short-term workshops (Corcoran, 1995). This study supports the need for a long-term, supportive staff development model. The purposes of this inquiry were to determine (a) the effect of the staff development model designed for the Nacogdoches Independent School District/Stephen F. Austin State University (NISD/SFASU) Reading Academy Project (RAP) on student reading performance; (b) if teachers actually transferred new knowledge from training into classroom practice; and (c) if changes occurred in teachers' beliefs about reading, reading instruction, and how children learn to read. This chapter reflects the methodology of this investigation.

Research Participants

An *ex post facto* study is one in which "the researcher looks to conditions that have already occurred (*ex post facto* is Latin for *after the fact*) and then collects data to investigate the relationship of these varying conditions to subsequent behavior" (McMillian & Schumacher, 1997, p. 303). This is an *ex post facto* investigation, which looks at student achievement and teacher change over a four-year period.

The study is based on a collaborative effort between Nacogdoches Independent School District (NISD) and early childhood and reading professors/instructors at Stephen F. Austin State University (SFASU) for the Texas Reading Academy Project (RAP), described in Appendix A. Originally, the \$500,000 grant was awarded for one year with a two-year follow-up, but the State of Texas extended the grant (\$250,000) for a second year. The external evaluator for the grant project collected all teacher data for the two years when teachers and grant staff were actively involved in staff development. This inquiry's researcher carried out follow-up collections and processed all student data. Archival data, gathered by the external evaluator for the RAP and the researcher of this study, comes from teachers ($N = 17$) who participated in the RAP, and two student groups: one experimental ($N = 419$) and one control ($N = 419$). All references made to "the researcher" refer to the author of this inquiry.

Study Populations

Teacher Group. The teacher group ($N = 17$) was selected from the 41 candidates who applied to the RAP. This application survey was later used in data analysis. RAP participants cooperated in each of the follow-up collections for the four-year study. Teachers were selected from three local Texas school districts: Lufkin Independent School District (LISD), Nacogdoches Independent School District (NISD), and Woden Independent School District (WISD). These school districts were selected based on membership with Stephen F. Austin State University's (SFASU) Center for Professional Development for Teachers. Forty teachers and one administrator applied for and were accepted into the RAP during the first year (1998-99). After the first Academy meeting, two teachers dropped out, stating the workload was too demanding. The remaining 39 participants completed Year I of the Academy. At the end of Year I, four teachers moved away from the area, five dropped out due to personal issues, and the one central

office administrator dropped out due to reassignment as a campus principal. Twenty-nine teachers began and completed Year II of the Academy (1999-2000). By Year III, three additional participants moved out of the district, leaving 26 participants (2000-01). During its fourth and final year (2001-02), 19 teachers remained: two moved, two left the public school to join the faculty at the local university, two retired, and one left the district mid-year. All participants remaining in the Academy were Nacogdoches ISD employees. Table 1 shows the distribution for the four-year teacher participation, based on position.

Table 1

Grade Level and Job Title Distribution for Four-Year Participation in Reading Academy

Position	1998-99 <i>n</i>	1999-2000 <i>n</i>	2000-01 <i>n</i>	2001-02 <i>n</i>
Administrator	1	0	0	0
Pre-kindergarten	3	1	1	0
Kindergarten	10	6	5	4
First Grade	11	10	10	7
Second Grade	6	6	6	4
Third Grade	6	3	2	1
Fourth Grade	1	1	1	2
Special Education	1	1	0	0
Reading Recovery	0	1	0	0
Literacy Leaders	0	0	1	1
TOTAL	39	29	26	19

Of the 19 teachers who completed the Academy, two did not complete data for all collection points. The 17 teachers who participated in all five collection points comprise the population for this study. Specifically, the teacher group represented kindergarten ($n = 4$), first ($n = 6$), second ($n = 4$), third ($n = 1$), and fourth ($n = 2$) grades. (It is noted that during the course of the four years, some teachers changed grade levels.) Demographic information for this teacher group included the number of college level reading courses the teacher took (both undergraduate

and graduate), years taught in a primary or elementary school, age of the teacher at the time of the application, the teacher's certification(s), and degree(s) held. Table 2 displays the teachers' additional demographic information.

Table 2

Demographics of the Experimental Group of Reading Academy Teachers

Reading Courses		Years taught	Teacher age	Certification		Degree(s) held	
U	G			ECH	ELE		
2	1	21	42	x	x	BS/ELE	MEd/ECH
7	0	2	23	x		BSIS/ECH	MEd/ECH
0	0	18	47		x	BS/SpEd	
1	2	17	55	x		BS/ELE	MS/ECH
6	4	14	36		x	BS/ELE	MEd/ELE
0	0	21	56	x		BS/Art	MEd/ECH
2	4	15	37	x	x	BS/TYC	MEd/ELE
7	5	1	44		x	BSIS/SpEd	
0	0	19	41	x		BS/HEc	MEd/ECH
6	1	7	55		x	BSIS/RDG	MEd/ELE
7	0	8	43		x	BS/ELE	
5	1	1	24	x		BS/ECH	MEd/ECH
2	2	21	51		x	BS/ELE	MEd/ELE
3	4	7	49		x	BS/ELE	MEd/ELE
5	4	14	35		x	BS/ELE	MEd/ELE
7	1	5	36		x	BS/Rdg	
1	5	22	45		x	BS/ELE	MEd/Rdg

Note. U = undergraduate level; G = graduate level; BS = Bachelors of Science; BSIS = Bachelors of Science in Interdisciplinary Studies; ELE = Elementary Education; ECH = Early Childhood Education; SpEd = Special Education; TYC = Teachers of Young Children; HEc = Home Economics; RDG = Reading; MEd = Masters of Education; MS = Masters of Science.

Student Groups. The experimental student population included 419 children who were instructed by a RAP teacher for at least one year during the four-year period of study (1998-2002). Of the 433 students in the experimental group who were enrolled in a RAP teacher's class during this study period, 14 students did not take the TAAS test. Since TAAS test scores determined student achievement in this study, students with no TAAS scores were eliminated

from the investigation. The control student population included 419 students who were not instructed by a RAP teacher during the study period and were matched according to the demographic data of the experimental group.

Research Design

This study was an analysis of archival data collected from a four-year cohort longitudinal investigation, meaning, “the same population [was] studied over time” (McMillan & Schumacher, 1997, p. 282). The external evaluator of the Texas Reading Academy Project (RAP) collected all teacher data for the two years of the grant's operation. The two years following the grant, the researcher of this project gathered data that included survey and interview information. This researcher amassed all student data.

The subjects were a group of teachers from the RAP and their students, as well as a control group of students whose teachers did not participate in the project. For this research project, a survey was utilized. Leedy and Ormrod (2001) define survey research as a “face-to-face interview, a telephone interview, or a written questionnaire” (p. 196). Surveys are often used “to learn about people’s attitudes, beliefs, values, demographics, behavior, opinions, habits, desires, ideas, and other types of information” (McMillan & Schumacher, 1997, p. 296). This study employed face-to-face, telephone, and written questionnaires to learn about teachers’ beliefs and classroom practices. The design of the project did not provide for randomization of teachers; therefore, generalizations to all early childhood teachers should be made cautiously.

Gall, Borg, and Gall (1996) “define questionnaires as documents that ask the same questions of all individuals in the sample” (p. 289). The self-administered closed-response questionnaire was selected for this study to provide a consistent pre- and post-data experience for all respondents (Fowler, 1993). An open-ended question was used to evaluate teacher beliefs

over the four-year study. Teachers could complete the survey instrument during their leisure, “answer the items in any order, take more than one sitting to complete it, make marginal comments, skip questions, or give unique responses” (Fowler, 1993, p. 289), and return the completed form to the researcher by the designated May deadline.

Data were collected via a survey consisting of close-ended and open-ended questions. According to Fink and Kosecoff (1998), three reasons exist for conducting a survey: to set policy or plan a program, collect information, or evaluate the effectiveness of a program. The purposes of this survey were twofold: to collect information and to evaluate the effectiveness of the Reading Academy staff development project. Close-ended questions provided the researcher with information for quantitative analysis in five areas: reading texts, materials, and resources; the context of the reading program; instructional approaches to teaching reading; evaluation methods of the reading program; and organization of the reading program. Qualitative analysis of the open-ended question, responded to in writing or through a verbal interview, provided the researcher with information about teachers’ beliefs about reading. The following research questions helped the researcher assess the staff development model designed by the Nacogdoches Independent School District/Stephen F. Austin State University Reading Academy Project:

1. To what extent, if any, did having a Reading Academy teacher affect students’ TAAS test reading scores?
2. To what extent, if any, did teachers transfer newly learned information about reading instruction into their classroom practices?
3. To what extent, if any, did teachers report changing their beliefs about reading instruction or the way children learn to read?

Instrumentation

Two instruments were used to collect teacher data: a self-administered closed-questions questionnaire and self-administered written or verbal responses to the open-ended (interview) question. The first instrument was a closed-questions questionnaire. The Texas Reading Academy Application Survey Fall 1998 (see Appendix B) was duplicated and served as the end-of-the-year survey, Texas Reading Academy Evaluation Survey (see Appendix C) for the years 1999-2002. The second instrument, the self-administered written responses or interviewee-administered verbal responses to the open-ended question, was the Texas Reading Academy Survey Evaluation Question (see Appendix D).

Questionnaire. The project manager for the Academy produced the five section pre- and post-survey instrument used to collect data from the teacher cohort. In the closed-ended questionnaire, a series of statements related specifically to each of the five sections:

- materials used in the classroom,
- the context of the reading program,
- instructional approaches used to teach reading,
- organization of the reading program, and
- evaluation methods of the reading program.

A Likert scale was used to rate the single items located under each of the above sections on the following scale: 0 *Not Present*, 1 *Somewhat Effective*, 2 *Very Effective*. Section I of the questionnaire consisted of five items related to the effectiveness of materials used in reading instruction: basal readers, trade books, the use of technology in the reading program, the library's role in the total reading program, and the library's variety of print and non-print materials designed to encourage reading. Section II of the questionnaire was comprised of four items. The

first item asked if reading situations in the classroom encouraged self-selection of reading by the students. The other three items were designed to determine the effectiveness of the school environment supporting silent reading. Section III contained five items related to reading instruction. Section IV was composed of three items associated with evaluation methods of the reading program and Section V had three items that dealt with reading program organization (flexible grouping of students, the use of supplemental enrichment materials in lesson planning, and professional development as an essential component of the campus reading program).

The statements in the questionnaire were developed based on the *Eight Features of Classrooms and Campuses that Support Effective Beginning Reading Instruction*, as defined on pages 11-14 in Appendix I of the Texas Reading Academies Request for Application, dated Monday, July 20, 1998. The eight essential features are: “careful use of instructional time” (p. 11), “effective instructional practices (p. 11), “sound instructional materials” (p. 11), “reading opportunities” (p. 12), “a variety of assessment tools” (p. 13), “a positive campus climate” (p. 13), “professional development” (p. 14), and “sound administrative practices (p. 14). For the purpose of this study, the last three features were not included.

Interview Question. Each teacher was asked to respond to The Texas Reading Academy Evaluation Question. The purpose of the interview question was to provide the external evaluator of the RAP with information about how the Academy changed the teacher’s belief about reading. The interview question used for this study was “How has the Texas Reading Academy changed your beliefs about reading?” The standardized, open-ended question was included to enable the researcher to present each participant with the same question and allow each participant an opportunity to express her ideas and opinions without the limitations of closed-response prompts.

Demographic Data

Demographic information for the teacher population was collected in the fall of 1998 through the participant application process. Information included the age of the teacher, the number of years taught, whether the teacher was early childhood or elementary certified, the degree(s) held, and the number of undergraduate and graduate reading courses the teacher completed. Because all teachers in this study were White females, ethnicity and gender were not a factor (refer to Table 2).

Validity

Content validity is one type of survey validity. It “is the extent to which a measurement instrument is a representative sample of the content area (domain) being measured” (Leedy & Ormrod, 2001, p. 98). Fink and Kosecoff (1998) referenced literature related to the subject of the questionnaire and experts’ assurances that items on the survey were representative samples of items needed for the survey to establish content validity. For this survey, questions were cross-referenced with the *Eight Features of Classrooms and Campuses that Support Effective Beginning Reading Instruction*, as found in the Request for Application Texas Reading Academies, July 20, 1998, and then reviewed and approved by two reading experts who teach at the university level. Additionally, each respondent was asked the exact same set of questions/prompts (Fowler, 1993) in both the survey and the interview questions. Consequently, the survey was deemed valid.

Reliability

“[R]eliability refers to the consistency of measurement, the extent to which the results are similar over different forms of the same instrument or occasion of data collection” (McMillan & Schumacher, 1997, p. 178). Upon completion of the survey, four other professors involved in the

Academy reviewed the questions. The survey was divided into five sections. Section I included questions 1-5, Section II questions 6-9, Section III questions 10-14, Section IV questions 15-17, and Section V questions 18-20. Cronbach alpha failed to establish internal consistency for all questions in each of the five sections. A test-retest reliability analysis indicated no significant correlations between the first administration (1998) and the second administration (1999) of the teacher survey instrument. These procedures confirmed the need to analyze the survey question-by-question.

Data Collection

Data includes teacher information and student records over a four-year period. A variety of collection methods was utilized for teacher data. Student data were collected through individual student permanent school records and the Texas Academic Excellence Information System Improving TAAS (AEIS-IT).

Teacher Data. Teacher data for this study were collected over four years. Two instruments were used, a closed-ended questionnaire (survey) and an open-ended question (interview question) questionnaire. During the first year (1998-99), teachers completed an application form survey (August, 1998) and end-of-the-year questionnaire (May, 1999) that included both the survey and interview question. Subsequently, teachers completed the same end-of-the-year questionnaire. At the time teachers completed the closed-ended questionnaire, they also completed the open-ended questionnaire. Data for each following year were collected in May (2000, 2001, and 2002).

At the end of the first year (1999), the external evaluator of the Reading Academy Project met with small groups of teachers to discuss the survey and the interview question (to ensure each participant understood the prompts). Immediately following the face-to-face meeting,

teachers were asked to mark their survey and write responses to the interview question. At the end of the second year (2000), teachers were supplied the survey and interview question at the last Academy meeting of the year and provided ample time to complete both questionnaires. In 2001, the external evaluator of the project assisted the researcher of this study in conducting telephone interviews. Each teacher provided verbal permission to be audiotaped for the purpose of data collection/analysis and audiotapes were transcribed by a graduate assistant. Data for the fourth and final year of the project (2002) were collected through a mailed questionnaire (inter-office mail, federal mail, and email). Mailed surveys typically have a lower response rate than face-to-face administration of questionnaires (Dillman, 2000), but due to the small number of participants, follow-up telephone reminders and email messages enabled the researcher to collect responses from all 19 participating Academy teachers. Of the 19 teachers who participated in the four-year Reading Academy Project, 17 teachers completed all surveys and interviews for the application year (1998) and each subsequent year 1999-2002. This resulted in a response rate of 100% for this study.

Student Data. Student data were acquired through NISD individual permanent record student folders and AEIS-IT. Several steps were employed to ensure accurate data collection.

Step one: Gain permission to access data. The researcher gained written permission from NISD's superintendent to access individual student's permanent records and archival data (TAAS test reading scores and demographic information). Then, the researcher met with the assistant superintendent of curriculum to explain the project. He contacted the principals and Public Education Information Management System (PEIMS) clerks on each campus, outlining the researcher's role in collecting data. The TAAS coordinator was also contacted as the researcher needed to gain access to AEIS-IT data.

Step two: Search to identify the experimental group. The researcher physically searched 1,829 individual student's permanent records of children currently (2002-03) enrolled in, or who had recently withdrawn from the district. Records were searched on six sites: four elementary schools (grades 1 through 4), one middle school (grades 5 and 6) and one junior high school (grades 7 and 8). Students in the fourth grade (2002-03) took the third grade TAAS test in 2002. Fifth grade students took the third grade TAAS test in 2001. Sixth grade students took the third grade TAAS test in 2000 and seventh grade students took the third grade TAAS test in 1999. The purpose of this search was to determine inclusion in the experimental group. Recorded data gathered during this process included the following:

- 1) child's name,
- 2) gender,
- 3) ethnic background,
- 4) reading/language arts report card grade for the 1997-98 school year (if applicable and available), and
- 5) the name of each teacher the child had for school years 1998-2002.

Step three: Identify the experimental group. The researcher took recorded data from step two and created a listing of experimental groups for each of the four years data were collected (1999-2002). Four hundred and thirty-three students were identified as members in the experimental group; however, 14 students did not take the TAAS test. Since TAAS test scores were vital in determining student achievement, these 14 students were dropped from the study, leaving a total sample group of 419. Student experimental groups for each of the four years is described below.

Students enrolled in the seventh grade in 2002-03 were third graders the first year of the Academy, 1998-99. These students took the TAAS test in April 1999 and had only one Academy

teacher (their third grade year). Thirty-two students were identified as having an Academy teacher; however, two students did not take the TAAS, so the sample population for this group was 30.

Sixth grade students in 2002-03 were third graders in 1999-2000, the second year of the Academy. It was possible these students had an Academy teacher for their second grade year (1998-99) and/or their third grade year (1999-2000). While in the third grade, these students took the TAAS test in April. Of the 101 students identified as having an Academy teacher, 95 qualified for this study.

Students in the fifth grade during the 2002-03 school year were in the third grade in 2000-01, the third year of the Academy. They, too, took the TAAS test in April during their third grade year in school. This group of students feasibly had three Academy teachers, one in each grade: first (1998-99), second (1999-2000), and/or third (2000-01). A total of 159 were identified as having an Academy teacher; however, two students did not take the TAAS test, so they were dropped from the study. This left a total of 157 students for the experimental group.

Students in the fourth grade in 2002-03 were in the third grade in 2001-02, the fourth and final year of the Academy. Students took the third grade TAAS test in April 2002. This population of students possibly could have had an Academy teacher in kindergarten (1998-99), first grade (1999-2000), second grade (2000-01), and/or third grade (2001-02). The total number of students identified as having an Academy teacher was 141; however, four students did not take the TAAS, so the sample population for this group was 137.

Before identifying matches to the experimental group, the examiner accessed additional demographic information for each student using AEIS-IT. Recorded demographics include economic status, TAAS test reading score for the third grade year, and membership or non-

membership into one or more of the following special populations: special education, at-risk, gifted and talented, Limited English Proficiency, English as a Second Language, and/or bilingual education.

Step three. Identify the control population. The researcher returned to each campus and obtained a class roster for each teacher in grade levels four through seven. Then the examiner pulled permanent records of those students not identified as a member of the experimental group, and recorded the child's report card grade for the 1997-98 school year (the year before the RAP). Next, AEIS-IT software helped identify matched pairs to the experimental population on the following demographic information: gender, ethnicity, and economic status. Reading/language arts report card grades for 1997-98 were also matched. Additionally, students were coupled based on non-membership or membership in one or more of the following categories: special education, at-risk, gifted and talented, Limited English Proficiency, English as a Second Language, and/or bilingual education.

The experimental groups represent 28% of NISD's student population; therefore, generalizations to the entire population of third grade TAAS testers in the State of Texas should be made cautiously.

Data Analyses

A four-year cohort longitudinal survey design was used. Data were collected from a questionnaire and an interview question. Quantitative analyses were used to analyze the questionnaire and qualitative procedures were utilized to analyze the interview question. The primary purpose of this study was to examine the effects of long-term staff development on student achievement.

Teacher Data. Surveys were sorted by the five data collection dates: application in Fall 1998 and end-of-the-year surveys for the years 1999, 2000, 2001, and 2002 for each of the participating teachers. Teachers were assigned a numeric code. Survey data responses for each teacher were entered into a Statistical Analysis System (SAS) database by a graduate assistant. The graduate assistant used the following order: application, end-of-the-year survey for 1999, 2000, 2001, and 2002. Data for each survey were read to the graduate assistant. A reader also served as a proofreader to the data entry person. After four weeks, the graduate assistant checked printouts of the database and the researcher of this study then checked all data entries to verify accuracy. Next, a statistician ran descriptive analysis. All statistics were generated using the SAS statistical software package.

Qualitative Solutions and Research PTY Ltd. (QSR) supports management of qualitative data analysis projects. The researcher of this study chose to use the QSR NUD*IST (non-numerical unstructured data [for] index search [and] theorizing) software to analyze the interview responses. Interview replies were transcribed from either the written page or audiotapes by a graduate assistant, entered into a word processor and saved as a text-only file. The researcher of this study examined each transcript as she imported the text files into the NUD*IST project manager. Then the researcher coded each statement by defined text units. Text units for this study consisted of one statement or sentence. Coded statements were analyzed and collapsed into categories. Tables reflect the frequency of selected text units.

Student Data. The researcher of this investigation assigned each child in the study a number identifying the participant as a member of the experimental (01) or control (02) group, the year in which the student was TAAS tested (99, 00, 01, 02), and a subject number (1-30, Year I; 1-95, Year II; 1-157, Year III; 1-137, Year IV). Report card grades for reading/language

arts were assigned a numeric value based on the following scale: A or E = 95, A- or E- = 90, B+ or S+ = 89, B or S = 85, B- or S- = 80, C+ or N+ = 79, C or N = 75, C- or N- = 70, D or U = 65. Furthermore, the investigator listed students in matched pairs based on the following factors which received a code: gender (0 = female, 1 = male), ethnicity (1 = Native American, 2 = Asia/Pacific Islander, 3 = Black, 4 = Hispanic, 5 = White), economic status (0 = not economically disadvantaged, 1 = reduced lunch program, 2 = free lunch program), and whether they were a member (1) or non-member (0) of the following special population(s): special education, at-risk, gifted and talented, Limited English Proficiency, and/or bilingual. Also noted was the number of years the child had a teacher who was a Reading Academy participant (0, 1, 2, 3). Students in the control group received a '0' in the "teacher column." Additionally, TAAS test scores were recorded. A graduate assistant input all codes into SAS software. Once the raw data report was run, both the graduate assistant and researcher of this project proofed the printout. Errors were corrected and consulting statisticians ran the statistical analyses.

This study consisted of three research questions. Descriptive statistics, “the most fundamental way to summarize data” (McMillan & Schumacher, 1997, p. 203-4), were represented using a chart essay. The chart essay method is an organized, self-contained short segment that provides highlighted information via a visual means, rather than having the reader filter through technical writing (Haensly, Lupkowski, & McNamara, 1987). The notes section directs the reader to noteworthy information. “Each aspect...is shown on a separate one-page chart” (Gall, Borg, & Gall, 1996, p. 76) to assist the reader in understanding the results. Data analysis procedures for each research question are discussed in the following section.

Research Question One

The first question was to determine if students' TAAS reading scores improved if they had a teacher who participated in Nacogdoches Independent School District/Stephen F. Austin State University (NISD/SFASU)'s Texas Reading Academy Project (RAP). Data needed to answer this question came from student data, specifically, Texas Assessment of Academic Skills (TAAS) test reading scores. General descriptive statistics provided demographic information for the experimental and control groups.

Dependent sample (matched pairs *t*-test) was conducted to compare the matched groups of students' TAAS test reading scores: experimental group (those who had one, two, or three Academy teachers) to the control group (those who did not have an Academy teacher).

Comparisons were made for each of the four years of the RAP, and one cumulative comparison over the four years was made as well. According to McMillan and Schumacher (1997), the dependent samples *t*-test is used in calculating the probability of rejecting the null hypothesis.

To determine if any significant differences existed between the students' TAAS test reading performance based on whether they had an Academy teacher for one, two, or three years, data from this study were analyzed using a one-way analysis of variance (ANOVA) with the number of years with a Reading Academy teacher as the single factor. Tukey's HSD, a relatively conservative test which requires a greater difference between the means (E. D. McCune, personal communication, December 13, 2002), was run to examine significant differences, if any, between the mean scores (McMillan & Schumacher, 1997). Cohen's *d* was calculated to determine the effect size for each of the four years of study, plus the overall effect. According to Cohen (1987), "supplying a common conventional frame of reference...is recommended for use only when no better basis for estimating the ES [effect size] index is available" (p. 25). He

suggested $d = 0.2$ is a small effect size, $d = 0.5$ is a medium effect size, and $d = 0.8$ is a large effect size.

Research Question Two

The second question was to determine if teachers actually transferred new knowledge from training into classroom practice. Data came from the 20 queries on the closed-ended application (1998) and survey (1999, 2000, 2001, and 2002). These questions asked each teacher to report on her classroom practices: materials used, context of the reading program, instructional approaches used to teach reading, and organization and evaluation methods used in the reading program. A one-way repeated measures ANOVA was conducted for each of the 20 questions with year as the single factor and repeated measures taken on the teachers over the five data collection points. Tukey's post hoc analysis was used to analyze significant differences, if any. Eta squared was calculated and reported for each survey prompt. According to Cohen (1987), $r = .10$ is a small effect size, $r = .30$ is a medium effect size, and $r = .50$ is a large effect size.

Research Question Three

The third question was to determine if changes occurred in teachers' beliefs about reading, reading instruction, or how children learn to read. The data used to answer this question came directly from the interview question, which is located on the open-ended responses survey. Teachers responded to the following prompt: How has the Reading Academy changed your beliefs about reading?

Teacher beliefs about reading, how children learn to read, and reading instruction were described using the qualitative data software package, QSR NUD*IST. Automatic data coding generated a system that was used to prepare a matrix. Analysis included reports listing text units

based on coded entries, and tables showing frequencies of text units. Sample teacher responses also were provided.

Summary

This researcher examined student performance on Texas Academic Assessment Skills (TAAS) test reading scores in a rural East Texas school district for the purpose of determining if long-term staff development transferred new knowledge learned from training into classroom practice, and if teachers changed their beliefs about reading, reading instruction, or how children learn to read. Teacher data were collected via a questionnaire with both closed-ended and open-ended prompts. School records were accessed to gain information about the children. This chapter detailed the methodology applied in this inquiry to answer the three research questions.

Chapter IV

RESULTS

The primary purpose of this study was to examine the effects of long-term staff development on student achievement in reading. This inquiry also investigated the relationship between newly learned reading teaching techniques and practice. It explored teacher beliefs about reading, reading instruction, and how children learn to read. Quantitative data analyses of the student experimental and control samples provided additional information regarding student achievement in reading as determined by the Texas Assessment of Academic Skills (TAAS) scores. Teacher responses to closed-ended statements of the application and survey provide details about newly learned teaching strategies transferred into classroom practice. Qualitative data analysis of teacher responses to an interview question allowed patterns, categories, and themes to emerge. This chapter presents the findings based on three research questions.

Research Questions

1. To what extent, if any, did having a Reading Academy Teacher affect students' TAAS reading scores?
2. To what extent, if any, did teachers transfer newly learned information about reading instruction into their classroom practices?
3. To what extent, if any, did teachers report changing their beliefs about reading instruction or the way children learn to read?

Seventeen teachers and 838 students provide data for this study. Teachers participated in the Texas Reading Academy Project (RAP), designed by professors at Stephen F. Austin State University (SFASU), in Nacogdoches, Texas for four years. This project was the result of a \$750,000 Reading Academy grant awarded to SFASU early childhood and reading professors by

the State of Texas. The first two years, teachers actively participated in staff development while learning about and implementing current, research-supported reading instruction strategies. The last two years of the Academy included full implementation of strategies and techniques learned in the Academy. Two student groups were identified: experimental ($N= 419$) and control ($N= 419$). The experimental population was distinguished as having an Academy teacher for a period of one, two, or three years. Control group pupils did not receive reading instruction from an Academy teacher.

The first section of this chapter includes demographic data collected about the teachers and students. Section 2 provides analysis of quantitative and qualitative data.

Demographics

Teacher Data. The demographic teacher data describes the teacher population of participants, who taught in a small, rural East Texas town. Demographic information was collected from each teacher via the application for membership into the Texas Reading Academy Project (RAP), designed and implemented by early childhood and reading professors at Stephen F. Austin State University.

Initially, 41 teachers applied to the RAP. After the first staff development meeting, two teachers dropped, stating the workload was too demanding. Thirty-nine teachers completed Year I (1998-99) of the Academy. Before Year II (1999-2000), four teachers left the district, five dropped out of the project due to personal issues, and the one administrator dropped out because she became a principal. Twenty-nine teachers began and completed Year II of the Academy. Three teachers moved out of the district at the end of the year, leaving 26 participants for the 2000-01 (Year III) Academy. Nineteen teachers remained the last year of the Academy (2001-02) because two teachers moved, two teachers left the public school to join the faculty at the

local university, two teachers retired, and one teacher left the district mid-year. Table 1 (see page 54) shows the distribution for the four-year teacher participation, based on position.

Seventeen of the 19 teachers from the final year of the Academy completed all data collection pieces for the four-year study. These 17 teachers comprise information and data for this study. Each teacher responded to an application completed in August 1998, an end-of-the-year survey that included closed-ended responses, and an open-ended interview question.

Teacher participants also responded to questions about age, years of teaching experience in a primary or elementary setting, the number of undergraduate and graduate reading courses, whether their undergraduate degree was in early childhood or elementary education, and the degree(s) held. Since the remaining 17 teachers were White females, gender and ethnicity were not included. Table 3 displays the distribution on personal characteristics. More (29%) participants were between 40 and 45 years of age than other age groups. The number of years teaching in a primary or elementary setting was split between zero and five years (24%) and 21-25 years (24%). Thirty-five percent of the teachers had between one and three reading courses at the undergraduate level, while 47% had five or more. Graduate reading classes were evenly represented with 35% of the teachers having one or two reading courses, or 4 or 5 course. Forty-seven percent of the teachers had an undergraduate degree in elementary education, but in graduate school, teachers evenly represent a degree in early childhood (46%) and elementary education (46%).

Table 3

Teacher Demographics for those Completing All Data Entries

Demographic Variable	<i>n</i>	%
Age in years		
20-25	2	11.76
26-30	0	0.00
31-35	1	5.89
36-40	3	17.64
40-45	5	29.41
46-50	2	11.76
51-55	3	17.64
56-60	1	5.89
Years in teaching		
0-5	4	23.54
6-10	3	17.64
11-15	3	17.64
16-20	3	17.64
21-25	4	23.54
Number of undergraduate reading courses		
0	3	17.63
1-3	6	35.29
5-7	8	47.05
Number of graduate reading courses		
0	5	29.41
1-2	6	35.29
4-5	6	35.29
Undergraduate Degree		
Art	1	5.89
Early Childhood	3	17.63
Elementary	8	47.07
Home Economics	1	5.89
Reading	2	11.76
Special Education	2	11.76
Graduate Degree		
Masters in Early Childhood	6	46.15
Masters in Elementary Education	6	46.15
Masters in Reading	1	7.70

Note. Total may not equal 100% due to rounding.

Student Data. Demographic student data provide the reader with the following information for each year of the study and for each group (experimental and control): gender and

ethnicity, and membership or non-membership in the following special populations: at-risk, special education (Sp. Ed.), gifted and talented (GT), Limited English Proficiency (LEP), English as a Second Language (ESL), and/or bilingual education.

The total number in each experimental group follows: Year I—30 students, Year II—95 students, Year III—157 students, and Year IV—137 students. Table 4 indicates the distribution for each of the four years of the Reading Academy Project.

Table 4

Student Demographics for the Experimental Group for the Four-Year Study

Demographic Variable	Year I		Year II		Year III		Year IV		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Gender									
Female	11	37	46	49	93	59	66	48	
Male	19	63	49	52	64	41	71	52	
Ethnicity									
Asian	0	0	0	0	1	1	0	0	
Native American	0	0	0	0	3	2	0	0	
Black	12	40	35	37	59	38	57	42	
Hispanic	3	10	14	15	28	18	27	20	
White	15	50	46	48	66	42	53	37	
Membership in Special Population									
At-risk	7	24	41	43	37	24	59	43	
Sp. Ed.	2	7	5	5	7	5	4	3	
GT	0	0	12	13	9	6	10	7	
LEP	0	0	10	11	16	10	11	8	
ESL	0	0	0	0	0	0	0	0	
Bilingual	0	0	6	6	10	6	7	5	

Note. Totals may not equal 100% due to rounding.

The total number in each control group follows: Year I—30 students, Year II—95 students, Year III—157 students, and Year IV—137 students. Table 5 indicates distribution for the four-year data collection.

Table 5

Student Demographics for the Control Group for the Four-Year Study

Demographic Variable	Year I		Year II		Year III		Year IV	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender								
Female	11	37	46	49	93	59	66	48
Male	19	63	49	52	64	41	71	52
Ethnicity								
Asian	0	0	1	1	1	1	0	0
Native American	0	0	0	0	0	0	1	1
Black	12	40	34	36	56	36	54	39
Hispanic	3	10	16	17	28	18	24	18
White	15	50	46	46	71	45	58	42
Membership in Special Population								
At-risk	8	27	40	42	45	28	59	43
Sp. Ed.	2	7	5	5	7	5	4	3
GT	0	0	7	7	7	5	10	7
LEP	0	0	9	9	19	12	11	8
ESL	0	0	0	0	0	0	0	0
Bilingual	0	0	7	7	13	8	7	5

Note. Totals may not equal 100% due to rounding.

Data Analyses

This researcher examined student achievement in reading scores as determined by the reading section of the Texas Assessment of Academic Skills (TAAS). The population is from a small, rural East Texas town. The impact of a two-year intensive staff development project with two years of follow up is also considered. Three questions guided the investigation. The following section is organized around these questions. Each section restates the research question and explains the analysis of data relevant to the stated question.

Analysis of Research Question One

To what extent, if any, did having a Reading Academy Teacher affect students' TAAS reading scores?

The first research question investigated TAAS test reading scores for the experimental and control groups of students. TAAS test reading scores summary statistics for the students who had a Reading Academy teacher (experimental group) and those who did not (control group) are displayed in Table 6.

Table 6

Summary Statistics for TAAS Reading Scores

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max	Cohen's <i>d</i>
Year I						-0.1533
Experimental	30	78.73	17.99	33	94	
Control	30	81.13	13.32	38	94	
Year II						-0.1180
Experimental	95	80.68	13.60	40	94	
Control	95	80.84	13.50	38	94	
Year III						0.3048
Experimental	157	83.03	12.37	37	95	
Control	157	78.62	16.57	20	94	
Year IV						0.4695
Experimental	137	82.14	12.20	44	94	
Control	137	74.87	18.77	23	94	
Overall						0.2571
Experimental	419	81.90	13.09	33	95	
Control	419	78.08	16.62	20	94	

Note. Means were calculated by averaging all test scores for each group for each year. All test scores are based on 100%. Formula for calculating Cohen's *d* is M experimental group minus M control group/ pooled *SD*.

For Year I (1999), the dependent samples *t*-test indicated no statistically significant differences ($t = -0.94$, $p = .3575$) in TAAS test reading scores between the experimental group and the control group. An effect size of -0.15 means the score of the average person in the experimental group fell below the scores of 44% of the control group. For Year II (2000), the dependent samples *t*-test indicated no statistically significant differences ($t = -0.11$, $p = .9130$) in TAAS test reading scores between the experimental group and the control group. An effect size of -0.12 means the score of the average person in the experimental group fell below the scores of

50% of the control group. For Year III (2001), the dependent samples *t*-test indicated the experimental group scored significantly higher than the control on the TAAS reading assessment ($t = 4.47, p < .0001$). An effect size of .30 means the score of the average person in the experimental group exceeded the scores of 62% of the control group. According to Cohen (1987), this is a small effect size. For Year IV (2002), the dependent samples *t*-test indicated the experimental group scored significantly higher than the control on the TAAS reading assessment ($t = 7.02, p < .0001$). An effect size of .47 means the score of the average person in the experimental group exceeded the scores of 68% of the control group. An effect size of .47 is approximately a medium effect size. Cumulatively for Years I-IV, the dependent samples *t*-test indicated the performance of the experimental group is significantly higher than that of the control group ($t = 5.94, p < .0001$). An effect size of .26 means the score of the average person in the experimental group exceeded the scores of 60% of the control group.

Table 7 provides the TAAS reading scores summary statistics for the students who had a Reading Academy teacher for one, two, or three years.

Table 7

Summary Statistics for TAAS Reading Scores for Students having an Academy Teacher

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	Min	Max
One Year	221	80.71	13.74	33	94
Two Years	143	82.47	12.82	42	94
Three Years	55	85.20	10.28	58	95

Note. Means were calculated by averaging all test scores for each group for each year. All test scores are based on 100%.

Results of the one-way ANOVA comparing differences in TAAS reading performance of students, based on whether they had one, two, or three years with a Reading Academy teacher,

indicated no statistically significant differences between the three groups; however, an upward trend is noted. Minimum TAAS scores are higher for students who had a Reading Academy teacher for two or three years. Students having an Academy teacher for three years had a minimum score of 58.

Analysis of Research Question Two

To what extent, if any, did teachers transfer newly learned information about reading instruction into their classroom practices?

The second research question analyzed specific issues related to reading instruction and strategies used by teacher participants. The survey included 20 closed-ended response items that were divided into five sections: 1) reading text/materials/resources, 2) context of the reading program, 3) instruction approaches used to teach reading, 4) evaluation methods of the reading program, and 5) organization of the reading program. A Likert scale was used and each item was rated on the following scale: 0 *Not Present*, 1 *Somewhat Effective*, 2 *Very Effective*. Participants reported the frequency in which each item was present in her classroom or school. Cronbach Alpha failed to establish internal consistency on each question in the five sections of the survey. Test-retest correlation coefficients did not reach an adequate level to indicate survey analysis by sections, so a one-way analysis of variance (ANOVA) was conducted for each of the 20 questions with year was the single factor. Repeated measurements were taken on the teachers' responses. Table 8 provides results of the Cronbach Alpha and test-retest analyses for the first administration (1998) and second administration (1999) of the teacher survey.

Table 8

Summary of Data Analyses for Cronbach Alpha and Test-Retest Reliability between First and Second Survey Administration

Section	Questions	Cronbach	<i>r</i>	<i>p</i> value
I	1-5	.5917	.214	0.482
II	6-9	.6423	.125	0.643
III	10-14	.6873	.472	0.065
IV	15-17	.5804	.082	0.754
V	18-20	.4206	.387	0.154

Note. n = 17.

Table 9 provides summary data analysis for test-retest reliability between the first (1998) and third (2000) administrations of the survey.

Table 9

Summary of Data Analyses for Test-Retest Reliability between First and Third Survey Administration

Section	Questions	<i>r</i>	<i>p</i> value
I	1-5	.366	0.180
II	6-9	-.106	0.684
III	10-14	.536	0.033
IV	15-17	.430	0.086
V	18-20	.086	0.788

Note. n = 17.

Table 10 provides summary data analysis for test-retest reliability between the first (1998) and fourth (2001) administrations of the survey.

Table 10

Summary of Data Analyses for Test-Retest Reliability between First and Fourth Survey

Administration

Section	Questions	<i>r</i>	<i>p</i> value
I	1-5	.120	0.658
II	6-9	-.099	0.706
III	10-14	-.007	0.979
IV	15-17	.364	0.150
V	18-20	.000	1.000

Note. n = 17.

Table 11 provides summary data analysis for test-retest reliability between the first (1998) and fifth (2002) administrations of the survey.

Table 11

Summary of Data Analyses for Test-Retest Reliability between First and Fifth Survey

Administration

Section	Questions	<i>r</i>	<i>p</i> value
I	1-5	-.097	.721
II	6-9	-.301	.240
III	10-14	.020	.944
IV	15-17	.341	.180
V	18-20	.394	.147

Note. n = 17.

Repeated measures across five data collection points (1998, 1999, 2000, 2001, and 2002) were calculated and eta-squared was computed for each question of the teacher survey. Table 12 shows the *F* value, *p* value, and eta-squared value results for each question 1-20.

Table 12

Summary of Data of Effect Sizes for Survey Questions 1-20

Question	<i>F</i> value	<i>p</i> value	eta-squared
1	5.39	0.0009	0.1260
2	3.77	0.0083	0.1449
3	1.89	0.1235	0.0696
4	1.38	0.2516	0.0652
5	2.47	0.0538	0.0964
6	4.97	0.0015	0.1741
7	0.67	0.6169	0.0330
8	1.12	0.3157	0.0556
9	0.74	0.5658	0.0297
10	1.76	0.1479	0.0699
11	1.00	0.4142	0.0417
12	3.92	0.0066	0.1264
13	0.63	0.6407	0.0258
14	1.67	0.1673	0.0590
15	2.70	0.0381	0.1024
16	2.67	0.0401	0.0923
17	1.95	0.1128	0.0704
18	2.43	0.0567	0.0849
19	1.76	0.1484	0.0699
20	0.17	0.9520	0.0074

Note. $n = 17$.

For question 1 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 5.39, p = .0009$). Tukey's post hoc analysis ($\alpha = .05$) revealed differences between 1999 and 2001, between 1999 and 2002, between 2000 and 2001, and between 2000 and 2002. The calculated eta-squared indicated the number of years of training accounted for 13% of the variance in teacher responses. No other statistically significant differences between years were indicated. Table 13 displays results of this analysis.

Table 13

Summary of Data Analysis for Question 1

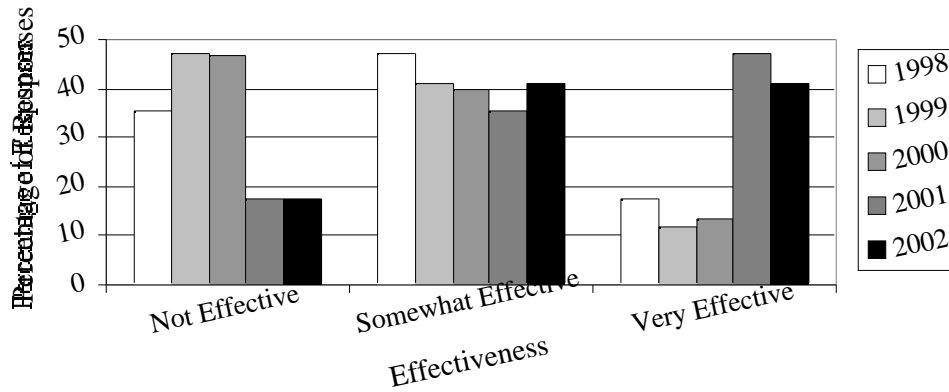
Year	<i>n</i>	Survey <i>M</i>
2001	17	1.294 _a
2002	17	1.235 _a
1998	17	0.824 _a
2000	15	0.667 _b
1999	17	0.647 _b

Note. Survey mean scores in the same column that do not share subscripts differ at $p < .05$ in Tukey post hoc analysis.

The following chart essay (Figure 1) provides closer examination of teacher implementation of the basal reading over the four-year period. Information includes 1) the percentage of responses, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 1. Distribution of responses for survey question #1.

Basal reader usage



Notes:

1. There were no missing data for 1998.
2. 6 teachers (35.29%) did not find basal readers effective.
3. 8 teachers (47.06%) found basal readers somewhat effective.
4. 3 teachers (17.65%) found basal readers very effective.

5. There were no missing data for 1999.
6. 8 teachers (47.06%) did not find basal readers effective.
7. 7 teachers (41.18%) found basal readers somewhat effective
8. 2 teachers (11.76%) found basal readers very effective.

9. 2 responses were missing data for 2000.
10. 7 teachers (46.67%) did not find basal readers effective.
11. 6 teachers (40.00%) found basal readers somewhat effective.
12. 2 teachers (13.33%) found basal readers very effective.

13. There were no missing data for 2001.
14. 3 teachers (17.65%) did not find basal readers effective.
15. 6 teachers (35.29%) found basal readers somewhat effective.
16. 8 teachers (47.06%) found basal readers very effective.

17. There were no missing data for 2002.
18. 3 teachers (17.65%) did not find basal readers effective.
19. 7 teachers (41.18%) found basal readers somewhat effective.
20. 7 teachers (41.18%) found basal readers very effective.

For question 2 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 3.77, p = .0083$). Tukey's post hoc analysis (=

.05) revealed differences between 1998 and 2000 and between 1998 and 2001. The calculated eta-squared indicated the number of years of training accounted for 14% of the variance in teacher responses. No other statistically significant differences between years were indicated.

Table 14 displays results of the analysis.

Table 14

Summary of Data Analysis for Question 2

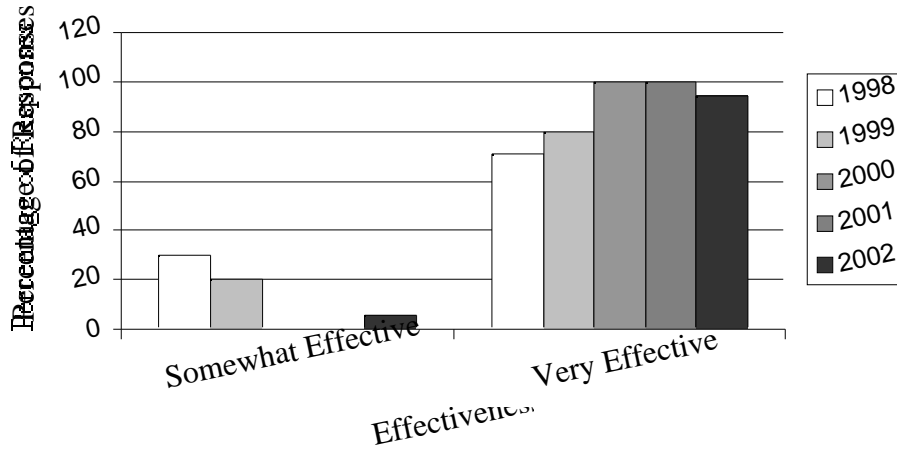
Year	<i>n</i>	Survey <i>M</i>
2000	17	2.000 _a
2001	17	2.000 _a
2002	17	1.941 _{ab}
1999	15	1.800 _{ab}
1998	17	1.706 _b

Note. Survey mean scores in the same column that do not share subscripts differ at $p < .05$ in Tukey post hoc analysis.

The following chart essay (Figure 2) provides closer examination of teacher implementation of trade books over the four-year period. Information includes 1) the percentage of responses, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 2. Distribution of responses for survey question #2.

Trade book usage



Notes:

1. There were no missing data for 1998.
2. 0 teachers (0%) did not find trade books effective.
3. 5 teachers (29.41%) found trade books somewhat effective.
4. 12 teachers (70.59%) found trade books very effective.

5. There were no missing data for 1999.
6. 0 teachers (0%) did not find trade books effective.
7. 3 teachers (20.00%) found trade books somewhat effective.
8. 12 teachers (80.00%) found trade books very effective.

9. There were no missing data for 2000.
10. 0 teachers (0%) did not find trade books effective.
11. 0 teachers (0%) found trade books somewhat effective.
12. 17 teachers (100%) found trade books very effective.

13. There were no missing data for 2001.
14. 0 teachers (0%) did not find trade books effective.
15. 0 teachers (0%) found trade books somewhat effective.
16. 17 teachers (100%) found trade books very effective.

17. There were no missing data for 2002.
18. 0 teachers (0%) did not find trade books effective.
19. 1 teacher (5.88%) found trade books somewhat effective.
20. 16 teachers (94.12%) found trade books very effective.

For question 3 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.89, p = .1235$). The calculated eta-squared indicated the number of years of training accounted for 7% of the variance in teacher responses.

For question 4 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.38, p = .2516$). The calculated eta-squared indicated the number of years of training accounted for 7% of the variance in teacher responses.

For question 5 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 2.47, p = .0538$). The calculated eta-squared indicated the number of years of training accounted for 10% of the variance in teacher responses.

For question 6 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 4.97, p = .0015$). Tukey's post hoc analysis ($\alpha = .05$) revealed differences between 1998 and 2000, 1998 and 2001, and 1998 and 2002. The calculated eta-squared indicated the number of years of training accounted for 17% of the variance in teacher responses. No other statistically significant differences between years were indicated. Table 15 shows the results of this procedure.

Table 15

Summary of Data Analysis of Question 6

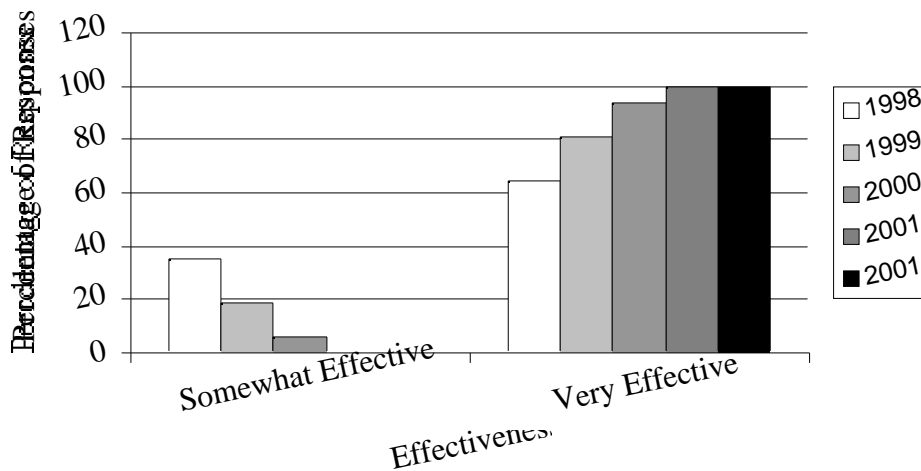
Year	<i>n</i>	Survey <i>M</i>
2001	17	2.000 _a
2002	17	2.000 _a
2000	17	1.941 _a
1999	16	1.813 _{ab}
1998	17	1.647 _b

Note. Survey mean scores in the same column that do not share subscripts differ at $p < .05$ in Tukey post hoc analysis.

The following chart essay (Figure 3) provides closer examination of teachers' encouragement of self-selection of reading. Information includes 1) the percentage of responses, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 3. Distribution of responses for survey question #6.

Self-selection of reading is encouraged



Notes:

1. There were no missing data for 1998.
2. 0 teachers (0%) did not find self-selection of reading to be effective.
3. 6 teachers (35.29%) found self-selection of reading somewhat effective.
4. 11 teachers (63.71%) found self-selection of reading very effective.

5. 1 response (5.88%) was missing data for 1999.
6. 0 teachers (0%) did not find self-selection of reading to be effective.
7. 3 teachers (18.75%) found self-selection of reading somewhat effective
8. 13 teachers (81.25%) found self-selection of reading very effective.

9. There were no missing data for 2000.
10. 0 teachers (0%) did not find self-selection of reading to be effective.
11. 1 teacher (5.88%) found self-selection of reading somewhat effective.
12. 16 teachers (94.12%) found self-selection of reading very effective.

13. There were no missing data for 2001.
14. 0 teachers (0%) did not find self-selection of reading to be effective.
15. 0 teachers (0%) found self-selection of reading somewhat effective.
16. 17 teachers (100%) found self-selection of reading very effective.

17. There were no missing data for 2002.
18. 0 teachers (0%) did not find self-selection of reading to be effective.
19. 0 teachers (0%) found self-selection of reading to be somewhat effective.
20. 17 teachers (100%) found self-selection of reading very effective.

For question 7 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 0.67, p = .6169$). The calculated eta-squared indicated the number of years of training accounted for 3% of the variance in teacher responses.

For question 8 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.21, p = .3157$). The calculated eta-squared indicated the number of years of training accounted for 6% of the variance in teacher responses.

For question 9 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 0.74, p = .5658$). The calculated eta-squared indicated the number of years of training accounted for 3% of the variance in teacher responses.

For question 10 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.76, p = .1479$). The calculated eta-squared indicated the number of years of training accounted for 7% of the variance in teacher responses.

For question 11 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.00, p = .4142$). The calculated eta-squared indicated the number of years of training accounted for 4% of the variance in teacher responses.

For question 12 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 3.92, p = .0066$). Tukey's post hoc analysis ($\alpha = .05$) revealed differences between 1998 and 2000 and between 1998 and 2001. The calculated eta-squared indicated the number of years of training accounted for 13% of the variance in teacher responses. No other statistically significant differences between years were indicated. Table 16 displays results of this analysis.

Table 16

Summary of Data Analysis Question 12

Year	<i>n</i>	Survey <i>M</i>
2001	17	1.882 _a
2000	17	1.823 _a
1999	17	1.705 _{ab}
2002	17	1.647 _{ab}
1998	17	1.411 _b

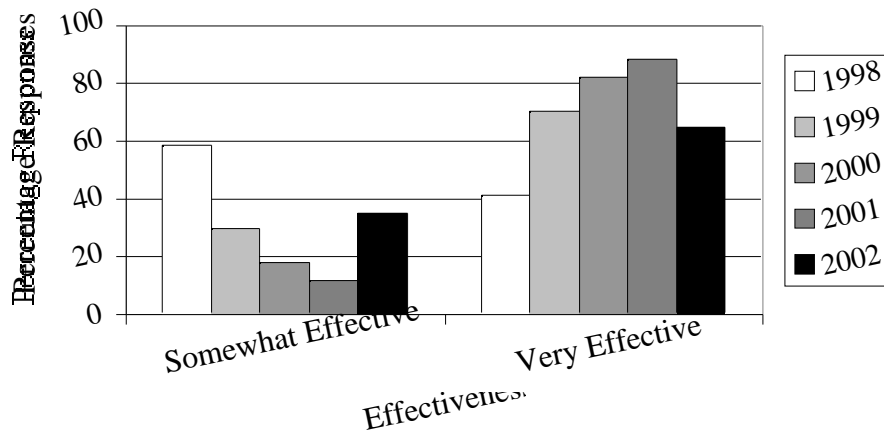
Note. Survey mean scores in the same column that do not share subscripts differ at $p < .05$ in Tukey post hoc analysis.

The following chart essay (Figure 4) provides closer examination of instruction as an assessment of students' needs as related to stages of reading development. Information includes

1) the percentage of responses, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 4. Distribution of responses for survey question #12.

Assessment as an instructional tool, based on reading development stages



Notes:

1. There were no missing data for 1998.
2. 0 teachers (0%) did not find assessment as an instructional tool to be effective.
3. 10 teachers (58.82%) found assessment as an instructional tool to be somewhat effective.
4. 7 teachers (41.18%) found assessment as an instructional tool to be very effective.
5. There were no missing data for 1999.
6. 0 teachers (0%) did not assessment as an instructional tool to be effective.
7. 5 teachers (29.41%) found assessment as an instructional tool to be somewhat effective.
8. 12 teachers (70.59%) found assessment as an instructional tool to be very effective.
9. There were no missing data for 2000.
10. 0 teachers (0%) did not find assessment as an instructional tool to be effective.
11. 3 teachers (17.65%) found assessment as an instructional tool to be somewhat effective.
12. 14 teachers (82.35%) found assessment as an instructional tool to be very effective.
13. There were no missing data for 2001.
14. 0 teachers (0%) did not find assessment as an instructional tool to be effective.
15. 2 teachers (11.76%) found assessment as an instructional tool to be somewhat effective.
16. 15 teachers (88.24%) found assessment as an instructional tool to be very effective.
17. There were no missing data for 2002.
18. 0 teachers (0%) did not find assessment as an instructional tool to be effective.
19. 6 teachers (35.29%) found assessment as an instructional tool to be somewhat effective.
20. 11 teachers (64.71%) found assessment as an instructional tool to be very effective.

For question 13 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 0.63, p = .6407$). The calculated eta-squared indicated the number of years of training accounted for 3% of the variance in teacher responses.

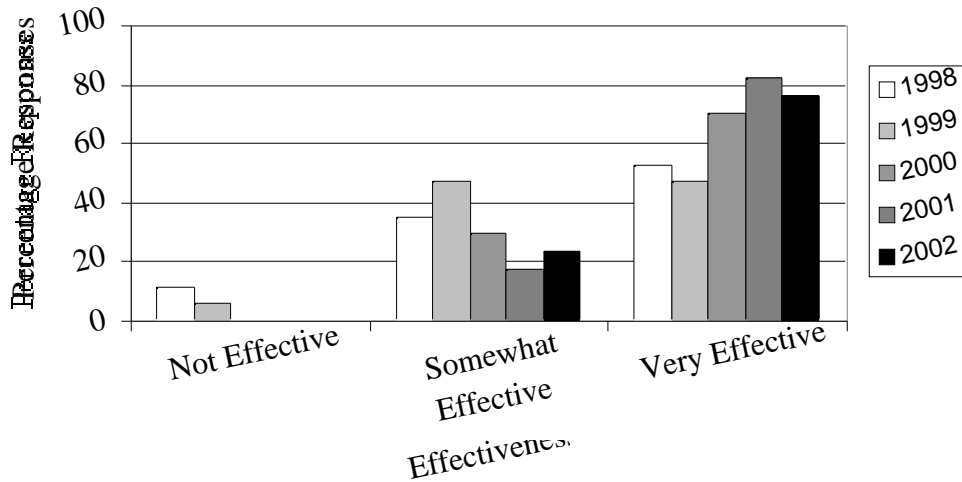
For question 14 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.67, p = .1673$). The calculated eta-squared indicated the number of years of training accounted for 6% of the variance in teacher responses.

For question 15 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 2.70, p = .0381$). The conservative nature of the Tukey's post hoc analysis ($\alpha = .05$) failed to identify differences in the years. The calculated eta-squared indicated the number of years of training accounted for 10% of the variance in teacher responses.

The following chart essay (Figure 5) provides closer examination of instruction as an assessment of students' needs as related to stages of reading development. Information includes 1) the mean score of response, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 5. Distribution of responses for survey question #15.

Continuous feedback as used to determine program effectiveness



Notes:

1. There were no missing data for 1998.
2. 2 teachers (11.76%) found continuous feedback not effective for determining program effectiveness.
3. 6 teachers (35.29%) found continuous feedback somewhat effective for determining program effectiveness.
4. 9 teachers (52.94%) found continuous feedback very effective for determining program effectiveness.
5. There were no missing data for 1999.
6. 1 teacher (5.88%) found continuous feedback not effective for determining program effectiveness.
7. 8 teachers (47.06%) found continuous feedback somewhat effective for determining program effectiveness.
8. 8 teachers (47.06%) found continuous feedback very effective for determining program effectiveness.
9. There were no missing data for 2000.
10. 0 teachers (0%) found continuous feedback not effective for determining program effectiveness.
11. 5 teachers (29.41%) found continuous feedback somewhat effective for determining program effectiveness.
12. 12 teachers (70.59%) found continuous feedback very effective for determining program effectiveness.

13. There were no missing data for 2001.
14. 0 teachers (0%) found continuous feedback not effective for determining program effectiveness.
15. 3 teachers (17.65%) found continuous feedback somewhat effective for determining program effectiveness.
16. 14 teachers (82.35%) found continuous feedback very effective for determining program effectiveness.

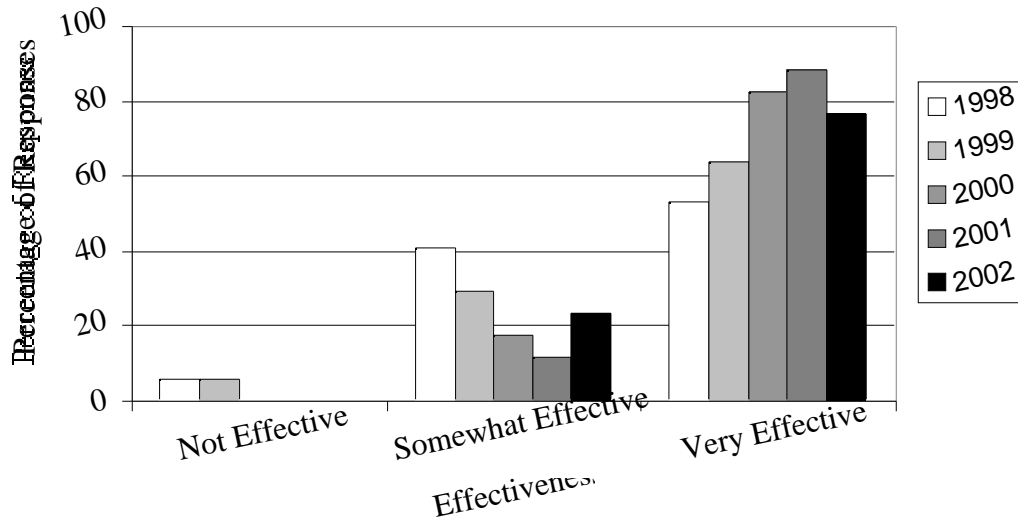
17. There were no missing data for 2002.
18. 0 teachers (0%) found continuous feedback not effective for determining program effectiveness.
19. 4 teachers (23.53%) found continuous feedback somewhat effective for determining program effectiveness.
20. 13 teachers (76.47%) found continuous feedback very effective for determining program effectiveness.

For question 16 of the survey, the one-way repeated measures ANOVA found statistically significant differences among the years ($F = 2.67, p = .0401$). Tukey's post hoc analysis ($\alpha = .05$) failed to identify differences in the years due to the conservative nature of the test. The calculated eta-squared indicated the number of years of training accounted for 9% of the variance in teacher responses.

The following chart essay (Figure 6) provides closer examination of instruction as an assessment of students' needs as related to stages of reading development. Information includes 1) the mean score of response, 2) the year of each mean score, and 3) notes providing a narrative explanation and/or limitations (Brunson, 2002; Haensly, Lupkowski & McNamara, 1987).

Figure 6. Distribution of responses for survey question #16.

Formal and informal data collection used to evaluate program effectiveness



Notes:

1. There were no missing data for 1998.
2. 1 teacher (5.88%) found formal and informal data collection not effective in evaluation methods.
3. 7 teachers (41.82%) found formal and informal data collection to be somewhat effective in evaluation methods.
4. 9 teachers (52.94%) found formal and informal data collection to be very effective in evaluation methods.
5. There were no missing data for 1999.
6. 1 teacher (5.88%) found formal and informal data collection not effective in evaluation methods.
7. 5 teachers (29.41%) found formal and informal data collection to be somewhat effective in evaluation methods.
8. 11 teachers (64.71%) found formal and informal data collection to be very effective in evaluation methods.
9. There were no missing data for 2000.
10. 0 teachers (0%) found formal and informal data collection not effective in evaluation methods.
11. 3 teachers (17.65%) found formal and informal data collection to be somewhat effective in evaluation methods.
12. 14 teachers (82.35%) found formal and informal data collection to be very effective in evaluation methods.

13. There were no missing data for 2001.
14. 0 teachers (0%) found formal and informal data collection not effective in evaluation methods.
15. 2 teachers (11.76%) found formal and informal data collection to be somewhat effective in evaluation methods.
16. 15 teachers (88.24%) found formal and informal data collection to be very effective in evaluation methods.

17. There were no missing data for 2002.
18. 0 teachers (0%) found formal and informal data collection not effective in evaluation methods.
19. 4 teachers (23.53%) found formal and informal data collection to be somewhat effective in evaluation methods.
20. 13 teachers (76.47%) found formal and informal data collection to be very effective in evaluation methods.

For question 17 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.95, p = .1128$). The calculated eta-squared indicated the number of years of training accounted for 7% of the variance in teacher responses.

For question 18 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 2.43, p = .0567$). The calculated eta-squared indicated the number of years of training accounted for 8% of the variance in teacher responses.

For question 19 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 1.76, p = .1484$). The calculated eta-squared indicated the number of years of training accounted for 7% of the variance in teacher responses.

For question 20 of the survey, the one-way repeated measures ANOVA found no statistically significant differences ($F = 0.17, p = .9520$). The calculated eta-squared indicated the number of years of training accounted for less than 1% of the variance in teacher responses.

Analysis of Research Question Three.

To what extent, if any, did teachers report changing their beliefs about reading instruction or the way children learn to read?

Written responses (1999, 2000, and 2002) and a telephone interview (2001) provided data for research question three. All 17-teacher participants responded to the interview question for the end-of-the-year collection periods: 1999, 2000, 2001, and 2002. During the telephone interview, the question was asked initially with follow-up questions based on individual teacher responses. *Text units* measured responses. A text unit is considered the smallest portion of a document that QSRNUD*IST can code and analyze. A text unit can be a single word, phrase, sentence, or paragraph, or an entire document (Qualitative Solutions and Research Pty Ltd., 1997). For the purpose of this study, each sentence was examined and coded as a text unit. Participant responses to the interview question are discussed in the following section.

Interview question. How has the Texas Reading Academy changed your beliefs about reading?

Responses from teachers were coded into sixteen categories that emerged as the researcher coded the text units. These categories were collapsed into six groups: changes in classroom practices, student behaviors, teacher growth, teacher responsibility, validation/strengthen beliefs, and appreciation. Changes in classroom practices encompassed a host of topics: teacher as a facilitator, environmental changes which included additional reading materials for students and daily schedule changes, the teacher's heightened awareness of children's capacity and personal awareness of student expectations, and the teacher being more child-centered. The student behaviors group included student success and students being provided more choices in their learning. Teacher growth embodied the teacher's understanding of student learners, providing more individualized instruction, a multitude of approaches and strategies to teach reading, more teacher resources (to include research) and changes in beliefs and/or the way the teacher taught. Teacher responsibility was broad and general in nature and

contained ideas such as showing students that reading is valuable, getting reading materials in homes, helping children make connections to past experiences, and implementing an effective reading program. Next, the category was comprised of statements of validation and/or strengthening beliefs. Lastly, the appreciation category contained direct statements of gratitude for the Academy and denoted it as an invaluable experience. Table 17 summarizes the four-year cumulative responses to the open-ended question by category.

Table 17

Distribution of Text Units for the Open-Ended Question

Description	<i>n</i> Text Units	% of Total Text Units Retrieved	% Teacher Responses
Classroom Practices	153	27	82
Student Behaviors	44	21	82
Teacher Growth	120	29	100
Teacher Responsibility	55	41	82
Validation/Strengthened Beliefs	40	40	76
Appreciation	30	31	82

Note. *n* participants = 17. Number of text units does not equal number of participants. Some participants provided more than one response in a particular category. Percentage of teacher responses differs from category to category.

"Classroom practices" is reportedly the highest response group, with 153 text units representing 27% of the total text unit responses with 82% of the teachers commenting. Replies were derived from five categories: teachers as interactive partners, teachers becoming more child-centered, assessment as a tool, environmental changes, and the teacher's heightened awareness. With the majority of text units (153) in this study coming from this group, changes in classroom are apparent. Forty-nine percent of the teachers stated they were more child-centered,

with 44% noting environmental changes. Forty-seven percent of the teachers cited assessment as being essential to instruction. Table 18 provides sample teacher responses for classroom practices.

Table 18

Samples of Responses to the Open-Ended Question, Category Classroom Practices

Description	Samples of Teacher Responses
Classroom Practices	<ul style="list-style-type: none"> • I have increased students' opportunities to read, not just learning skills, but practicing at their own level and pace. • I've changed my classroom to an active child-learning environment. • It has encouraged me to give children more time to read on their own and to select their own books. • I am making reading and writing more relevant in my classroom. • I now use a student-driven approach rather than a teacher driven classroom. • Not every student that comes through my classroom will be a speed-reader, but with the right intervention and activities and regular assessments, each student will be successful with his/her own abilities.

Note. Comments are direct quotes from teacher interviews.

Forty-four text units (21% of the total text units) comprise the student behaviors group. Included in this section were student choice and student successes. Twenty-nine percent of the text units support student success while 12% of the text units support student choice; however, 82% of the teachers shared comments in this category. Table 19 provides sample responses in the student behaviors group.

Table 19

Samples of Responses to the Open-Ended Question, Category Student Behaviors

Student Behaviors	<ul style="list-style-type: none"> • They know that they are responsible for their learning and that this is their job. • My students really love reading and being in the reading center. • They know how to partner read and ask questions. • My students now can read. THEY CAN READ! • I have found that the word wall, make-a-word and all of these things that we were talking about work really well on those children that are struggling. • Every year my students seem to become better readers and writers.
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Note. Comments are direct quotes from teacher interviews.

The most compelling observation of responses is in teacher growth, with 120 text units or 29% of the responses. One hundred percent of the teachers said they grew in a positive manner from the staff development experience. Forty seven percent of the teachers reported growth, specifically stating they feel better prepared to help readers and assess student needs. Of those reporting growth, 88% of the comments specifically mentioned change was due to various new approaches, strategies, and/or techniques learned in the Academy. Over half (58%) of the teachers attribute a better understanding of student learners to the Reading Academy. The five teachers, with 7.5% of the text units falling into the "changed beliefs" category, overwhelmingly

reported the Academy "completely changed the way I teach." Table 20 furnishes sample statements from the teachers' data.

Table 20

Samples of Responses to the Open-Ended Question, Category Teacher Growth

Teacher Growth	<ul style="list-style-type: none"> • True changes in beliefs about reading come about when teachers are treated professionally and taught in an unhurried, comfortable environment and gives them time to learn a new method, practice the method, use the method with their students, and come back together to discuss with other teachers. • I thought I knew a lot and then I learned how much I didn't know. • I want to read more books. It has taken me away from traditional basal reader/worksheet approach to a way of teaching that I feel will develop students into life-long learners. • I learned more strategies and it just went along with what I was already thinking and doing and I enjoyed learning the different assessment tools because that helped me appropriately place children in their reading.
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Note. Comments are direct quotes from teacher interviews.

Teacher responsibility is the third highest response rate, with 55 text units representing 41% of the total text and 82% of the teachers commenting. This broad category includes items such as the teacher modeling, incorporating literacy and books into the children's homes, "filling the gaps" for children, and reading professional literature. Table 21 shares excerpts from teacher responses to the question, "How has the Texas Reading Academy changed your beliefs about reading?"

Table 21

Samples of Responses to the Open-Ended Question, Category Teacher Responsibility

Teacher Responsibility	<ul style="list-style-type: none"> • I have realized the importance of getting them (parents) up into the school and letting them see what we do. • Teachers should read with and to children daily. • Teachers must show students that reading is valuable and fun. • The more I read the more the children are interested and eager to learn themselves. • I realize the importance of a variety of reading strategies in teaching and building student confidence in reading. • I am able to order leveled books that I needed to “fill in” my classroom.
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Note. Comments are direct quotes from teacher interviews.

Seventy-six percent of the teachers provided 40 text units, or 40% of the total text units, in the category entitled validation/strengthened beliefs. Seventy-six percent of the teachers reported the Academy supported their beliefs, and 100% of the teachers acknowledged they experienced growth, as noted by their comments (see Table 20). The Academy's validation of teacher beliefs affirmed teachers were providing appropriate education for young children. It should also be noted teachers asserted to have better understanding of why certain activities are appropriate as indicated by this comment,

Well, I always knew phonics was important, and then I kind of moved more toward that literature, you know, that literature based reading instruction, and now I can see where you can have a good blend of both. I now understand that that is an important part of reading.

Table 22 cites specific validation statements.

Table 22

Samples of Responses to the Open-Ended Question, Category Validation/Strengthened Beliefs

Validation/Strengthened Beliefs	<ul style="list-style-type: none">• My belief that I can make a difference in each child's success in reading was validated.• I always knew how important reading was but this reaffirms my belief that reading is the key to learning and success in school and life.• I have always had strong beliefs about teaching students to read, since reading is my specialization. The Reading Academy reinforced those beliefs and helped me with fresh and innovative ideas to use with my students.
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Note. Comments are direct quotes from teacher interviews.

The category with the fewest text units (30) is labeled: appreciation; however, 14 of the 17 teachers (82%) provided responses in this area. While appreciation comments do not directly relate to the education of young children, it should be noted that teachers recognize and value the importance of quality staff development. Table 23 represents selected text found in the "appreciation" group.

Table 23

Samples of Responses to the Open-ended Question, Category Appreciation

Appreciation	<ul style="list-style-type: none"> • I know that administrators will take notice as this training results in increased test scores. • Reading current research-based material, viewing state-of-the-art videos of effective teaching, and being able to practice and then come together to discuss teaching techniques with peers has been invaluable. • Reading, studying, and learning about current, effective practices and then having the time to take this new knowledge to the classroom and “practice” before returning to the Academy to debrief was instrumental in the success of the Academy.
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Note. Comments are direct quotes from teacher interviews.

This study, conducted to determine if a quality, long-term staff development model affected teacher change and student achievement, produced supporting evidence indicative of change and student improvement. One hundred percent of the teachers reported experiencing growth, which directly impacted student performance on the TAAS reading test ($M = 79$, Year I; $M = 81$, Year II; $M = 83$, Year III; $M = 82$, Year IV). These results support the need for quality, long-term staff development.

Summary

Results of this investigation indicate long-term staff development plays a role in increasing student Texas Assessment of Academic Skills test reading scores. Teachers

participating in sustained staff development with support report the value of learning new strategies and techniques, practicing these skills, and receiving support are essential to their growth. Chapter V discusses findings of this research project.

Chapter V

SUMMARY AND DISCUSSION

Educators recognize the importance of staff development and its role in student achievement (Amenta-Shin, 2000; Iwanicki, 2001; Killion, 2000). The assumption is teachers will not only learn new skills, strategies, and techniques in staff development; but will transfer these newly learned skills, strategies, and techniques into the classroom, increasing student achievement. In 1998, the State of Texas granted \$500,000 to a collaborative effort between Nacogdoches Independent School District (NISD) and early childhood and reading professors/instructors at Stephen F. Austin State University (SFASU) for the Texas Reading Academy Project (RAP). Participation in the original grant encompassed one year of staff development (1998-99) with a three-year follow-up (1999-2001); however, the State extended staff development one more year (1999-2000). An additional \$250,000 was awarded staff developers in 1999. The purposes of this study were to determine the effects of the grant-funded staff development model designed on student reading performance, degree of teacher transfer of new knowledge into classroom practice, and degree of change in teachers' beliefs about reading. This investigation was intended to answer the following research questions:

1. To what extent, if any, did having a Reading Academy Teacher effect students' TAAS test reading scores?
2. To what extent, if any, did teachers transfer newly learned information about reading instruction into their classroom practices?
3. To what extent, if any, did teachers report changing their beliefs about reading instruction or the way children learn to read?

To better understand the dynamics of the research results, a brief description of the RAP is described. (For a full description of the RAP, see Appendix A.) This chapter furnishes an overview of the project, summary results, and discussion of the findings. Recommendations for future research are included.

Reading Academy Project

The RAP provided teachers from three local school districts (NISD, Lufkin Independent School District, and Woden Independent School District) with intensive training for improving third grade Texas Assessment of Academic Skills (TAAS) test reading scores. Teachers attended eight eight-hour training sessions and received direct instruction in skills, strategies, and assessment techniques; observed model lessons; practiced under the supervision of grant staff at the NISD/SFASU Charter School, and in their own classrooms. They also engaged in peer coaching and participated in debriefing sessions designed to improve instruction. Grant participants engaged in professional book studies. Teaching materials and children's and professional literature were provided. Teachers extended their knowledge by taking a grant-paid master level reading course where they prepared for and eventually presented at the SFASU Center for Professional Development for Teachers Fall Conference (October 1999).

Summary of the Results

Although early childhood education professionals recognize the importance of quality staff development, staff development continues to be delivered in the form of short-term workshops (Ganser, 2000) or training sessions without follow-up (Smylie, Bay, & Tozer, 1999). Only about 10% of the new information delivered in staff development of these types is transferred to classroom practices (Lewis, 2002). The current study analyzes the effectiveness of long-term staff development on third grade reading achievement as measured by students' Texas

Academic Assessment Skills (TAAS) tests in a rural East Texas community. It further examines the degree to which teachers' implement newly acquired skills and strategies and assesses their beliefs about reading.

Three populations were examined, including a group of teachers and an experimental and a control group of students. The teacher group consisted of 17 Caucasian females ranging in age from 23 to 56 years who taught in pre-kindergarten through third grade for the years 1998-2002. Each teacher (100%) participated in all data collection over the four-year period. Instruments used in teacher data collection included the

- 1) Texas Reading Academy Application Survey (Appendix B),
- 2) Texas Reading Academy Evaluation Survey (Appendix C), and the
- 3) Texas Reading Academy Evaluation Interview (Appendix D).

The application survey was administered in August 1998 before beginning the staff development project and evaluation surveys were administered in May of 1999, 2000, 2001, and 2002.

Participants responded to the evaluation interview question at the same time as the survey.

The experimental population included only children who were instructed by a Reading Academy teacher for at least one year during the four-year study (1998-99 through 2001-02). Four hundred and thirty-three students during this time were in an Academy teacher's classroom, although 14 of these students did not take the TAAS test. TAAS test reading scores evaluated student achievement; therefore, these students were dropped from the study. This left 419 students in the experimental group.

A control group of 419 was created using matched pairs. Matched pairs were based on the following demographics: testing year, gender, ethnicity, economic status, and report card grades for reading/language arts for the year prior to the Academy (1997-98). Additionally,

students were matched on non-membership or membership in one or more of the following categories: special education, at-risk, gifted and talented, Limited English Proficiency, English as a Second Language, and/or bilingual education. TAAS test reading scores were used for the years 1999, 2000, 2001, and 2002 for the experimental and control group of students.

Student Demographics

Students who participated in the third grade TAAS reading test in NISD in 1999 numbered 423. A larger percentage of females (49%) took the TAAS test in the district than test takers in this inquiry (37%). More males were in the control and experimental groups (63%) than in the district total (51%). Black children in the control and experimental groups exactly mirrored the test takers in the district (40%). Twenty-five percent of the district wide test takers were Hispanic while only 10% of the study group was Hispanic. White children accounted for 50% of the research project but made up only 34% of the testers in the district. Table 24 indicates the distribution for gender and ethnicity for 1999.

Table 24

Student Demographics for the First Year of the Academy

Demographic Variable	District N = 423		Control N = 30		Experimental N = 30	
Gender						
Female	208	49	11	37	11	37
Male	215	51	19	63	19	63
Ethnicity						
Asian	0	0	0	0	0	0
Native American	6	1	0	0	0	0
Black	169	40	12	40	12	40
Hispanic	105	25	3	10	3	10
White	143	34	15	50	15	50

Note. Totals may not equal 100% due to rounding.

Four hundred sixty-seven NISD third graders took the TAAS reading test in 2000. Two hundred and five were female and 262 male. Percentage wise, the study groups were 49% female and the district population was 43%. Males accounted for 56% of the district's test-takers and 52% of the RAP students. Asian and Native Americans constituted less than one percent of the testers in the district wide and control groups. The Black populations were fairly equally distributed with 33% district wide, 36% in the control group, and 37% in the experimental group. Hispanics accounted for 32% of the district testers, and 17% and 15% for the control and experimental groups, respectively. Percentages of the White population were 34% in the district, 46% for the control group, and 48% for the experimental group. Table 25 indicates the population distributions for gender and ethnicity.

Table 25

Student Demographics for the Second Year of the Academy

Demographic Variable	District <i>N</i> = 467		Control <i>N</i> = 95		Experimental <i>N</i> = 95	
Gender						
Female	205	43	46	49	46	49
Male	262	56	49	52	49	52
Ethnicity						
Asian	0	0	1	<1	0	0
Native American	3	<1	0	0	0	0
Black	156	33	34	36	35	37
Hispanic	149	32	16	17	14	15
White	159	34	44	46	46	48

Note. Totals may not equal 100% due to rounding.

Female and male populations for the 2001 testing groups for the NISD district and RAP populations were more similar than in previous years. Test takers for the district numbered 449 and 157 for the control and experimental groups. Only one Asian student in each of the groups accounted for less than one percent of each population. The district had 53% female test takers and the Academy 59%, a difference of only 6%. Likewise, the male populations only differed by

6%. A larger percentage of Blacks participated in the study (36% control and 38% experimental) than were test-takers in the district (32%). Almost twice as many Hispanics tested for the district (30%) as compared to the control and experimental groups (18% each). Whites accounted for 36% (district), 45% (control), and 42% (experimental). Table 26 provides gender and ethnic demographic information for the third-year testers.

Table 26

Student Demographics for the Third Year of the Academy

Demographic Variable	District <i>N</i> = 449		Control <i>N</i> = 157		Experimental <i>N</i> = 157	
Gender						
Female	238	53	93	59	93	59
Male	211	47	64	41	64	41
Ethnicity						
Asian	1	<1	1	<1	<1	<1
Native American	4	<1	0	0	3	2
Black	145	32	59	36	59	38
Hispanic	136	30	28	18	28	18
White	163	36	71	45	66	42

Note. Totals may not equal 100% due to rounding.

The experimental and control group (*N* = 157) demographics for 2002 more closely align with the NISD's third grade population (*N* = 448) than in previous years. Females for the district and control/experimental groups are 53% and 48%. The male population for the district was 47% and the other groups were 52%. Asians and Native Americans tallied less than 1% for the district and control groups. There were more Blacks in the experimental group (42%) than in the control group (39%) or district group (32%). Percentages for the Hispanic population were more diverse: 33% district wide, 18% in the control group, and 20% in the experimental group; but Whites were more closely aligned: 34% (district), 42% (control), and 37% (experimental). Table 27 indicates gender and ethnic distribution for 2002.

Table 27

Student Demographics for the Fourth Year of the Academy

Demographic Variable	District <i>N</i> = 448		Control <i>N</i> = 137		Experimental <i>N</i> = 137	
Gender						
Female	217	53	66	48	66	48
Male	231	47	71	52	71	52
Ethnicity						
Asian	1	<1	0	0	0	0
Native American	1	<1	1	<1	0	0
Black	145	32	54	39	57	42
Hispanic	150	33	24	18	27	20
White	151	34	58	42	53	37

Note. Totals may not equal 100% due to rounding.

Demographic information enables the reader to understand this study and its implications as determined in the experimental and control groups. A more thorough examination of the results follows.

Research Question One

The first research question was designed to examine differences, if any, in the performance between the experimental and control groups of reading achievement scores. TAAS test scores were gathered using the Academic Excellence Indicator System for TAAS Improvement (AEIS-IT) software program. The following summary discusses results of the statistical findings between the experimental and control groups for years 1999 (Year I), 2000 (Year II), 2001 (Year III), and 2002 (Year IV).

Year I. Thirty students were in each of the experimental and control groups. The mean for the experimental groups' TAAS test reading scores was 78.73 with a minimum score of 33 and a maximum score of 94. The control group mean was 81.13, with a minimum score of 38 and a maximum score of 94. There was no statistically significant difference between the two groups ($t=-0.94$, $p=.3575$) and the experimental group scored lower than the control group. Both

groups had the same high score. There is no apparent reason for the 2.4 point difference between groups. Considering this was the first year of the RAP, the assumption is teachers were learning new strategies, techniques, and approaches but had not implemented them.

Year II. There were 95 students in each of the study groups. Mean TAAS test score for the experimental population was 80.68 and the control group's mean score was 80.84. The minimum score for the experimental group was two points higher than the control group (40 and 38 respectively) and both groups had a maximum score of 94. Again, there was no statistically significant difference between the groups ($t=-0.11$, $p = .9130$), although the experimental group's mean score increased by almost 2 points (1.95) while the control group's mean score dropped .29 points. Minimum scores for the control group were static; however, the minimum scores for the experimental group increased by seven points (to 40). The rise in the mean and minimum scores for the experimental group suggests a slight improvement for students who had teachers from the RAP. There is no obvious explanation for the increase in scores, though one might assume the training had a slight affect on teacher performance, which in turn, affected student scores.

Year III. There were 157 students in each of the two groups. The experimental group mean score increased by 2.35 points (83.03) and the control group mean score declined by 2.22 points (78.62). This represents a statistically significant higher score for the experimental group ($t=4.47$, $p < .0001$). While the maximum score increased for the experimental population (95), their minimum scores decreased, declining by three points (to 37). This loss pales by comparison to the control group maximum score (78.62, down 2.22 points) and their minimum score that declined by 18 points (from 38 to 20). Data suggests RAP teachers became more proficient with implementing newly acquired skills that had a greater effect on student achievement.

Year IV. In the final year of data collection, both groups experienced a decline in their mean scores. The experimental group experienced less than a one point loss (down by .89 points) to 82.14. A more significant loss was with the control group, whose score dropped by 3.75 points, lowering their mean score to 74.87. A gain of seven points resulted in a minimum score of 44 for the experimental group. The three-point gain for the control group raised their minimum score from 20 to 23. Again, there was a statistically significant difference between the two groups' scores ($t=7.02$, $p < .0001$). The reason for a drop in mean scores is unclear; however, this does not preclude one from assuming the RAP did positively affect children's reading TAAS test scores. It is noted the minimum score for the experimental population increased seven points, which suggests the changes in teachers' classroom practices positively affected children on the low end of the testing scale.

From Year I to Year IV, the minimum score for the experimental group increased eleven points while the control groups' minimum scores suffered a 15-point loss. This evidence strongly suggests Academy teachers were better prepared and equipped to help struggling readers while their counterparts were less effective with this population. An increase of 3.41 points in the mean scores indicates the Academy did influence student reading scores. The fact that the maximum test scores remained relatively static might indicate strong readers were less impacted by the new strategies and skills implemented by teachers. This should in no way negate the effectiveness of the RAP.

The first research question, designed to determine if the experimental group of students' TAAS test reading scores were higher than the control group of students, was expanded. This expansion considered the difference, if any, between three subgroups of the experimental

population: students having a RAP teacher for one year, two years, or three years. (No student had a RAP teacher for four years.)

One Year with an Academy Teacher. Two hundred and twenty-one students were in a classroom with a RAP teacher for one year in one of the following grade levels: kindergarten, first, second, or third grade. All students in this group took the third-grade TAAS test. The lowest score was 33 and the highest score was 94. Mean score was 80.71.

Two Years with an Academy Teacher. The sample size of students having had an Academy teacher for two years was 143. Students would have had an Academy teacher in any two of the following grades: kindergarten, first, second, or third. The mean score for this group was 82.47, an increase of 2.6 points over students who had only one Academy teacher. Their minimum score (42) was nine points higher than students having only one Academy teacher and their maximum score was 94. Increases in the mean and minimum scores indicate students who were with an Academy teacher for two years scored better on the reading portion of the TAAS exam than students who had one Academy teacher.

Three Years with an Academy Teacher. Fifty-five students had a Reading Academy Project teacher for three years (kindergarten, first, second, and/or third grade). These students had a mean score of 85.20, a difference of 4.49 points from students having an Academy teacher for only one year. This is an increase of 2.73 points for students having two Academy teachers. The population had a maximum score of 95, which was the highest score made on the third-grade TAAS test reading assessment during the data collection period. More notable is the minimum test score for this population: 58. (Minimum score for the control group was 20.) This is a 25-point difference above students having one Academy teacher and a difference of 16 points for those having two Academy teachers. Though statistics did not discern a significant

difference between the three student groups, there is obviously an upward trend. Students having two Academy teachers scored higher than those having only one Academy teacher. Test takers who were in an Academy teacher's room for three grade levels scored higher on the reading TAAS test than did children having an Academy teacher for two grade levels. This trend indicates that teachers who participated in the RAP transferred new skills, strategies, and techniques into classroom practice which positively affected third-grade TAAS test reading scores.

Research Question Two

The second research question reflected specific issues related to reading instruction and strategies implemented by teachers. Participants responded to 20 prompts regarding reading text/materials/resources, context of the reading program, instruction approaches used to teach reading, evaluation methods of the reading program, and organization of the reading program. Teachers ranked the effectiveness of each item during five data collection points: the application (1998) and end-of-the-year surveys for 1999 through 2002. Six items emerged as being statistically significant in the teachers' transfer of newly acquired knowledge. These six items are use of basal readers, use of trade books, self-selection of reading, assessment as an instructional tool; and continuous feedback, and formal/informal assessment for the purposes of determining program effectiveness. The summary lists the findings that help describe the teachers' implementation of these skills, strategies, and techniques for each of the four years. Items appear prioritized for each year of collection.

Results of the 1998 application survey are listed.

1. The following skills, strategies, and techniques considered *very effective* at the point of application (1998) include:

- use of trade books
 - encouragement of self-selected reading
 - continuous feedback provides for program effectiveness, and formal and informal data collection is used to evaluate program effectiveness
2. Participants rated other skills, strategies, and techniques as *somewhat effective* at the point of application (1998):

- instruction assess students' needs based on reading development stages
- use of basal reader

The end-of-the-year 1999 collection point revealed a different set of results.

1. Items ranked *very important* include:
- encouragement of self-selected reading
 - use of trade books
 - instruction assess students' needs based on reading development stages
 - formal and informal data collection is used to evaluate program effectiveness
2. Teachers found the following strategy to be *somewhat effective*:
- continuous feedback provides for program effectiveness
3. Rated *not effective* was:
- use of basal readers

End-of-the-year results for 2000 showed the following:

1. Results indicate more items were *very effective* than in the previous years.
- use of trade books
 - encouragement of self-selected reading

- instruction assess students' needs based on reading development stages, and formal and informal data collection is used to evaluate program effectiveness
- continuous feedback provides for program effectiveness

2. Teachers rated the use of basal readers *not very effective*.

During 2001, participants rated all items as *very effective*. Items appear in descending order, starting with the highest percentage within the category:

- use of trade books and encouragement of self-selected reading
- instruction assess students' needs based on reading development stages, and formal and informal data collection is used to evaluate program effectiveness
- continuous feedback provides for program effectiveness
- use of basal readers

The last year's survey (2002) exhibited the following results.

1. Items rated *very important* were
 - encouragement of self-selected reading
 - use of trade books
 - continuous feedback provides for program effectiveness, and formal and informal data collection is used to evaluate program effectiveness
 - instruction assess students' needs based on reading development stages
2. Use of basal readers was equally divided between *very effective* and *somewhat effective*.

Research Question Three

The third research question examined teachers' beliefs. Participants responded to the following prompt, "How has the Texas Reading Academy changed your beliefs about reading?" Responses are listed according to the (1) percentage of teachers responding to each category and (2) number of text units per category. The following summarizes teachers' responses.

1. All 17 teachers acknowledged growth, with the majority (88%) of teachers specifically commenting change was due to implementation of new approaches, strategies, and/or techniques learned in the Reading Academy Project. They also declared to have a better understanding of student learners and felt better prepared to help readers and assess student needs.
2. Adopting a more child-centered classroom, adapting environmental changes, and using assessment as a tool accounted for changes in classroom practices. Teachers cited the importance of using assessments to drive instruction.
3. Varieties of comments compose the category of teacher responsibility. Teachers modeling reading and "filling the gaps" for children were among the comments. Teachers also felt an obligation to provide homes with literacy activities and books. Reading professional literature was also mentioned.
4. Teachers reported changes in student behaviors, specifically, a higher level of success. They also stated students were making more choices about reading and reading materials. Results from the TAAS test scores support the teachers' finding regarding student success.

5. The Academy reportedly validated and/or strengthened teachers' beliefs about reading, reading instruction, and how children learn to read. Participants stated the Academy reaffirmed or reinforced beliefs.
6. Fourteen of the seventeen teachers openly expressed thanks and appreciation for the Reading Academy. They recognized the value and importance of quality staff development.

Discussion

Early childhood and reading professors from Stephen F. Austin State University, in a collaborative effort with Nacogdoches Independent School District (NISD), were awarded an initial \$500,000 Reading Academy grant and a \$250,000 extension from the State of Texas to provide long-term staff development for teachers. This Reading Academy Project (RAP) provided data for the study that took place in a small, rural town in East Texas over a period of four years. The effect of long-term staff development on student reading performance was examined. Additionally, the project explored the potential for transfer of new knowledge into classroom practice, and changes, if any, in teachers' beliefs about reading. Essential student data included Texas Assessment of Academic Skills (TAAS) test reading scores for the third grade testing year, demographic information, and included reading/language arts report card grades for the year before the study as well as the four years of the study period (1998-2002).

Data analysis indicates quality long-term staff development had lasting effects on student performance. Statistics shows that intensive staff development over time positively affected student achievement. This finding is consistent with and supportive of studies done by Joyce and Showers (1988; 1995). Students in classrooms with at least one RAP teacher had a higher mean score than students who did not have a RAP teacher, implying RAP teachers transferred new

approaches, skills, and strategies into practice, in turn, that produced significant gains in student achievement. It is the transfer of newly acquired techniques and practices that affects students' performance (Joyce & Showers, 1983; Killion & Harrison, 1991). Teachers (82%) reported the Academy strengthened their beliefs about reading.

The analysis revealed a statistically significant difference between reading scores of children who had a Reading Academy teacher versus those students who did not have a Reading Academy teacher ($t = 4.47$, $p < .001$, Year III; $t = 7.02$, $p .001$, Year IV). There was no statistical difference determined between TAAS test reading scores for students having a Reading Academy teacher for one, two, or three years; however, an upward trend was noted.

Student Populations

Changing populations over the four-year study period may account for variances in TAAS test reading scores. The first year of the Academy, 40% of all test takers were Black. Year II saw a district wide decrease in this group of 17%, while the control and experimental groups demonstrated only a slight decrease (3% and 4% respectively). In the third and fourth years of the Academy, 32% of all test-takers were Black. The control groups (36% Year III and 39% Year IV) and experimental groups (38% Year III and 42% Year IV) were higher than the district percentage.

The Hispanic population was never comparably represented in the study groups due to this population's enrollment in NISD's bilingual program for Spanish-speaking students. Most students straight from Mexico are placed in classrooms with Spanish-speaking teachers. Hispanics in this study clearly spoke enough English to be eligible to take the TAAS reading test in English. This assumption accounts for the discrepancy in percentages. It is noted that while the study percentages did not reflect the district wide percentages, the Hispanic study group

population doubled from 10% the first year to 20% the last year. This notable increase is supported by the State's estimated increase in the Hispanic population statewide (Texas Higher Education Coordinating Board, 2002).

Initially there were 16% more Whites represented in the study (50%) than in the district (34%). Year II saw a slight improvement in equity with only 12% of the control group (46%) and 14% of the experimental group (48%) being higher than the district group (34%). The district wide population in 2001 saw a 2% increase in Whites (36%) while the control (45%) and experimental (42%) groups for this population decreased. By the fourth year, all groups showed a decline: district (34%), control group (42%), and experimental group (37%). The increase in the Hispanic population may account for the percentage decrease in the White population. As with the Black students, one might assume the Academy-trained teachers were using strategies, techniques, and assessment procedures that were more in line with Hispanic learners than were non-Academy trained teachers.

Changes in classroom populations may be due to the teachers' levels of performance for meeting the needs of unique populations. RAP teachers' strategies for teaching reading changed from one year to the next (noted in the survey results). As these changes occurred, teachers' survey responses revealed a statistically significant difference in important classroom practices (i. e. use of trade books, encouraged self-selection of reading, assessment as an instructional tool). Through changing classroom practices, children were able to achieve higher TAAS test reading scores.

Student Results

Data analyses of student TAAS test reading scores reveals change was not significant between the experimental and control populations ($t = -0.94$, $p = .3575$ Year I; $t = -.011$, $p =$

.9103, Year II) the first two years of the study as teachers were learning about and testing the efficacy of instructional strategies and assessment procedures and discovering comfortable and appropriate strategies and techniques that would best meet their students' needs. During this trial-and-error period, students had limited access to refined reading approaches that could have a positive impact on their achievement levels. However, as teachers became more proficient over time, approaches positively influencing student achievement became more apparent.

Statistically significant differences between the first and fourth years indicate teachers acquired new skills and became competent in implementation, transferring them into practice. Teachers demonstrated (by virtue of survey results) the effectiveness of these new strategies. They evidently valued the new approaches and considered them effective. Research suggests their changes are "real" and occurred because "teachers change[d] their practices and beliefs" (Inos & Quigley, 1995, p. 1) which had the most powerful impact on student achievement (Inos & Quigley, 1995). It was the "process," not a single event, which perpetuated teacher change (Friel & Gann, 1993; Fullan, 1991; Guskey, 1986; Hall & Hord, 1987; Shotsberger & Crawford, 1999). Raack (2000) states teachers learn better when they are actively involved in the learning process (as are students) and provided opportunities to think about and articulate what they have learned. The RAP provided numerous occasions for teachers to engage in these activities. Over the four-year study period, teachers demonstrated their abilities to learn, personalize, and transfer into practice different approaches, skills, strategies, and techniques which impacted student achievement. Since the change in student achievement scores did not manifest until the last two years, the study is not demonstrative of the Hawthorne effect.

The Hawthorne effect refers to "any situation in which the experimental conditions are such that the mere fact that individuals are aware of participating in an experiment...or are

receiving special attention improves their performance" (Gall, Borg, & Gall, 1996, p. 475). Since TAAS test reading scores for the experimental group did not demonstrate statistically significant differences from the control group for the first two years, figures suggest the Hawthorne effect did not take place in this study. In fact, quite the opposite happened. Significant improvements did not manifest until *after* the treatment was removed, denoting the positive impact of the long-term staff development training on student achievement.

Increases in the experimental groups' achievement scores supports the effectiveness of the long-term staff development in which the RAP teachers participated. Their transfer of newly acquired skills, strategies, and techniques clearly influenced student achievement. Possibly more significant than an increase in mean scores for the experimental group is their higher minimum score as noted over time. While the increase in minimum TAAS reading scores (from 33 to 58) is not statistically significant, it is noteworthy.

The experimental group of students having an Academy teacher demonstrated an increase in the mean third grade TAAS test reading scores (4.5 points) over the four year period. Students who had one year with a Reading Academy teacher averaged a score of 81 which is one point lower than students who had an Academy teacher for two years (82). But students who had an Academy teacher for three years averaged a score of 85, indicating the more years a child spent with an Academy-trained teacher, the better he scored on the reading portion of the TAAS test. While the difference between having an Academy teacher for one and three years differs by approximately four points, minimum scores reveal a more remarkable difference. The minimum score for a student having an Academy teacher for one year was 33. (Please note the minimum score for a control student was 20.) Students who had an Academy teacher for two years showed a nine-point increase in minimum score (42). Minimum reading score on TAAS test rose to 58

for students having an Academy teacher for three years. Results suggest students who had more years of exposure with an Academy teacher did better than students who had only one year with a RAP teacher. Evidence indicates an upward trend in minimum reading scores with an increase of 25 points over the three-year period. These results suggest the long-term staff development definitely had positive effects on students' third grade TAAS test reading scores, especially students scoring on the low end of the spectrum. Research supports the positive effects of long-term staff development (MacGilchrist, 1996) and its role in student achievement (Joyce & Showers, 1983; Joyce & Showers, 1988; Sparks & Hirsh, 2000).

Teacher Results

Survey Results. Survey items were extracted from the Texas Reading Academies Grant's *Eight Features of Classrooms and Campuses that Support Effective Beginning Reading Instruction*, as defined on pages 11-14 in Appendix I of the Texas Reading Academies Request for Application, dated Monday, July 20, 1998. The survey consisted of twenty items. Six items were statistically significance for effectiveness.

A clear understanding of the longitudinal study results manifests when discussed in three stages. First is the discussion of the application survey (1998) to the first two years of data collection (1999-2000) when teachers received training and support from grant staff. Second, the discussion focuses on the application survey and the last two years of data collection (2001-2002) when teachers did not receive direct support from grant staff and fully implemented their newly acquired skills. Last is the consideration of growth over the four-year data collection period.

The first item indicative of teacher change refers to basal reader usage. Application surveys (1998) revealed teachers viewed basal readers as *not* or *somewhat effective*. At the end of

the first and second years, teacher responses were almost evenly split: *not effective* and *somewhat effective*. The final two years teachers reported basal readers to be *very effective*. These shifts in effectiveness connote a collectively better understanding of how teachers valued and used basal readers in the reading program. While teachers reported the basal readers to be *not effective* during the first two years of the RAP, it is possible they did not understand how to effectively use them. Perhaps they did not *vary* the ways they used basal materials (Koskinen, McCarthy, & Hoffman, 1995) and found them ineffective. Though direct instruction was not provided in using the basal reader, teachers conceivably assimilated their training into effective uses of the basal. Training, practice, and support during that time had an affect on teachers' beliefs about basal readers as evidenced in the last two years of data collection (2001-2002). Participants viewed basal readers as a *very effective* (47% and 41% respectively) tool for teaching reading as their knowledge base increased and their perception about basal readers changed. According to Baymann and Heubach (1996), basal readers actually empower teachers, providing them with instructional suggestions from which to draw, adapt, or extend their lessons. They also contend basal readers are used as an instructional tool in planning literacy lessons. One might conclude the Academy teachers felt empowered by their understanding of basal readers. Swartz (2002) proposes basal readers provide opportunities for students to "develop strategies for orchestrating multiple cueing systems into fluent, silent, independent reading" (p. 14) which contributes to student success. Swartz also notes many basal readers include trade books. Trade books are fiction and non-fiction books available through retail (Ezarik, 2002).

Use of trade books among Academy teachers demonstrated a significant change in effectiveness. Initially, 71% of teachers confirmed trade books were *very effective* in the reading program, and by 2000 and 2001, all teachers reported (100%) them as a *very effective* tool.

Teachers seemed to understand trade books benefit the reluctant reader and students who cannot read the textbooks (Manning, 1999). It is "[t]he real photographs and creative text structure of trade books [that] seems to help these students become interested in a topic" (Manning, 1999, p. 85). Teachers who recognize the importance of students' interests better meet the needs of her students. Students' role in choosing reading materials is likewise, important. Fresch (1995) suggested that children seek knowledge based on their interests, and repeated readings boost children's confidence level.

When children can choose their reading materials, repeated readings are more prevalent (Fresch, 1995). Initial survey results suggested only 11 teachers encouraged self-selection of reading by students; however, a rise in effectiveness was noted for each following year. In 1999, after just one year of training, 13 teachers reported self-selection of reading as being *very effective* and in 2000, the number increased to 16 teachers. By the last two years, all 17 teachers (100%) teachers encouraged self-selection of reading. These results clearly indicate teachers gained an understanding of importance for students to choose their own reading materials. Fresch (1995) points out children need text of varying difficulty and self-selection opportunities provide this. Once teachers recognized this, they quickly shifted their perceptions accordingly. Findings from this study are consistent with current research (Fresch, 1999).

Information gathered during the application process revealed 41% of the teachers viewed instruction as a *very effective* tool in assessing students' needs as related to stages of reading development. That percentage rose considerably to 71% in 1999 (Year I) and 82% in 2000 (Year II). This steady increase implies teachers gained knowledge of how assessment drives instruction and visa-versa. According to Tompkins (2003), "[t]eachers use the results of assessment to inform their teaching...[they] focus on what students can do, not what they can't do" (p. 73). By

the third year (2001), 15 of the 17 teachers found instruction as an assessment tool to be *very effective*. According to Columba (2001), "[g]ood daily assessment is good instruction because it is carefully aligned with what is taught and how it is taught" (p. 122). Year IV reported 11 of the 17 teachers (65%) found assessment as an instructional tool to be *very effective*. There is no obvious reason for this decline.

The fifth item of significance relates to evaluation methods of the reading program. Using continuous feedback to determine program effectiveness appeared to be *very effective*, as indicated by nine (53%) of the teachers in the initial survey; however, this number decreased to eight (47%) at the end of the first year (1999). A drop in percentage the first year suggests teachers were in the process of gaining a better understanding of which evaluation methods provided continuous feedback. They may have recognized what they previously thought to be "evaluation methods for continuous feedback" to be erroneous. Year II saw an increase to 12 (71%) of the 17 teachers reporting continuous feedback as a *very effective* in determining program effectiveness. By the third year of the RAP, teachers had a clearer understanding of the terminology. The last two years of the study period revealed a continued rise in the percentages of teachers believing continuous feedback to be a *very effective* tool in evaluating the reading program (14 and 13 respectively, 82% and 76% respectively).

The use of formal and informal assessments is also critical in evaluating program effectiveness. Moore (2002) asserts that in early childhood programs, one purpose of assessment is to evaluate "how well the program is meeting its goal" (p. 12). The initial survey indicated nine of 17 teachers (53%) found formal and informal data collection to be very effective in evaluating program effectiveness. At the end of the first year of staff development training (1999), 11 of the 17 (65%) teachers noted it to be *very effective* in evaluating program

effectiveness. Percentages rose to 82% in Year III and 88% in Year IV. This steady increase implies teachers used formal and informal assessments to drive instruction, recognizing that it "is never an end in itself but, rather, an integral part of the educational process designed to help improve the instructional program" (Helm, 2002, p. 6). Research supports teachers becoming aware of the benefits and limitations of various instruments and more competent in identifying assessments that better identified the needs of their children (Fox, 2000; Tompkins, 2003). Another consideration is the fact that RAP teachers, having practiced and implement both formal and informal assessments over the four year period, felt more confident in administering and analyzing selected assessment tools.

These survey data results confirm the impact of the Reading Academy Project on teaching strategies that, in turn, significantly increased student achievement. Raising students' reading scores on the third grade TAAS exam (the primary goal of the Reading Academy) is attributed to teachers' professional growth and their altered perceptions of instructional practices. Results of teachers' responses to the survey revealed the impact training had on teachers' practices and beliefs. While only five teachers (7.5%) noted a change in beliefs about reading, reading instruction, or the way children learn to read; 17 (100%) teachers commented on changes they made in practice. An analysis of the open-ended interview question provides more insight into teacher change.

Open-ended Question Results. All seventeen teachers stated their teaching practices changed and they experienced growth as a direct result of participating in the Reading Academy Project. Teachers reported changes in classroom practices, student behaviors, teacher responsibility, and the validation/strengthening of their beliefs about reading.

Most compelling is all participants commented specifically on experiencing growth. Teachers felt well prepared to help readers and assess students' needs. Almost half (47%) of the participants reported they felt better prepared to help readers and assess student needs. A majority of teachers (88%) reported change was due to the various new approaches, strategies, and techniques acquired through the staff development process. Over half (58%) of the participants felt they better understood student learners. The five teachers who stated they changed their beliefs about reading said the staff development process completely changed the way they taught. Significance of these accounts lies in the students' increased TAAS test reading scores.

The highest response rate dealt with classroom practices. While teachers' behaviors were changing, so were students' behaviors. Strategies and techniques modeled by teachers proved beneficial for children as teachers assessed individual student needs. Teachers observed children reading more, reading a larger variety of materials, and they spent more time reading than in previous years. Additionally, children began asking questions and sharing their reading experiences with classmates, taking responsibility for their own learning.

Just as students became more responsible learners, teachers became more responsible educators. Some teachers saw themselves as teacher models, recognizing the importance of "showing" children how to be better readers (Tompkins, 2003). Others incorporated literacy and books into take-home activities so children could read away from school. Changes were made in daily schedules to allow more time reading and writing. Certain teachers saw their job as "filling the gaps" for children. Several teachers recognized the importance of reading professional literature to enhance instruction. Each of these strategies/practices exemplifies the teachers' understanding that teacher change and transfer of knowledge is essential in student achievement

(Joyce & Showers, 1988; Joyce & Showers, 1995). Although the majority of teachers did not admit to changing their beliefs about reading, it is quite apparent their practices provide strong evidence of change.

Findings suggest the need to reevaluate current staff development opportunities. Research supports "high-quality training with intensive follow-up and support" (NSDC, n.d. d. p. 1), specifically noting follow-up is critical in helping teachers transfer newly acquired skills into practice (Learning First Alliance, 2000; Sparks, 2000b). But still the vast majority of staff development opportunities take place in isolated, one-shot workshops or in-service meetings (Bellanca, 1995; Killion & Harrison, 1997; NSDC. n.d. b; Smylie, Bay & Tozer, 1999). School districts must consider all avenues in assuring teachers will have access to the support and follow-up necessary to ensure transfer of skills into practice.

This study supports the hypothesis that long-term staff development assisted teachers in transferring newly acquired information about reading instruction into their classrooms that positively affected students' TAAS test reading scores. While the majority of teachers did not change their beliefs about reading, 100% of the teachers changed their practices regarding literacy instruction.

APPENDIX A
READING ACADEMY PROJECT DESCRIPTION

Reading Academy Project

In 1998, the State of Texas granted \$500,000 to a collaborative effort between Nacogdoches Independent School District (NISD) and early childhood and reading professors/instructors at Stephen F. Austin State University (SFASU) for the Texas Reading Academy Project (RAP). Participation in the original grant encompassed one year of staff development with a three-year follow-up (1998-2001); however, the State of Texas extended staff development for a one year (1999-2000). An additional \$250,000 was awarded staff developers in 1999-2000.

The Reading Academy Grant was written by reading faculty Dr. Vi Alexander and Dr. Leah Smith; early childhood faculty Dr. Janice Pattillo, Mrs. Vikki Boatman, and Mrs. Mary Nelle Brunson; human sciences faculty member Dr. Lisa Mize, and Educational Region Service Center VI consultant Mrs. Sandra Sherman. NISD superintendent Dr. Tony Riehl signed the Texas Reading Academies application for the grant. As per State requirement, NISD served as the fiscal agent. Mrs. Sherman assisted as the project manager and Dr. Smith as the external evaluator. Dr. Smith also served as grant staff and presented information related to assessment. Dr. Pattillo selected and ordered all book study and resource materials. Drs. Alexander and Mize, along with Mrs. Boatman, served as staff development presenters and support personnel. Dr. Alexander and Mrs. Boatman focused on reading skills, strategies, and implementation while Dr. Mize handled all information related to the parental involvement component. (For the purpose of this investigation, the parental involvement component has been extracted.)

The RAP provided on-going professional development for teachers selected from an application process. All educators were accepted into the Academy. Each teacher received \$2,500 in materials and literature the first year of the grant and \$1,500 the second. Grant

participants eventually served as facilitators for reading instruction on their home school campuses.

The first year teachers observed and participated in the NISD/SFASU Charter School (Charter School) classroom reading activities and met monthly for training in assessment; explicit instructional strategies in the areas of alphabetic principle, phonemic awareness, decoding, vocabulary, comprehension; spelling instruction; and writing. Training sessions were eight hours in length. After teachers received direct instruction, they had opportunities to observe and practice skills in model classrooms at the Charter School. Teachers then transferred their learning into their own classrooms. Debriefing sessions were held to troubleshoot problems and validate successes. They learned how to level books and ordered appropriate levels of books to expand their classroom literacy program. Teaching materials for mini-lessons and learning center activities were also purchased. During the course of the year, teachers read professional books that supported components specified in the grant and engaged in peer coaching. Professional support and training came from Drs. Alexander and Mize, and Mrs. Boatman, who visited classroom teachers presenting reading lessons to children. Mrs. Boatman served as a consultant for teachers moving from a traditional classroom arrangement to a learning centers approach. Additionally, grant participants served as presenters and facilitators on their home campus. Finally, RAP participants presented at the SFASU annual Center of Professional Development for Teachers (CPDT) Fall Conference (October 1999). Dr. Smith collected data from the survey and interview question at the last meeting (May 1999). During the summer after the first year, teachers completed additional training through a graduate level reading course.

The second year brought about less intense staff development. Training sessions were conducted for grant participants in four after school two-hour sessions. Teachers experimented

with and tested the efficacy of grant-supported instructional strategies and assessment procedures. Additionally, grant participants served as mentors to their campus and lead teachers in book studies; and continued peer coaching. Participants ordered more materials and children's literature to enhance classroom literacy activities and libraries. Dr. Smith collected the required data during the final meeting (May 2000).

Year three of the project rendered big changes because there were no staff development meetings and support from staff developers was obtainable only upon teacher request. No monies were available for resources. Teachers were expected to fully implement skills acquired during the first two years of the RAP. They refined selected strategies and assessment procedures, modifying them to meet their teaching styles and students' needs. Mentoring by Academy teachers continued when requested; however, book studies met only when principals encouraged them. Mrs. Boatman collected survey data. Dr. Smith assisted Mrs. Boatman in acquiring responses to the interview question. Data collectors telephoned and interviewed participants in May 2001. Surveys were sent directly to Mrs. Boatman through inter-office district mail and federal mail. Collected data were shared with NISD for filing the final report to the State.

The fourth year served only as a data collection point for this study. Staff developers made no contact with teachers. Teachers continued to refine and enhance their skills. Complete implementation of strategies, techniques, approaches, and assessment processes became the focus this year. Newly appointed NISD curriculum specialists replaced Academy teacher mentors and the specialists assumed responsibility for book studies. No teacher reported participating in peer coaching. In May 2002, the researcher of this study collected the final survey and interview question data through inter-office district mail, federal mail, and e-mail. This last data collection concluded this study.

APPENDIX B

TEXAS READING ACADEMY APPLICATION SURVEY

**Texas Reading Academy
Application Survey—Fall 1997**

Name

Checklist for Assessing the Present Reading Program in Your School/Classroom.

Rate each item according to the following scale:

- | | |
|---|--------------------|
| 0 | Not Present |
| 1 | Somewhat Effective |
| 2 | Very Effective |

Section I: Reading Text/Materials/Resources

How effective are the materials used in reading instruction?

- | | | | |
|--|---|---|---|
| 1. The reading program uses basal readers. | 0 | 1 | 2 |
| 2. The reading program uses trade books.
(approximate number of books in classroom library _____) | 0 | 1 | 2 |
| 3. The reading program uses technology. | 0 | 1 | 2 |
| 4. The library is an integral part of the total reading program. | 0 | 1 | 2 |
| 5. The library offers a wide variety of print and non-print materials to encourage reading. | 0 | 1 | 2 |

Section II: The Context of the Reading Program

- | | | | |
|--|---|---|---|
| 6. Reading situations encourage self-selection of reading by students. | 0 | 1 | 2 |
|--|---|---|---|

The school environment provides ample opportunities for silent reading such as:

- | | | | |
|---|---|---|---|
| 7. regularly scheduled times | 0 | 1 | 2 |
| 8. conducive atmosphere (quiet, comfortable) | 0 | 1 | 2 |
| 9. silent reading encouraged through modeling | 0 | 1 | 2 |

Section III: Instruction Approaches Used to Teach Reading

- | | | | |
|--|---|---|---|
| 10. Instruction provides a greater percentage of time for reading itself, rather than teaching skills. | 0 | 1 | 2 |
| 11. Instruction focuses upon learners instead of upon the program itself. | 0 | 1 | 2 |
| 12. Instruction assesses students' needs as they relate to stages of reading development. | 0 | 1 | 2 |
| 13. Instruction provides application of skills for automaticity. | 0 | 1 | 2 |
| 14. Instruction provides for the diverse needs, interest, and abilities of all students. | 0 | 1 | 2 |

Section IV: Evaluation Methods of the Reading Program

- | | | | |
|---|---|---|---|
| 15. Evaluation methods provide continuous feedback for determining program effectiveness and needs. | 0 | 1 | 2 |
| 16. Evaluation methods include gathering formal and informal data. | 0 | 1 | 2 |
| 17. Evaluation methods include parent and community input (surveys and conferences). | 0 | 1 | 2 |

Section V: Organization of the Reading Program

- | | | | |
|---|---|---|---|
| 18. The teacher organizes flexible groups varied instructional purposes. | 0 | 1 | 2 |
| 19. The teacher plans lessons using supplemental enrichment materials | 0 | 1 | 2 |
| 20. The professional development program is an essential component of the campus reading program. | 0 | 1 | 2 |

APPENDIX C

TEXAS READING ACADEMY EVALUATION SURVEY

**Texas Reading Academy
Evaluation Survey—Spring (Year)**

Name _____

Checklist for Assessing the Present Reading Program in Your School/Classroom.

Rate each item according to the following scale:

- | | |
|---|--------------------|
| 3 | Not Present |
| 4 | Somewhat Effective |
| 5 | Very Effective |

Section I: Reading Text/Materials/Resources

How effective are the materials used in reading instruction?

- | | | | |
|--|---|---|---|
| 1. The reading program uses basal readers. | 0 | 1 | 2 |
| 2. The reading program uses trade books.
(approximate number of books in classroom library _____) | 0 | 1 | 2 |
| 3. The reading program uses technology. | 0 | 1 | 2 |
| 4. The library is an integral part of the total reading program. | 0 | 1 | 2 |
| 5. The library offers a wide-variety of print and non-print materials to encourage reading. | 0 | 1 | 2 |

Section II: The Context of the Reading Program

- | | | | |
|--|---|---|---|
| 6. Reading situations encourage self-selection of reading by students. | 0 | 1 | 2 |
|--|---|---|---|

The school environment provides ample opportunities for silent reading such as:

- | | | | |
|---|---|---|---|
| 7. regularly scheduled times | 0 | 1 | 2 |
| 8. conducive atmosphere (quiet, comfortable) | 0 | 1 | 2 |
| 9. silent reading encouraged through modeling | 0 | 1 | 2 |

Section III: Instruction Approaches Used to Teach Reading

- | | | | |
|--|---|---|---|
| 10. Instruction provides a greater percentage of time for reading itself, rather than teaching skills. | 0 | 1 | 2 |
| 11. Instruction focuses upon learners instead of upon the program itself. | 0 | 1 | 2 |
| 12. Instruction assesses students' needs as they relate to stages of reading development. | 0 | 1 | 2 |
| 13. Instruction provides application of skills for automaticity. | 0 | 1 | 2 |
| 14. Instruction provides for the diverse needs, interest, and abilities of all students. | 0 | 1 | 2 |

Section IV: Evaluation Methods of the Reading Program

- | | | | |
|---|---|---|---|
| 15. Evaluation methods provide continuous feedback for determining program effectiveness and needs. | 0 | 1 | 2 |
| 16. Evaluation methods include gathering formal and informal data. | 0 | 1 | 2 |
| 17. Evaluation methods include parent and community input (surveys and conferences). | 0 | 1 | 2 |

Section V: Organization of the Reading Program

- | | | | |
|---|---|---|---|
| 18. The teacher organizes flexible groups varied instructional purposes. | 0 | 1 | 2 |
| 19. The teacher plans lessons using supplemental enrichment materials | 0 | 1 | 2 |
| 20. The professional development program is an essential component of the campus reading program. | 0 | 1 | 2 |

APPENDIX D

TEXAS READING ACADEMY EVALUATION QUESTION

**Texas Reading Academy
Evaluation Question –Spring (Year)**

Name _____

How has the Texas Reading Academy changed your beliefs about reading?

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