

ABSTRACT

SPIGGLE, JO ANNE BLACKMON. Relationship between Teacher Performance and Student Growth Outcomes in a School District in North Carolina's Public Schools' Fifth Grades. (Committee Co-Chairs: Dr. James L. Flowers and Dr. Dewey A. Adams)

The purpose of this study was to investigate the relationship between the teaching performance of 5th-grade teachers and student achievement growth in 5th-grade reading and mathematics. Using the classroom as the unit of analysis, the entire population of fifty-three 5th-grade teachers and their students were included. The students' class average achievement growth scores in reading and in mathematics were measured by standardized North Carolina End-Of-Grade Tests, and the student class average growth scores were determined by comparing the class mean of the students' scores in each teacher's 5th-grade class with the class mean of the same students' scores on the 4th-grade end-of-grade tests in reading and mathematics. The teachers' classroom performance was measured by the North Carolina Teacher Performance Appraisal Instrument (NCTPAI) rating scale. Ratings on the first five functions of the NCTPAI were included in the study. These items are (a) Management of Instructional Time, (b) Management of Student Behavior, (c) Instructional Presentation, (d) Instructional Monitoring, and (e) Instructional Feedback. For the teachers, data were also collected on type of license and years of teaching experience.

The data were analyzed using Pearson product-moment correlation, point biserial correlation, and regression. Stepwise selection results showed the best overall significant predictor of students' mathematics improvement to be Function 3: Instructional

Presentation. This model accounted for 11% of the variance in students' improved class average achievement growth in mathematics. A four variable model showed a combination of Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, Teachers' Years of Experience, and Teachers' Type of License to be the best overall predictor for improved students' class average achievement growth in reading. This model accounted for 23% of the variance in students' improved class average achievement in reading. Additional research is needed to validate and expand upon these findings.

RELATIONSHIP BETWEEN TEACHER PERFORMANCE
AND STUDENT GROWTH OUTCOMES IN
A SCHOOL DISTRICT IN NORTH CAROLINA'S
PUBLIC SCHOOLS' FIFTH GRADES

by
JO ANNE BLACKMON SPIGGLE

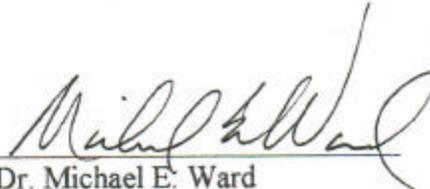
A dissertation submitted to the Graduate Faculty of
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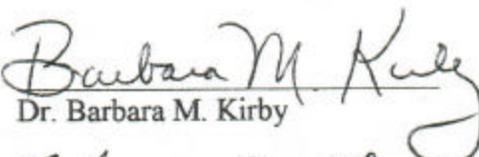
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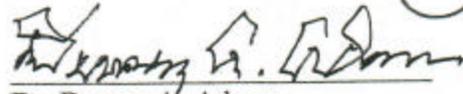
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DEDICATION

To my children, Tom and Dawn

I have proudly seen them live with a deep sense of bravery, a deep sense of sacrifice made in the treasure of everyday living, and a deep sense of respect and care for the fortunate people around them. I am grateful for their persistent encouragement, their enthusiastic support, and their belief in my ability. I watch with pride as they accept responsibilities and work to solve problems without bringing harm to others.

It is not every day that we are needed. Not, indeed that we personally are needed. Others would meet the case equally well, if not better But at this place, at this moment of time, all mankind is us, whether we like it or not. (Beckett, 1954, p. 51)

BIOGRAPHY

Jo Anne Blackmon Spiggle was born the second child of Louise Byrum Blackmon and John Henry Blackmon on March 22, 1942 in Dunn, North Carolina. After graduating from Lillington High School in 1960, she attended Carson-Newman College in Jefferson City, Tennessee where she earned a Bachelor of Arts degree in Psychology and Education. She earned a Master of Arts degree in Special Education from Memphis State University in 1968.

While teaching in both elementary and high school, she continued to take graduate courses at Appalachian State University, Lenoir Rhyne College, University of North Carolina at Chapel Hill, and North Carolina State University. She holds teaching certifications in Special Education, Elementary and Middle School Education, Language Arts, Social Studies, Business, and Marketing in Secondary Education.

She has designed innovative programs for special needs students which included major parental involvement and enabled the students to become an integral part of the school. Most recently, she taught in a joint position with the community college which provided an opportunity for high school seniors to realize that college can be a part of their future. The success of this innovative strategy was evidenced by the fact that the overwhelming majority of these seniors will become first generation college students.

She is a member of The Honor Society of Phi Kappa Phi, Council for Exceptional Children, Association for Supervision and Curriculum and Development, Association for Career and Technical Education, North Carolina Marketing Association, and Alpha Delta Kappa Honorary Sorority. She hopes to continue her involvement in education as long as there is an area in which she can make a contribution.

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CHAPTER 1: INTRODUCTION TO THE STUDY

The relationship between successful student achievement and quality of teaching is important to policymakers and educators. Theoretically, the effectiveness of the teacher helps the student to improve performance. Educator and psychologist, William James, developed an underlying theoretical framework for the impact of teacher quality on student achievement. It was James's belief that the classroom teacher was the determinant of all of education: the educational future of the student depended on the "inventive minds of the teachers" (Sprinthall, Sprinthall, and Oja, 1998, p. 11).

The link between teacher effectiveness and student achievement is evident in conclusions drawn by Glasser (1985) in which he explained that the focus of what is learned in the classroom is much more the responsibility of the teacher than that of the student. It was Glasser's contention that classroom instruction should involve the teacher's development of an approach to initiate the student's desire to learn: "Teaching is not doing things to or for students. Teaching is structuring your whole approach in a way that they want to learn" (pp. 80–81). Because of the special blend of things that happen within, Jackson (1968) claimed that the classroom setting is like none other. Sergiovanni (1991) supported this claim in his belief that the teacher is the one factor within the classroom setting that makes the critical difference.

Further emphasis was placed on the teacher's responsibility by Wong and Wong (1998) in their explanation that schools exist and teachers are hired only for the reason of students' learning. According to the Wongs, teachers are in the classroom teaching 90% of the school year, and 75% of that time is spent in student-teacher interaction. Thus,

they explained that the teacher is on center stage almost every minute of the school year to help maximize the students' efforts to learn. Since it is ultimately student learning that counts, Jennings (1998) pointed out that, if student achievement is to be raised, the focus of what is taught and learned in the schools is primary and appropriate.

The importance of the link between accountability of student achievement and accountability of teacher performance is evidenced by the North Carolina Department of Public Instruction's efforts to evaluate the performance of students and teachers. As part of the statewide student accountability standards, students in grade 5 must perform successfully on end-of-grade tests in reading and mathematics in order to be promoted to grade 6 (Public Schools of North Carolina, 1999a). In a similar manner, as part of the North Carolina teacher evaluation standards, all teachers must receive an annual summative evaluation that includes, in part, the improvement of student achievement (Flowers, Testerman, Hancock, and Algozzine, 2000).

Frase (1992) observed that, because teachers come into the profession wanting to teach well, a primary goal for the school must be to assure teacher competency in the classroom. It was James's (1939) contention that good teachers coming into the profession possess a special endowment for "ingenuity in meeting and pursuing the pupil . . . tact for the concrete situation . . . the alpha and omega of the teacher's art" (p. 9). Hunter (1967) argued that "teachers are not born, they're made"(p. 6). She emphasized that the teacher's understanding of content and methodology are important aspects for successful classroom teaching and, thus, essential aspects of student learning. The value of the teacher's influence was apparent in Billups's and Rauth's (1987) belief that good teaching is a combination of science and art.

Billups and Rauth (1987) further explained that, even though varying degrees of talent accompany the art of teaching, the acquisition of specific skills and knowledge of the teacher can be measured. They defined the professional as being a specially trained expert who participates in decision-making and is adequately paid. Hunter (1988) stated that “teaching has grown from an occupation, to a craft, to a profession based on knowledge not commonly held outside the field” (p. 54). Hunter’s statement about the special knowledge required of teachers was parallel to the contention held by Glasser (1990) that student learning depended on the teachers’ skills and ability to initiate the desire to learn.

Glasser (1990) elaborated on the reasons teachers must incorporate special knowledge and skills essential to influential instruction. In a discussion of why effective teaching is the hardest job there is, Glasser (1990) claimed:

Jobs in which things are managed--such as carpenter, postal worker, and even surgeon – are in some sense much easier than jobs managing people. . . .
[because] When we manage things that have no personal agenda, we are much more in control of what we do than when we manage people. . . . [For that reason] teaching--the daily face-to-face managing of many resistant students--is not only the hardest job in the school, it is the hardest job there is. . . . being an effective teacher may be the most difficult job of all of our society. (pp. 14 – 17)

Medley, Coker, and Soar (1984) drew a parallel between teachers and physicians in which teachers were recognized as professionals. This parallel gave credence to the belief that teaching is acknowledged as a skill supported by special knowledge. The authors claimed that both professions are expected to use the best available practice.

Regardless of how difficult or easy the task, teachers are expected to teach every child--offer every child a chance to learn. The authors acknowledged that, even though student learning may be affected by students' low aspirations and lack of experience, the students' inability to learn is often attributed to poor instruction.

Pointing out the importance of the teacher's influence on the student and instruction, Passmore (1980) emphasized that teaching fails if it does not have the effect of student learning:

[The teacher] has to teach "both pupil and subjects." Merely to interest the child, merely to respect him as a person, to care for him, to love him--none of these dyadic relations, whatever their importance, is equivalent to teaching him, although some of them may be necessary conditions in doing so. The great problem for the teacher . . . is to reconcile respect for the child and respect for what is being taught. But fortunately these are by no means irreconcilable. To present a class with . . . a feeble imitation of science, under the pretense of teaching science but on the real ground that it will keep the class amused, is to respect neither science nor pupil. (p. 24)

Popham (1997) provided an example of Passmore's (1980) philosophy concerning the teacher's influential instructional responsibilities. He referred to his own experiences as a high school instructor explaining that if his students had "learned loads" he considered himself to be an "instructional winner." If he had only "bored or even entertained" his students, he considered himself an "instructional loser" (p. 265).

Duke (1984) acknowledged the critical importance of effective teaching by pointing out that teachers are not factory workers producing things. He believed that

when teachers fail in their job performance the results of their ineffectiveness are immeasurable. In a discussion of “poor teachers,” Johnson (1984) identified 5% of public school teachers as being incompetent (p. 114). Bridges (1992) calculated that “the total number of students being taught by incompetent teachers is 2,007,842. . . [or] “the total combined public school enrollment reported in 1981-82 for the fourteen smallest states” (pp. 16–17).

Classroom effectiveness and the need to circumvent teacher incompetence were addressed through the development of teacher appraisal systems. The following statement supported reports by Holdzkom and Brandt (1995) that, after the initiation of the North Carolina Teacher Performance Appraisal System in the 1980s, support for the program grew with evidence that students learned more when teachers were involved in the evaluation process:

The ultimate test of a teacher evaluation system is to substantiate the claim that if a teacher receives a higher rating on an evaluation system his/her students will learn more than students of teachers in the same context that receive a low rating. (Coalition for the Development of the Florida Performance Evaluation System, 1983, p. 39)

Teacher quality measured by the teacher’s evaluation system was unfavorably reported in most states according to Duke (1995). Duke reported that many statewide efforts have been made to improve the technical quality of teacher evaluation with no positive results toward greater student achievement. Brandt (1990), acknowledging that the state of North Carolina was an exception to these efforts, reported one pilot study that did show a positive relationship between teacher evaluation and student achievement.

The focus on the positive relationship between teacher competence, student achievement, and evaluation addressed by North Carolina was supported in the literature by educators through the identification of special skills essential to effective performance.

The Effective Teacher

The special skills required of teachers to prevent ineffectiveness and instructional loss were described by Holdzkom and Brandt (1995). They identified research-based teaching skills necessary for effective teaching and improved student achievement outcomes. Successful teachers manage class time and student behavior so that students are successful and actively engaged in learning. In addition, teachers review previous lessons and add meaning to new material to improve classroom interaction. Effective teachers ask questions and provide examples that allow the student to achieve. Hunter (1990) provided an example that indicates the skills needed when responding to questions asked of students:

The way a teacher responds to a student's incorrect answer by supplying the question to which that answer really belongs, giving a prompt so that a student can respond with the correct answer, then holding the student accountable for remembering that answer in the future, clearly dignifies the student as one who is competent to give the correct answer. (p. 122)

Borich and Fenton (1977) supported the contention that effective teaching was the impetus for student instructional gain by suggesting that student achievement is influenced by the teacher's presentational enthusiasm, clarity, and creativity. They further explained that variables specifying these behaviors could be used to measure

particular behaviors. For example, presentational elaborations could be measured by the number of minutes the teacher engaged in student questions. Berliner (1987) reported that the instructional presentation by teachers must include exceptionally understandable explanations followed by questioning to assure that understanding occurred. As an additive to the prescription for effective presentation, Hunter (1971) emphasized that a positive influence of the teacher's presentation was teacher planning. She saw teacher planning as the most critical element in creating students' ability to transfer past learnings to present problems.

Brophy (1999) purported that advanced planning was most effective when the teacher possessed managerial skills. Brophy called attention to the teacher's ability to clarify learning expectations by emphasizing managerial skills needed to establish effective learning environments. Student success as influenced by the teacher's advanced planning was also discussed by Brophy and Putnam (1978). Brophy and Putnam recommended that the teacher incorporate advanced planning and managerial skills as methods of maintaining successful classroom management.

Educators suggested that effectively teaching for enhanced learning required integration of communication and instruction that supported student classroom management procedures. Recognizing that connecting students' past and present learning was important, Berliner (1987) concluded that, through the construction of complex communication, effective teachers must integrate new and previous information when presenting material, identifying key points, and emphasizing what students should have mastered by the end of the lesson. Brophy and Putnam (1978) recognized that classroom management is improved by "smooth and well paced lessons" which are

possible only when a teacher has previously gathered all presentation materials, has prepared note cards or rehearsed, and is able to proceed immediately with no time lapses so that students are consistently aware of the teacher's preparedness, competence, and confidence.

Implicit in the expectation that teachers present instruction skillfully in order to increase student achievement is the belief that teachers possess the ability to manage student behavior so that each student in the classroom understands the instructional presentation. Billups and Rauth (1987) supported these expectations by reporting that effective teaching requires an environment that includes established student procedures for behavior in class. These procedures include established routines for entering and leaving the classroom, for storing and retrieving personal belongings, and for participating in acceptable behavior. Emmer (1987) suggested that a set of expectations by teachers guides student behavior by engaging students in learning activities that subsequently prohibit disruptive behavior. Emmer explained that early in the academic year teachers are responsible for defining appropriate behavior, outlining the content to be studied, and guiding the academic work so that students have the information they need to be successful.

Brophy and Putnam (1978) believed that successful classroom management required extraordinary skills:

Success demands general mental health and, in particular, ego strength.

Individuals who are hostile, sadistic, sarcastic, defensive, prone to taking student misbehavior personally and holding grudges, or so authoritarian that they cannot

tolerate student assertiveness or individuality are not likely to form productive teacher-student relationships or to establish credibility and respect. (p. 120)

The teachers' skill in managing student behavior in a manner that encourages student respect was described as being imperative to enhanced student achievement. Thus, effective teachers must skillfully develop classroom management procedures while simultaneously maintaining and strengthening healthy student-teacher rapport. Giving credence to student-teacher rapport and to students' respect and eagerness to cooperate with the teacher, Brophy and Putnam (1978) explained that skills in classroom management are not enough; successful teachers are liked by their students. Gordon (1974) presented a strong argument for positive student-teacher interaction by focusing on effective teacher communication skills to provide a link for students and teachers to work together in the teaching-learning processes. He claimed the quality of the teacher-learner relationship to be crucial for successful teachers. Gordon further suggested planning for effective student-teacher communication by examining the "quality" of the teaching-learning environment as a method of increasing student growth (p. 168).

The quality of the teaching-learning environment as a prerequisite for improved student learning was emphasized by tenants proposed by William James's understanding of the processes of teaching and learning. These tenants were purported by Sprinthall, Sprinthall, and Oja (1998) to be as relevant today as they were at the turn of the century. James (1939) postulated that teachers should "ingrain in the pupil that assortment of habits that shall be most useful to him throughout life" (p. 66). James said, "Bad behavior, from the point of view of the teacher's art, is as good a starting-point as good behavior" (p. 63) [and] "A bad reaction is better than no reaction at all; for, if bad, you

can couple it with consequence which awakes him to its badness” (p. 39). In reference to creating association in the student’s mind, James stated, “it is mainly that of building up useful systems of association in the pupil’s mind” (p. 83) [and] “In teaching, you must simply work your pupil into such a state of interest in what you are going to teach him that every other object of attention is banished from his mind” (p. 10) [and] “No one wants to hear a lecture on a subject completely disconnected with his previous knowledge” (p. 108) [and] “Children admire a teacher who has skill” (p. 50). James recommended, “Don’t always ask the question, for example, in the same way “ (p. 89) [and] ”The teacher who can get along by keeping spontaneous interest excited must be regarded as the teacher with the greatest skill” (p. 104).

Teacher Training and Education

The plausibility of James’s theory for teachers today was emphasized by Rallis and Goldring (2000) when referring to teachers as change agents and noting that change only takes place in schools with the commitment of the teacher. In discussion of initiatives to improve teaching so that teachers can become change agents to more directly influence the needs of learners, Darling-Hammond (1990) stated that educators “seek to improve education by recruiting, preparing, and retaining competent teachers and by better utilizing their knowledge and talents over the course of a reshaped career” (p. 17).

Preparing for competent classroom teachers was evident in a claim made by Billups and Rauth (1987) that “cardinal to success as a classroom teacher” were the pedagogical skills obtained through teacher education, training, and experience.

Fundamentally, the issues of teacher knowledge and training as part of teacher licensure were reported by educators to promote competent teachers. Glasser (1990) provided evidence that teachers need training to be effective in the classroom: “If we continue to take the skill and art of teaching lightly, believing that almost anyone can do it . . . we will not make progress” (p. 24).

Several researchers gave credence to the importance of teacher training and licensure. Billups and Rauth (1987) reported that “Research unequivocally portrays the complexity of the teaching process, negating all contentions that the person without professional training can teach as well as anyone else” (p. 626). Duke (1984) reported that students with an aspiration for teaching could find teacher education programs in nearly 1,400 colleges and universities in the United States. Ballou and Podgursky (1997) explained that in teacher preparation programs students must complete a specified number of hours in pedagogical theory and practice as well as student teaching in the area of their certification. Students who have already majored in an academic subject may also enter the teaching profession after taking additional hours in educational pedagogy and student teaching. In addition, postgraduate programs offer students entry to the teaching profession. Ballou and Podgursky noted that programs are available that offer professionals with work histories the opportunity to become teachers with the option of bypassing or postponing certification course work. Lortie (1975) suggested that people who began teaching after following careers in medicine or business, for example, entered the profession with “above-average educational qualities” (p. 49).

It was Billups’s and Rauth’s (1987) contention that “Teaching is not something that anyone who knows the subject matter can do” (p.625). Duke (1984) reported that

low quality teaching has become the blame for student incompetence by many members of society. He pointed out that, while competent new and experienced teachers leave the teaching profession, those remaining teachers “often exude an air of weariness, bewilderment, and chagrin” (p. 21). Glasser (1990) emphasized again the complexity of teaching and the need for continuous education when he wrote:

If we continue to take the skill and art of teaching lightly, believing that almost anyone can do it, and end most formal training when teachers start to teach, we will not make progress. Teaching is a very hard job that needs ample compensation and considerable on-the-job training for the lifetime of the teacher. Less than this will not suffice. (p. 24)

In acknowledgement that the teaching profession is complex and difficult to master, Stiggins and Duke (1988) suggested that positive changes occur when the teacher is willing to continuously learn about effective instruction and effective classroom management. This suggestion gave credence to Bridges’s (1992) contention that preparation for coping with the realities of classroom teaching often requires more than is offered by colleges and universities. Glatthorn (1992) said, “Teacher empowerment begins with teacher knowledge” (p. 9). He further concluded that, since the classroom is the impetus for school improvement, more emphasis should be placed on teacher growth.

Pertinent to teacher growth through training and certification was the explanation by Ballou and Podgursky (1997) that teacher status is determined by the years of teaching experience. Teacher growth through licensure programs has increased over time. Mondale and Patton (2001) reported that teacher licensure in 1897 consisted of one license offered to teachers with good moral character and the knowledge to teach

“Orthography, Reading, Writing, Arithmetic, Geography, English, Grammar, Physiology, and United States History” (p. 51). They pointed out that Catherine Beecher, realizing that teachers had little training or supervision in the early 1900s, founded colleges to educate women in philosophy, science, and mathematics. Scriven (1990) described the need for teachers to have a degree from a reputable institution with a sound knowledge of subject matter.

Teachers in North Carolina who are graduates of a North Carolina approved education program may receive a 5-year renewable Continuing License after having completed the Initial Licensure Program (ILP). The Initial Licensure Program is a 3-year program including mentor support, assessment and evaluation, and the completion of a Performance Based Licensure Product. A yearly Individual Growth Plan (IGP) outlining prospective goals and strategies for improvement and growth is required of all teachers as part of the licensure process (Public Schools of North Carolina, 2000b). The teacher’s summative evaluation, which represented the quality of classroom performance on a yearly basis and was determined by the administrator’s judgment of classroom performance, was required to be submitted as part of the ILP (Public Schools of North Carolina, 2000b, 2000c).

The importance of quality teaching in North Carolina is exemplified in the qualifications required for licensing. Requirements for attaining continuing licensing require that teachers maintain successful summative teacher evaluations and attain several years teaching experience (Public Schools of North Carolina, 2000b, 2000c). Glatthorn (1992) recommended that teachers be evaluated every 4 years unless the teachers are in their first few years of teaching. Bridges (1992) purported that student

achievement is positively impacted by teacher evaluations because frequent evaluations and imposed sanctions increase teacher effectiveness. Bridges (1990) further suggested that judging a teacher's qualifications must involve evaluations of teachers with the highest expectations of teacher competence.

Performance and Evaluation

Evaluation of the teacher's performance offers the teacher the opportunity to become a change agent as described by Philippi (1996): "Changes now occurring in the workplace focus on continuous improvements . . . and worker performance" (p. 820). Philippi explained that employees [teachers] become concerned about job performance and job security and stated that "many workers [teachers] find being measured against a preset standard disconcerting" (p. 833). Passmore's (1980) statement that "the teacher, for good or ill, can make his own peculiar mark on the child--that is all, but more than enough" (p. 212), presents a strong case for the teacher's influence on the student and the subsequent need to evaluate such performance.

According to Castetter and Young (2000) the effectively functioning performance appraisal system requires a relationship that encourages emotional, psychological, and occupational gratification. They purported that evaluation is useless without a quality relationship between the appraiser and the appraisee. Manatt (1985) explained that the principal has the power to influence and control the promotion of school achievement, and Lester (1992) suggested that principals try to bring out the best in teachers in an effort to jointly create a better future for students. Glasser (1985) pointed out that teachers, like students, are more productive if they feel they have power in their work

effort. Burns (1978) emphasized the horror of submerged efforts that occurs from absolute domination of one person in power over another person. Manatt (1985) recommended that both teachers and principals share a common language based on knowledgeable research on teaching.

In addressing the issue of evaluation concerns, Bridges (1992) contended that it is necessary to design defensible teacher evaluation criteria. He reported that the following criteria were used to evaluate teachers:

- (a) knowledge of subject matter; (b) ability to impart this knowledge effectively;
- (c) ability to maintain classroom discipline; (d) ability to maintain a suitable classroom climate; and (e) ability to establish rapport with parents and students.

These criteria are too vague to withstand judicial scrutiny. We need to identify a set of indicators for each of these criteria in an effort to let teachers and evaluators know what our expectations are. Otherwise, teachers will be struggling blindly to meet undefined and unknown performance expectations. (p. 154)

In consideration of the ineffectiveness of teachers and the importance of supervisor ratings and observations to distinguish between competent and incompetent teachers, Bridges (1992) purported:

Most districts (72.3 %) use at least three different methods to identify incompetent teachers. The most frequently reported methods are (i) supervisor ratings and observations; (ii) complaints from parents or students; (iii) complaints from other teachers; and (iv) student test results. (pp. 7-8)

Bridges explained that the development of practices and policies to heighten the administrator's awareness of quality teacher performance is an indication of efforts of the administration to emphasize the importance of competency in teaching.

Duckworth and Carnine (1987) acknowledged that teaching behaviors are an important part of growth in student achievement and, as such, must be included as part of the accountability process for teachers and for principals. Bridges (1992) concluded that successful programs of teacher evaluation must have the total support not only of superintendents and principals but also of Board Members. Duckworth and Carnine (1987) postulated these ideas by noting that interdependence, requiring that the principal-teacher relationship include cooperation, is necessary for principals and teachers to impact the quality of student achievement. It was Johnson's (1984) contention that the success of the principal and the teacher depended on the quality of their interactive work. This interactive work called for the successful relationship between principal and teacher to be highly interdependent, necessitating the integration of congeniality and teamwork. Castetter and Young (2000) suggested that the moral tone for performance appraisal is set by the central office and determines the consistency of ethical standards.

Teacher quality improvement as a result of teacher evaluation is reported by Shinkfield and Stufflebeam (1995) as occurring when the teacher and observer mutually respect the evaluation process so that the observation is being conducted only with the expectation of positive outcomes. Popham (1997) recommended that evaluation of teachers involve a process including data-based professional judgments made by a nonpartisan reviewer. Shinkfield and Stufflebeam (1995) contended that equally important is the observer's awareness of the competency required to teach specific skills

and competencies. Wragg, Haynes, Wragg, and Chamberlin (2000) explained that the same teacher can be seen as competent by one evaluator and, at the same time, be seen by another observer as incompetent. Central to the issue of student learning are suggestions by Shinkfield and Stufflebeam (1995) that evaluation of teaching is essential in public schools because the quality of learning depends on the quality of teaching. The authors pointed out that positive teacher evaluation would be beneficial to the student learner through the teacher's improved teaching performance.

These practitioners concluded that effective evaluation of the teacher's performance positively influences student growth. William James (1939) called attention to the importance of teaching by commenting that the teachers had the future of the country in their hands. Darling-Hammond (2000b) observed that teaching is the essential profession that makes all other professions possible. James (1939) equated the difficulty in reaching the minds of students in the classroom with that of a commander and opponent on a battlefield. Rosenberg (1996) reached a similar conclusion by stating that "From classrooms to the battlefield to the assembly line, we have studied performance and how to improve it for a very long time" (p. 372). Tangential to the understanding that people are the most valuable asset in any organization, Rosenberg called attention to the fact that evaluation effort to determine the difference between actual performance and desired performance is the impetus for improved human performance. Wagg, Haynes, Wagg, & Chamberlin (2000) proclaimed a need for every profession to address the issue of performance evaluation and move toward higher standards of accountability. Moreover, the authors gave notice that professions and organizations can no longer

escape questioning fallibility. Thus, Rosenberg (1996) believed that crucial to closing the performance gap is the appropriate utilization of sufficient data.

Need for the Study

Drake and Roe (1999) stated that “the evaluation of individual performance continues to be an area of concern for those evaluating and those whose performance is being evaluated” (p. 301). Ideas expressed by Valentine (1992) suggested that positive support for improved student achievement through teacher evaluation has not been done because responses to problems have been either to discount the problem or simply not to deal with the problem by going through the motions. Wragg, Haynes, Wragg, and Chamberlin (2000) pointed out that, even though there were problems encountered with research in teacher evaluation, the research should not be discouraged. England, Hutchings, and McKeachie (1996) noted that institutions that care about effective teaching are recognized by their decisions and judgments concerning teaching personnel.

Medley, Coker, and Soar (1984) explained that in the past the expectation for learning rested with the student while the teacher listened to recitations and maintained order. The authors reported that the opposite is true today; the teacher is seen at fault if the student does not learn. Changes in expectations of learning and of teaching are cited by Palardy (2001), a teacher in today’s classroom. Palardy pointed out that the process of student learning for the past two decades has required skillful instruction to lead students through the processes and inquiries of learning. She reflected that an emphasis on lifelong learning has included learning centers, small-group learning, and problem-solving challenges. She postulated that expectations of teachers and learners have

changed as the pendulum swings from collaborative to solitary learning in preparation for high-stakes tests. She stated, “Content is the issue. Achievement is the goal” (p. 3).

In reference to students’ mastery of content, English (1992) gave credence to teachers’ mixing of methods and materials for student learning as being necessary for attaining common outcomes. English further suggested that state mandated tests have come about in part because classroom autonomy has allowed some teachers to choose their own strategies rather than follow the school’s plan for teaching content. He reported that tests and test taking have come to define the curriculum because it is only natural for teachers to want students to perform well on the test.

Berliner (1987) argued that checking performance is necessary for students and teachers to understand their own progress. English (1992) supported this tenant by explaining the assessment cycle as follows: “Lessons are subject to tests of students, and from these measurements results are obtained, reanalyzed, and fed back into the needs assessment cycle, which is repeated until test results and learner outcomes are identical” (p. 22). Richardson-Koehler (1987) provided some insight into student performance through the following description: “The bitter and the sweet of an instructional episode is in the assessment of student understanding” (p.289).

The dilemma of determining which factors influence student achievement was expressed by Millman (1981): “For many people, measures of student achievement are both the most direct evidence of effective teaching and the evidence most prone to misinterpretation “ (p. 165). In a discussion of student achievement used for teacher evaluation, Millman made the following propositions:

1. Using student achievement as a measure of teacher competence rests on the assumptions that an important function of teaching is to enhance student learning. Student achievement has no role in teacher evaluation when the teacher is seen solely as a classroom manager.
2. Many factors affect student achievement, including the teacher's performance, the particular measure of achievement being used, and the characteristics of the students.
3. Students differ markedly in their level of past achievement, ability, and willingness and opportunity to learn. Thus, any valid and equitable measure of teacher competence requires that these individual differences among students be taken into account.
4. Teacher evaluation can be used either for improving instruction (formative evaluation) or for making decisions about teacher status (summative evaluation). Knowledge about student achievement, appropriately obtained can be useful for either purpose. (p. 147)

Darling-Hammond (1997b) recommended that tools be developed “that support student learning and the development of quality teaching as they clarify what students and teachers are doing to achieve their goals” (p. 261). Millman (1997) pointed out that, even though student information may be valuable, “merely describing the product (what students know and can do) provides scant information on what the teacher did or should have done to yield better results” (p. 247). When using student achievement to appraise instructional competence, Popham (1997) urged only modest use of student learning.

Glass (1990) suggested that student progress rather than student achievement might be used to correct inappropriate teaching performance. He warned against using student achievement data. “Student achievement data cannot tell teachers how to teach; such data are not viewed as credible for distinguishing good teachers from bad ones; and data once gathered will tend to be used” (p.238).

A method of using data to help strengthen teachers’ instruction has been attributed to Dr. William Sanders, a University of Tennessee statistician (Silberman, 1999; Marks, 2000). Sanders and associates developed the Tennessee Value-Added Assessment System (TVAAS). The philosophy underlying the development of the TVAAS was that each student deserves to make academic gains while attending school regardless of the academic level on which the student enters school (Sanders and Horn, 1995). The method showed that a student’s progress could be impaired by as much as four years with an ineffective teacher. Sanders and Horn purported that by using mixed-model statistical methodology an unbiased measure of teacher influence on student academic achievement could be obtained. They reported that this methodology focuses on the student’s academic gain as a measure of teacher quality. Sanders and Horn stated:

By focusing upon measures of academic gain, each student serves as his or her own “control” or, in other words, each child can be thought of as a “blocking factor” that enables the estimation of school system, school, and teacher effects upon the academic gain with the need for few, if any, of the exogenous variables. (p. 343)

Supporting Sanders’ work, which showed the consequences of ineffective teaching, was the contention that the essence of instructional evaluation is to assure

effective teaching to determine who and what leads to learning and to encourage improvement in teaching to facilitate learning (Doyle, 1983; Shinkfield and Stufflebeam, 1995; Stronge, 1997; Popham, 1988b). Mehrens (1990) noted that when more than one piece of data is used in making high-stakes decisions in teacher evaluations the combinations of the data must be carefully considered. Data obtained for professional development should be used separately to distinguish between improvement needs and teacher effectiveness. Data used for summative decisions must be combined.

The need to determine influences on student achievement in schools is as timely today as it was in the past. “Every one as he grows up, becomes aware of lost time, and effort misapplied, in his own case. It is not unnatural to desire to save our children from a like waste of power” (Pattison, 1979, p. 45). Dr. Mike Ward, State Superintendent of Public Schools in North Carolina, said, “We cannot have high quality schools with vigorous student achievement unless we also have high quality teachers” (Public Schools of North Carolina, 2000a, p. 4).

Billups and Rauth (1987) contended that the need to determine influences of student achievement is clear and certain. If teacher performance as an influence can be linked with the most influential factors, teachers can then have an even greater impact on student achievement by using these specific factors to increase student growth in achievement. To obtain data to support functions of teacher performance that more highly relate to growth in student achievement would allow administrators to appropriately outline staff development and provide teachers direction for classroom instructional planning. Billups and Rauth stated that “Effective teachers find that

educational research reinforces expert teaching practices and inspires professionalism by promoting the ‘science’ of teaching” (p. 637).

Previous studies using the North Carolina Teacher Performance Appraisal Instrument focused on criterion-related validity. These studies included Cunningham, 1988; White, Smith, and Cunningham, 1988; Riner, 1988; Martin, 1988; Rothenberg, 1991; and Crawford, 1991. Hood (1990) addressed student achievement outcomes related to the teaching practices associated with effective teaching.

Purpose of the Study

The purpose of this study was to investigate the relationship between the teaching performance of elementary school reading and mathematics teachers in a North Carolina school district, as measured by the North Carolina Teacher Performance Appraisal Instrument and administered by the school administrator, and student achievement growth in reading and mathematics, as measured by the North Carolina 5th-grade reading and mathematics growth scores. More specifically, answers to the following research questions were addressed:

1. Is there a relationship between the overall teacher performance ratings, as measured by the administrative summative evaluation, and the 5th-grade reading and mathematics student growth scores?
2. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 1: Management of Instructional Time, and the 5th-grade reading and mathematics student growth scores?

3. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 2: Management of Student Behavior, and the 5th-grade reading and mathematics student growth scores?
4. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 3: Instructional Presentation, and the 5th-grade reading and mathematics student growth scores?
5. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 4: Instructional Monitoring of Student Performance, and the 5th-grade reading and mathematics student growth scores?
6. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 5: Instructional Feedback, and the 5th-grade reading and mathematics student growth scores?
7. Is there a relationship between the type of license and years of teaching experience and the student growth scores in 5th-grade reading and mathematics?
8. Which of the following is the best predictor of students' class average achievement growth in reading and in mathematics: Management of Instructional Time, Management of Student Behavior, Instructional Presentation, Instructional Monitoring, Instructional Feedback, teacher type of license, or years of teaching experience?

Definition of Terms

For the purpose of this study, the following definitions apply to the terms used in the discussion. Terms are listed alphabetically and operationally defined for the purpose of this research.

ABCs of Public Education: A comprehensive plan for public schools in North Carolina that includes improving accountability, strengthening the basics, and increasing local school districts' control.

Administrator: An elementary school principal is defined as an administrator.

Alternative Plan: Plans developed by experienced teachers with a Continuing License that show application of growth and performance in the classroom.

Continuing Licensure: Teachers having at least four years experience in a public school are issued a Continuing License that is maintained by renewal credits each five years.

End-of-Grade Test: The End-of-Grade test, which has been aligned with subject area curriculum, is administered to students at the end of the academic year.

Gateway 2: Gateway 2 is a statewide standard or benchmark for determining academic progress in Grade 5 before promotion to Grade 6. The benchmark in part states that students must meet local promotion requirements and that students must demonstrate grade-level proficiency by scoring at Level III or above on state end-of-grade tests in reading and mathematics.

Initial License: A credential issued to beginning teachers while they are completing the North Carolina Initial Licensure Program.

License: A credential issued in North Carolina to teacher applicants who have graduated from an approved teacher education program, have passed the PRAXIS I and II exams, and have successfully completed student teaching.

North Carolina Teacher Evaluation Standards: A teacher evaluation system that includes strategies for improving student achievement, employee skills, and employee knowledge.

Performance Growth Plan: The Performance Growth Plans (PGP) are documented aspects of the teacher's classroom performance and plans for professional development which allow administrators to work helpfully with teachers to strengthen teacher evaluation practices.

Statewide Student Accountability Standards: Statewide student accountability includes standards required for promotion to the next grade level. Using these standards, schools can identify students having problems and can provide appropriate help.

Student achievement/outcomes: Student achievement and student outcomes are synonymous terms that refer to student performance.

Student Growth: Student growth is the comparison of test scores of students at one point in time with test scores from a previous point.

Summative Evaluation: The summative evaluation is the process of making a judgment concerning the professional accomplishments and competencies of all teachers with respect to particular criteria on an annual basis. Each teacher receives one summative evaluation annually.

Teacher effectiveness: Teacher effectiveness is the teacher's use of classroom practices that affect or influence student learning.

Teacher Performance Appraisal Instrument: The Teacher Performance Appraisal Instrument (TPAI) is an instrument that is used to rate observed teacher classroom practices based on educational research and used to improve the quality of teaching through organizational decisions on promotion, tenure, contract renewal, and staff development.

Assumptions of the Study

The following assumptions were considered in this study:

1. An assumption of this study is that the administrators were not biased school administrators--that administrators were fair, consistent, and accurate in their evaluations of teachers.
2. An assumption of the study is that the evaluative administrator understood each of the elements on the Teacher Performance Appraisal Instrument.
3. An assumption of the study is that the tests administered to the students are valid measures of objectives the teacher is expected to achieve.

Limitations of the Study

This study is subject to the following limitation:

Generalization can be made only to the school system from which these data were collected unless other populations are similar in characteristics and similar assessment strategies are employed.

Chapter Summary

The researcher aspired to show that teacher performance influences student achievement. The evaluation of that process is surpassed only in its importance by its complexity. Links between teacher performance and student achievement are exemplified in literature, policy, and education. In response to the North Carolina Excellent Schools Act and the subsequent Statewide Student Accountability Standards,

the evaluation of teacher performance has come to the forefront in determining student achievement influences.

Evidence was presented underscoring the teacher's responsibility and the importance of an effective evaluation system in influencing students' growth in achievement. Performance and evaluation models were described and linked to the administrative teacher evaluation process. Teacher quality, as related to the teacher's performance evaluation, was presented to show issues associated with the administrator's observation.

Teaching was described as the hardest profession and the profession with the gravest responsibility for student learning. Performance appraisal was discussed, emphasizing how difficult the teacher appraisal process is for administrators. Teacher licensure and the prerequisite needs for teacher training, education, and experience were explained. Appropriate classroom behaviors for teachers and criteria necessary for effective teacher appraisal were presented. The need for quality teachers to accelerate student achievement accountability was discussed.

The need to further determine influences on student achievement is accentuated by the teacher's need to know whether specific practices would make a difference in student achievement. Questions for the study were listed according to the specific functions used to evaluate teachers in North Carolina. Definitions of terms were included in an attempt to clarify operational definitions and terms pertinent to the study. Three assumptions were noted that are critical to the study.

Chapter 2: REVIEW OF LITERATURE

Sergiovanni (1995) argued that student learning requires a teacher directed process that affects student outcomes. When considering the complexity of teaching and evaluation, Popham (1997) made the following statement:

The older I get, the more I realize how complex the instructional phenomena we study really are. We are studying one human's efforts to bring about worthwhile changes in a flock of other (usually smaller) humans. Humans are so confoundingly complicated that I fear our aspirations for evaluative precision almost always exceed our evaluative capabilities. Remember, when we evaluate something as complicated as instruction, we do not need to come up with a flawless set of evaluative procedures. Flawless we will not get. But it is reasonable to design instructional evaluation systems that at least improve the quality of the decisions we make about many teachers and school staffs . . .

(p. 273)

Research showed that educators agree on the complexity and difficulty in the study of teaching performance and student learning. Agreement on the need for the study is even stronger (Popham, 1997; Darling-Hammond, 1997a; Milman, 1997; Iwanicki and Rindone, 1995). There was a consensus among experts in the field of teacher evaluation that few issues have received more attention (Millman, 1997; Iwanicki and Rindone, 1995). Iwanicki and Rindone reflected that the teacher evaluation process provides background for discovering the extent to which the teacher's performance successfully influences student outcomes.

The determination of influences on student performance has been recognized as the central issue in education. For the purpose of this study, the researcher reviewed literature that discussed the teacher's influence on the student's performance and issues relating to the administrative evaluation of teachers. Practices associated with the teacher's performance were (a) management of instructional time, (b) management of student behavior, (c) instructional presentation, (d) instructional monitoring, and (e) instructional feedback.

Teacher Effectiveness in Management of Instructional Time

The classroom teachers' effectiveness in the management of instructional time includes the teachers' organization and management practices that encourage on-task behavior for students. In an attempt to study the initial phase of classroom management, Emmer, Evertson, and Anderson (1980) recruited a sample of twenty-seven 3rd-grade teachers from four Title I schools and four schools populated with upper-lower to lower-middle class students in the Austin Independent School District. Six of the eight teachers were first year teachers. A major goal of the study was to determine how teachers who effectively manage their classrooms begin their school year and what skills underlie their effective management practices when teaching reading. Observers, using the Classroom Narrative Record, determined information about the teachers' processes and characteristics concerning organization and management practices. A Student Engagement Rating scale was used to count the number of student on-task and off-task behaviors at 15-minute intervals and Component Rating was used to rate 34 variables used to judge characteristics of a particular teacher's group. Two observers visited each

teacher's class at least once during the first days of school, eight to ten times during the first 3 weeks, and then on a reduced scale once every 3 weeks from November until the end of the school year. Teacher interviews were conducted in October and at the end of the year. California Achievement Test (CAT) reading scores for students from the previous year were computed and used to rank teachers in three management effectiveness groups: "student engagement rates, reader ratings using the average of the behavior control and instructional management variables, and a management score derived from observer end-of-year ratings" (p. 223).

The descriptive-correlational data showed that the group identified as more effective managers had a higher amount of student engagement and lower off-task behavior. The management ratings for this group were higher and student achievement scores were higher at the end-of-the year than in the less effective manager's classes. T-tests comparisons of beginning of the year strategies showed statistically significant differences in the more effective and less effective managers. The researchers concluded that a teacher's effective organization and management practices that keep students on task during the first several weeks of school can be predictive of the teacher's organization and management practices that keep students on-task during the remainder of the year.

The teachers' awareness of the importance of managing instructional time to meet the needs of slower and faster learners was explored by Arlin (1982). Arlin investigated timing decisions made by the teacher and in a qualitative study presented a model for the teacher's time allocation procedures. Study participants located in the two semirural districts of British Columbia included 10 elementary school teachers teaching the first

through the seventh grades and the students in their classes. The teachers and their classes were located in seven different schools. The four components considered for observation in the investigation included: (a) the teacher's awareness of and reflection on time considerations, (b) the teacher's allocation of time for slower student mastery, (c) the teacher's decisions concerning the source of additional time needed for slower student achievement, and (d) the teacher's allocation of time to faster learners.

As part of the study, teachers attended a professional training day on mastery learning and were subsequently asked to prepare a mastery learning unit that could be taught in 10 days. Mastery learning was recognized as the students' ability to master at least 85% of the unit material before they were allowed to begin the next unit.

Students were given a pretest, a test on the 5th day, and a test on the 10th day. Pre-tests showed that some students did not meet the 90% entry-level achievement score. Special reteaching resulted in approximately 92% of the students being able to reach prerequisite entry behaviors. Students were given 2- to 3-minute long quizzes after daily 15- to 30-minute lessons. Lessons included lecture-recitation, demonstration, and group activity. Mastery criterion for each lesson was identified as 100% correct achievement on all questions. Remediation was provided for students not attaining mastery until they were able to meet mastery goals. During the 10-day study, seven research assistants observed teachers and recorded time used during the 100 lessons.

In the upper grades, off-task behavior of students not in the remedial group increased during reteaching of slower students. Most teachers found their best success in the reinstruction of the entire lesson to students not receiving mastery on the previous day's lesson. It was pointed out that, in mastery levels of learning, few variables can be

adjusted to provide for student individual differences. In this investigation a classroom environment timed for instruction of the students with lower aptitudes seemed to be the workable environment achieved for all students to attain mastery learning.

Support for the importance on the teachers' management of instructional time was offered by North Carolina State Department of Public Instruction (1986a) and by Holdzkom & Brandt (1995). The North Carolina State Department of Public Instruction cited guidelines requiring that teachers protect instructional time. Directions in the guidelines specify that effective teachers have all of the materials they need for class instruction ready before class begins. Effective use of time meant a minimum loss of time in administration to maximize time for instruction. Time, also, included maintaining an appropriate task level for students so that learning time was not lost on non-challenging learning activities. Coupled with making a concerted effort to teach at the students appropriate learning level is the teacher's skill of maintaining the attention of the students for academic engagement.

Holdzkom & Brandt (1995) explained that the teachers' management of instructional time has four separate practices. Teachers might exhibit a variety of behaviors for the management of instructional time. Before continuing a class, the teacher might request that all students face the teacher, or the teacher might walk from student to student checking to see that each student has the text opened to the correct page. The teacher might wait quietly until the entire group is ready to listen.

Recommendations for the effective teacher's use of time were observed by Wong and Wong (1998). The Wongs suggested that effective teachers use checklists to insure management of instructional time. The Wongs reported that the teacher's ability to

maximize time by the readiness of the work, the room, and the teacher protects time for student learning, minimizes student misbehavior and, thus, enhances on-task behavior.

Studies have shown positive correlations between teaching behaviors related to teacher competence in organizing classroom procedure for instruction and the students' enhanced achievement level. Wong Yu Fai (1996) showed findings from a study of school students in Hong Kong in which there was a high correlation between teacher competence and teachers' inferences of students' self-concept. This study included students attending two Anglo-Chinese secondary schools. The purpose of the study was, in part, to show that student learning improvements were affected by teacher competence. It was the researchers' contention that the teacher's skill in organizing for instruction would improve the teacher's competence of classroom procedures that is a prerequisite for effective teaching and student learning. Wong Yu Fai (1996) concluded that the teacher's inference of the student's self-concept (highly contributed to by the teacher's competence in organizing classroom procedure for instruction) would lead to more communication between the teacher and the student, to a better understanding by the teacher of the student, and to enhanced academic performance by the student.

A study reported by Packard, Dereshiwsy, Cropper, and Fimbres (1990) focused on the effective teacher's readiness of the work, the room, and the materials needed to maximize instructional time. The study, conducted in southern Arizona, called attention to teacher performance characteristics and how they relate to student achievement. The researchers analyzed 1,080 responses to a teacher self-description profile in an attempt to separate the teacher's contribution to student learning from other influences.

In this study, Packard et al. (1990) used an instrument that included questions on time effectiveness. Factor analysis of the 12 subsections of the instrument indicated that in all of the cases five or fewer factors were accounted for by over 75% of the variance. The five major factors were: (a) harmony in agreed upon goals, (b) clear and multidirectional channels of communication, (c) quality objectives, (d) accountability, (e) proper balance between quality, and (f) realistic expenditure of resources. The researchers pointed out that “a teacher . . . has a limited amount of time and energy to invest in various activities” (p.33).

Building on concepts that the teachers’ management of instructional time influences student on-task behavior, that time allocation is needed to meet instructional levels of slower and faster students, that time for extended engaged learning enhances student achievement, that teachers’ competence in employing time for administrative duties reinforces student academic performance, and that effectiveness in time management influences all aspects of the teaching process, researchers realized the need to further investigate teachers’ effectiveness in the management of student behavior.

Teacher Effectiveness in Management of Student Behavior

Management of student behavior was studied by Evertson, et al. (1981) using a manual of prescriptive behaviors for effective teacher student behavior. The manual was developed at the Research and Development Center for Teacher Education at the University of Texas with a focus on classroom management. Manual information was gathered from a study in 1977 of 27 elementary classes in eight schools in which each class was observed 16 times. Well-managed classrooms were identified by cooperative

students with high levels of task involvements and good achievement gains.

Observations of the less and more effective teachers were investigated to determine how management systems were organized. Findings showed the manual to be very helpful to teachers in the management of student behavior.

Teaching practices outlined by the North Carolina State Department of Public Instruction (1986a) included expectations that the teacher establish rules that guide student behavior. Directions clearly explain that teachers should have a routine in place for students who complete their work early to allow for the students' best use of learning time. In addition, teachers need to teach the students efficient routines for passing out papers, forming groups, and using time wisely. Teachers are expected to teach the group of students appropriate rules for verbal participation and movement in the room. The teacher must have the ability to continuously analyze the positive tone in the classroom. The teacher provides opportunities for learning to enhance social relationships. Hue (1993) pointed out that quality teachers effectively manage their classroom discipline and make the effort to learn new techniques.

In a study examining the effect of classroom teachers' behaviors on students' cognitive growth, Soar (1971) affirmed that management of student behavior directly affected student growth. As part of a national Follow Through project, data were obtained from 70 kindergarten and first grade classrooms over a two-year period. Classroom management was measured by examining the method the teacher used for control, the manner in which students responded to the teacher's methods of control, and the classroom emotional climate. Their results showed that the teacher's management of student behavior by minimizing structure and control did not support student growth

when pupil direction and structure were associated with simple cognitive objectives. The influence of the teacher's management of student behavior on student growth when considering pupil freedom and self-direction were associated with more complex and abstract kinds of growth. Soar affirmed the fact that cognitive growth in disadvantaged children is related to positive affect in contrast to negative affect.

Black (2000) reported that "looping" had a positive impact on student behavior. Looping is explained to be the practice of the teacher moving with the students to the next level of academic instruction. The approach offers students the opportunity to work more cooperatively because previously established practices of the teacher's management of student behavior allow immediate transition to instructional lessons with little loss of time. Black suggested that improved student achievement is associated with looping as a result of students feeling safe, having a strengthened social foundation, and knowing teacher expectations of student behavior at the beginning of the year.

In Eastern Newfoundland, Canada, Crocker and Brooker (1986) studied the dimensions of classroom control and how the dimensions related to student outcomes in 200 schools which included 350 second and fifth grade classrooms. Schools located in rural, suburban, and urban settings ranged in size from 100 to 600. The final sample included 36 classes in grade 2 and 39 classes in grade 5. Each class was observed for 90 minutes 20 times during the school year. Dimensions of classroom control were measured by 30 classroom process variables selected by the researcher from a larger set of 150 variables. These classroom controls were used as independent variables and dependent variables were (a) the Gates-MacGintie Reading Test, (b) a mathematics test developed by the research team, (c) the McDaniel-Piers Young Children's Self-Concept

Scale, and (d) the Ohio Social Acceptance Scale. These instruments were administered as pre- and posttest at the beginning and the end of the school year. Language lessons were shown to have more variability in classroom behavior than did mathematics lessons, and few differences in classroom behavior were shown in grade levels. Results showed that higher scores on cognitive measures were associated with teacher directed classes having high student on task behaviors.

In a study of teacher expectations and student behaviors, Good (1981) presented a model of how teachers may influence student achievement and behavior. Good presented five tenets of teacher expectations: (a) certain students are expected to have specific behavior and achievement, (b) teacher behavior depends on different expectations, (c) student productivity is affected by teacher expectations, (d) lower expectations will shape achievement and behavior, and (e) achievement and behavior will reflect and conform to behavior originally expected. Good explained that most research focus had been directed towards teacher treatment of high and low-achieving students.

Darling-Hammond (2000a) addressed student behavior by explaining the teacher's need for effectiveness in working with students with learning differences, including slow-achieving students. She recommended that the teacher develop powerful strategies. Emphasizing the importance of teachers communicating appropriate behaviors to students, Good (1981) outlined the following specific teacher behaviors that have been seen to vary in the way teachers work with low-achieving students. The specific behaviors that affect low-achieving students include (a) seating students farther away from the teacher, (b) less eye contact in academic instruction, (c) infrequent communication, (d) less wait time after questions, (e) not supporting in failing situations,

(f) criticizing more frequently, (g) praising success less, (h) providing less feedback, (i) demanding less work, and (j) interrupting performance. Pointing out that teacher expectations seem to have more student influence in the primary grades, Good suggested that inappropriate teacher behaviors for low achieving students will encourage passivity and that positive appropriate teacher behaviors will encourage high-achieving students. This provided evidence that appropriate teacher management of student behavior is imperative for effective instructional presentation.

Teacher Effectiveness in Instructional Presentation

Pertinent to the discussion of the teacher's presentation of instruction was an explanation by Darling-Hammond (1995) emphasizing that teaching effectively often requires unlearning practices that have dominated the teaching profession. She explained that the expertise needed for teaching complex subject matter to the diverse learner does not come from the traditional top-down strategies. Darling-Hammond (1997a) clarified the point that the understanding of a challenging curriculum and the teaching of advanced subjects well depends on highly skilled teachers. Elliott (1993) pointed out that his most effective instructional presentations were those in which he took himself out of the presentation so that students could assume ownership for their learning. Darling-Hammond (1995) agreed with this concept, reporting that teaching must be grounded in experimentation that is participant driven. It was Darling-Hammond's (1999) contention that, in an effort to more adequately meet a diversity of student needs, teachers are connecting new ideas with real-world problems to systematically organize and to present critical ideas relating to students' prior knowledge.

Preston and Kunz (1990) studied the effectiveness of the teacher's instructional presentation on student learning. Their findings showed that the method of the teacher's preparation for the teacher's instructional presentation influences student learning. In the study, teachers received three different methods of preparation for the instructional presentation. Three hundred and forty-four students enrolled in 18 high school vocational consumer homemaking foods classes in Utah participated in the study. Three groups of 6 teachers each taught a unit on yeast breads between January and May of 1988. The teachers were grouped according to the three methods of teacher preparation. The intent was to compare student learning as represented by student test scores. The results of the study showed that when the three methods of preparation were compared independently there was no significant difference in student scores with teachers using different preparations.

An indication of the importance attached to the study of the teacher's effectiveness in instructional presentation on student learning was addressed by Rosenshine and Stevens in 1986. The researchers reported that many successful experimental studies showed increased academic achievement of students as a result of teacher training. These classroom studies measured the following differences between teachers: the first group used specific instructional procedures learned through training and the second group continued to use regular methods of instruction. The consistently positive results from these studies indicated student growth affects to be determined by the teacher's instructional presentation.

Grouws and Good (1988) provided an example of a study that measured the effect of student growth as it is influenced by the classroom teacher. This study included a

sample of 24 junior high school mathematics teachers and more than 2500 students in 119 mathematics classes from the six district schools. The teachers were volunteer participants from a large mid-western school district. Early in the academic year and during the same 3-day period teachers administered a problem-solving instrument to their seventh and eighth grade mathematics classes. The teachers' performance in mathematics instruction was observed on a regular basis during the school year. Results from the 10-item posttest showed that students scored an average of one more problem correct than they had scored on the previously administered problem-solving instrument.

Popham (1998) recommended that teachers instruct with a clear understanding of instructional end points in mind that allows the teacher to provide more relevant examples and demonstrations. As directed by the North Carolina State Department of Public Instruction (1986a), effective teachers in North Carolina design daily lesson plans for instruction and presentation that include relevant examples and demonstrations to illustrate skills. Pertinent to student achievement is the effective teacher's ability to link instructional activities to prior learning by a review of the previous lesson. Also, it is important to introduce an activity that effectively relates learning. This helps to motivate each student's learning toward an improved outcome.

A study conducted by Powell (1997) presented explanations of motivation in instructional presentation. Powell compared teacher and student perceptions of motivational strategies used by teachers in achievement of mastery goals. High- and low-performing students from a sample of 47 middle school teachers completed a 27-question Motivational Strategy Use Questionnaire. The student questionnaire was designed to use words that reflected their perspectives and was administered to the entire class. Analyzed

results were determined from 6 high-performing and 6 low-performing students from one selected class. The ethnic composition of the students in the sample was 73% European American and 17% African American.

The teacher questionnaire used a 5-point Likert scale to indicate the percentage of time the teacher used each strategy. Teachers were asked to indicate the frequency with which they used motivational strategies with high- and with low-performing students using a range of 100%, 50%, 25% of the time or never.

No significant teacher effects were shown for the teacher's gender, grade level, or years of experience. Using responses from the questionnaires, separate mean scores were calculated for each teacher. Most of the teachers rated themselves as high in motivating high-performing and low-performing students but results showed that their use of motivational strategies was less frequent with low-performing students.

Students rating their teachers low on the overall scale included 80% of the high-performers and 78% of the low-performers. No significant difference was found in the strength of the relationship of responses between the high-performing and low-performing students when Pearson product-moment correlations were used. Results of paired sample t-test when using responses of teachers and their high-performing students compared with responses of teachers and their low-performing students showed that teachers perceived themselves as using motivational strategies which support a master goal more often than either their high- or low-performing students perceived them as using motivational strategies to support a master goal.

Good and Grouws (1979) gave credence to student scores being affected by the teacher's performance. Over a 4-month period in which teachers were observed six

times, a control group of 19 teachers taught fourth grade mathematics. The treatment group of 21 teachers received a 5-page manual with step-by-step instructions for teaching mathematics. The manual included 13 instructional principles and a handbook of specific teaching techniques. These same teachers received two 90-minute training sessions on instructional behaviors. Test scores for students of teachers in the treatment group increased significantly more than scores of students of teachers in the control group.

Teacher effectiveness in the instructional presentation of a lesson was identified in studies in which the teacher's ability to explain so that students could understand was investigated. The impact of the teacher's effectiveness in explaining was explored in four studies presented by Gage, Belgard, Dell, Hiller, Rosenshine, and Unruh (1968). The teacher behavior was described as being a necessary part of instruction in every lesson and in all grade levels because of the student's need to comprehend a process or concept expressed by the use of oral and verbal expression. The investigators were interested in the students' ability to comprehend explanations well enough to respond to questions appropriately. The researchers were interested in the teacher's ability to present ideas in such a way that pupils could respond successfully when questioned.

The studies used from 26 to 38 videotaped lectures from 43 experienced social studies teachers and their 12th-grade classes. Average class size was 21 students and classes were from the San Francisco Bay Area public school system. All teachers presented 15-minute lectures based on identical materials, and each group of students was given 10 multiple-choice questions on the lesson content. Students rated each lecture and completed a self-report of attention. Their self-report was an Attention Report completed after each lesson to identify how often their mind wandered during the lecture.

In Study 1, of the four studies identifying teacher effectiveness in instruction, Belgard, Rosenshine, and Gage (1968) explored evidence of generality in the teacher's lecture and understanding of classroom pupils. Generality results showed that the teacher's effectiveness in explaining does not depend on a particular lesson taught to a particular group on a particular day. Students' ratings of teachers on specific teacher behaviors showed relevancy to teacher effectiveness in explaining as measured by student achievement. The researchers reported that "estimated in this way the *rs* between students' mean ratings and attention, on the one hand, and their comprehension, on the other, were positive and substantial, ranging from .2 to .5" (p. 20).

Rosenshine (1987) called attention to research on effective teaching directed towards explicit teaching and explicit learning. Explicit teaching is explained to be appropriate for teaching a body of content when instructional method includes presenting materials in small steps. Rosenshine further explained the two-step research used in real classrooms to determine the effectiveness of explicit teaching.

Step 1 of the research Rosenshine (1987) reported required investigators to give pre-tests and post-tests to 25 classrooms in second-grade reading. After making adjustments for the ability levels of the students, the investigators used the data to identify which classes attained the highest achievement gain in reading and which classes received the least gain. Using these results, the investigators studied the teaching behaviors of the teachers in each group. Teaching behaviors were counted to determine which behaviors teachers of the reading classes receiving the highest gains used most often. These behaviors included the number of questions, types of questions, amount of

time spent presenting new material, and amount of time spent in review of previously presented materials.

Step 2 of the research involved conducting experimental studies. Teachers participating in the control group were taught in the regular manner. Successful teacher behaviors (identified in Step 1) were used to develop a manual by counting the teacher behaviors in classes in which students received the highest achievement gain. The manual was taught to the second group of teachers. In the second step of the research, teachers who received the manual were taught to use successful teacher behaviors and as a result their students achieved higher scores. Rosenshine (1987) cited that the findings of the experimental studies supported findings of the earlier correlational studies.

Rosenshine and Stevens (1986) concluded in their review of studies that effective teachers who taught structured subjects demonstrated the following qualities: (a) begin a lesson with a short review of previous learning, (b) begin a lesson with a short statement of goals, (c) present new materials in small and practiced steps, (d) give clear and detailed instructions and explanations, (e) provide a high level of active practice for all students, (f) ask a large number of questions to check for student understanding making sure that they obtain responses from all students, (g) guide students during initial practice, (h) provide systematic feedback and corrections, (i) provide explicit instruction and practice for seatwork exercises, and (j) monitor student performance during seatwork. It was the contention of Rosenshine and Stevens that effective teachers consistently exhibit these behaviors to enhance their effectiveness and subsequently to positively impact increased student growth.

Each of the previously listed components provided by Rosenshine and Stevens (1986) for the teacher's instructional presentation require interaction and communication between the teacher and the student. A study examining this interaction and communication was presented by Paulsen (2001). This study showed the effect of teacher-attunement on the academic performance of students with and without learning disabilities. The attuned teaching approach involved meaningful communication between the teacher and the student. Paulsen explained that in the attuned approach the teacher and student have a connection through which they share and communicate. The purpose of the study was to examine the effect of the attuned and non-attuned teaching approaches on student academic performance. The sample for the study included 24 fourth grade students with learning disabilities and twenty-four 4th-grade students without learning disabilities. The two teaching approaches were described as attuned and nonattuned (traditional).

The two core academic subject lesson plans used in the study were The Great Depression for Social Studies and estimating measurement for Mathematics. In the nonattuned approach students sat at their desks most of the time and were involved in reading material in the textbook, watching a filmstrip, participating in discussion groups in class, and completing worksheets or writing in journals. The attuned approach encouraged freedom of movement and emotional expression through role-play and creative activities. For example, in the lesson on estimating, students were asked to take walking steps that reflected the size of the measurement units. The pre-test for each subject was administered a week before the first lesson and was a 12-minute test. The post-test was a 12-minute test that was presented 3 to 5 days after the lesson. The length

of the lesson was between 43 and 51 minutes. The coding of teacher-student attunement was completed by using videotape of the lessons.

The results showed an improvement gain score in the attuned approach over the traditional nonattuned approach indicating a significant main effect of teaching condition in the attuned teaching. Paulsen (2001) further explained that academic gain scores were higher when teacher attunement was more frequent. These findings seem to indicate that the attuned approach would provide students with a clear understanding of the directions suggested by Rosenshine and Stevens (1986) for instructional presentation. The results of the study reinforce the need for teachers to possess attuned communication and interaction skills critical to effective instructional presentation.

Rosenshine and Stevens (1986) reported that process-product research includes: (a) review of the previous days work, (b) presentation of new academic material, (c) initial student practice, (d) feedback and correctives, (e) independent student practice, and (f) weekly and monthly reviews (p. 379). Review of the previous days work allows the teacher to make corrections, provide additional practice, and determine which students are having difficulty. For example, one form of review is the checking of homework. Presentation of new academic material allows the teacher to provide instruction, explanation and demonstration, give examples, and ask questions. These elements insure the student's understanding of the new material. Rosenshine and Stevens contended that frequent errors by students in the presentation of new academic material were a sign that new material had not been taught adequately. They suggested that this is an indication of the need for reteaching. Initial student practice is explained by Rosenshine and Stevens to be guided student practice. In guided practice the teacher leads student practice of the

new material so that the teacher can check for understanding and provide prompts.

Findings suggested that this important step provides the teacher the opportunity to correct errors before students practice mistakes for a long period of time. Independent practice allows the student to work with less supervision and to become more accurate in his/her practice of the new material. Weekly and monthly reviews allow the teacher to further assess the student understanding of adequately learned material. This is reported to be essential in providing a foundation for future learning and knowledge.

Barell (1983) pointed out that the foundations of effective teaching are applicable for learning deeper meanings (how kinetic energy relates to energy and other forms of motion) and for learning definitions (what kinetic energy is). Using a second grade highly structured mathematics class involved in a review of mathematic operations and a fifth grade class analyzing a story in which complex human problems were being examined, Barell pointed out that both classes incorporated direct teaching elements that included a brisk pace with many questions, many different examples, and a tight structure controlled by the teacher. Both teachers were helping students to create meaning out of experience with a high level of active student engagement. Even though there were differences in how the teachers managed the classroom content, engagement time, and outcomes, both teachers used effective teaching that supports learning. Teacher effectiveness is as applicable to more complex human situations that are part of instruction as it is in classes that are more convergent and that lend themselves to a hierarchical structure. Barell suggested that a danger in the effective teaching research is that teaching may become prescriptive, requiring teachers to comply with a formalized checklist used by the evaluator. Research showed that the teachers' intentional act of

maintaining a high level of active student instructional engagement helps to create meaning in learning and can be accomplished through effective instructional monitoring.

Teacher Effectiveness in Instructional Monitoring

In research report *Critical Presentation Skills* (1987), monitoring students' responses and adjusting instruction were described as strategies for eliciting more student responses. Suggestions for the teacher included monitoring to stay attuned to students not attending and then moving closer to those students or gaining eye contact with them. The report stated:

A high percentage of correct answers in both guided practice and independent work is positively related to achievement gains. Various researchers have found critical success rates to be from 80% to 90%. Rates of less than 75% result in lower achievement. This is true for low-achieving and special education students as well as normal-achieving students. (p. 1)

Practices required for teachers in North Carolina include the teachers' use of monitoring as a major function of the teacher that positively impacts student achievement. Effective teachers in North Carolina (North Carolina State Department of Public Instruction, 1986a) expect quality work and accurately assess student work by circulating among student stations to check student performance. Teachers ask students questions to enhance learning and to determine if there is a need for lesson adjustments. Teachers are providing practice work for students in class and assigning homework for out-of-class practice. Teachers monitor student responses to questions carefully, making judgments about how to be most helpful to students. Protecting the student's dignity is

important when students are called on and do not know the answer to a specific question. To help reduce possible embarrassment, teachers employ techniques such as having a student call on a friend to assist them in answering the question. Teachers create learning communities in the classroom environment by their demeanor.

Kounin reported (1970) on classroom observation techniques that were based on objectivity and completeness. Videotapes were used to record all that occurred in the classroom because the “lens has no biases, theories, preconceptions, needs, or interests” (p. 64). Kounin developed dimensions that were used to denote the teacher’s behaviors and devised the dimension of “with-it-ness.”

“With-it-ness” was defined as a teacher’s communicating to the children that she knows what the children are doing, or has the proverbial ‘eyes in the back of her head’ . . . It is not adequate to measure what a teacher knows in order to obtain a score for the degree of her with-it-ness. It is necessary to measure what she communicates she knows. The children . . . must get the information that she knows or doesn’t know what they are doing. (p. 66)

Doyle (1986) reported that researchers investigating monitoring found that “with-it-ness” is positively associated with learning. Doyle pointed out that the complexity of monitoring group lessons is confounded by the group’s composition of different abilities and the teachers’ effectiveness in attending to conversational lessons. Research, Doyle cited, is less available on monitoring seatwork. However, the suggested data shows that seatwork occurs often and requires management and cooperation. Even though the teacher is not the central figure in seatwork, as opposed to group work, monitoring prevents lessons being left to chance. Transitions were cited by Doyle as requiring more

direction by the teacher than group work or seatwork. Doyle reported research suggesting that quality of the transition is important in setting pace and tone. Cueing and improvising contexts is described by Doyle as the ability of the teacher in “orchestrating classroom lessons . . . [which] involves a delicate balancing of a large number of forces” (p. 416). Monitoring, recommended for improved student achievement, takes up “a large chunk of the teacher’s attention . . . in monitoring the flow of content and activity and watching for potential breakdowns in the system” (p. 416). Research showed that the balance required in the teachers’ instructional presentation includes the component of instructional monitoring and the closely associated component of instructional feedback.

Teacher Effectiveness in Instructional Feedback

Acknowledging that feedback to students concerning behavior and learning efforts are essential for students and a responsibility for teachers, Brophy (1981) explained that successful praise must have “qualitative characteristics” (p. 271).

Brophy’s definition of praise stated:

By “praise” I mean teachers’ positive responses to students’ good work or good conduct that go beyond mere affirmation or positive feedback. Thus, merely nodding the head, repeating an answer, or saying, “right,” “yes,” “okay,” and the like would not count as praise. Praise involves a more intense (“very good!” stated emphatically and with nonverbal communication of warmth, excitement, or other positive affect) or elaborated (“You’ve got them all right, Nancy—good work!”) reaction to student behavior than is needed just to provide feedback about correctness. (270)

Brophy (1981) cautions that teachers using praise to shape student behavior by praising when students perform well and withholding praise when they do not may be enlisting a conditioning reaction of the teacher that is shaped by the student's cue for praise, and, in such a case, praise is not given because of the student's accomplishments. Praise is best when it is selective and concentrates on genuine accomplishments. Brophy stressed that, when considering praise, quality and credibility are more important than quantity and that praise that enumerates specific student accomplishments can reinforce a deeper understanding of the accomplishment. "Effective praise requires time, concentrated attention, and individualization of remarks according to the student and the situation. No teacher will be able to praise effectively on a continuing basis and yet simultaneously accomplish all the other tasks of teaching" (Brophy 1981, p. 277). Brophy suggested that praise is most effective when teachers praise well rather than often.

Rosenshine and Stevens (1986) emphasized that "whether . . . hints, prompts, or reteaching the material, the important point is that errors should not go uncorrected" (p. 386). Uncorrected errors, the researchers contended, will interrupt subsequent learning and can become extremely difficult to correct. In response to the question, "How should the teacher respond to the student's questions?" (p. 385), Rosenshine and Stevens outlined and discussed four types of student responses:

- Correct, quick and firm
- Correct, but hesitant
- Incorrect, but a "careless" error
- Incorrect, suggesting lack of knowledge of facts or a process (p. 385)

The researchers suggested that a new question should be asked when the student's response is correct, quick, and firm stating that the student usually gives the correct response in the later stages of learning or in review. Short statements of feedback are recommended when the student is correct, but hesitant. Careless errors should simply be corrected to protect any loss of instructional time. Incorrect answers due to lack of knowledge are most effectively addressed by the teacher providing hints, prompts, or simpler questions. The researchers cautioned that the teacher maintain awareness of the amount of time required for the student with the incorrect response. Reteaching the material to that student is suggested to prevent the loss of class attention. Researchers pointed out that finding the time to reteach only the needed material for one student presents a problem for managing other students during the remedial instruction.

Instructional Feedback is a teaching practice that has been correlated with enhanced student achievement and is required of all effective teachers in North Carolina (North Carolina State Department of Public Instruction, 1986a). Research has shown that effective teachers encourage students by providing feedback on the correctness and incorrectness of work. Prompt feedback must be provided by the teacher on student out-of-class work. In class correct oral responses by students are affirmed and incorrect responses are recognized. To facilitate learning, teachers probe, repeat the question, provide clues, and when appropriate, allow more time. Active inquiry and supportive classroom interaction are encouraged by the teacher's knowledge of effective verbal and nonverbal communication.

Webb (1987) acknowledged that immediate feedback in peer tutoring is especially helpful to students in need of academic help. Students, who model their peer tutor,

believe their efforts may result in achievement equal to their tutor. These students benefit from clarification of material they do not understand through the immediate feedback.

A report by Burnette (1999) noted providing frequent feedback as being one of the strategies effective in developing strong relationships between teachers and students with culturally diverse backgrounds. Burnette suggested that the teacher give positive feedback to correct an incorrect response by asking the student questions, reviewing concepts, suggesting improvements and then having the student correct his/her own work. Corrective feedback can be employed to let the student know which aspects have been mastered and which aspects still need work.

Kohn (1994) suggested that reward in the form of extrinsic motivators could instill a dependency in the student for attaining someone else's approval. Receiving feedback in the form of information, however, is pointed out to be a strategy to help students develop their own methods for successful learning. Informational feedback is reported by Kohn to provide the student with unconditional support instead of responding to positive response that encourages conditioning to meet someone else's expectations.

Tobin (1986) studied the rate at which information is presented and the student's ability to process cognitively in mathematics and language classes. Noting that complex discourse requires a greater processing time than does less complex information, emphasis is placed on the teacher's need to consciously manage the amount of time students need after a question is asked and the amount of time needed for silence during explanations. Students need assimilation time and time to integrate the newly learned information with previously learned lesson content. Teacher pauses in presentations allow students the opportunity to formulate and ask questions or to add comments to the

information. The teacher, also, can benefit from the pause time, using the time to decide on the next course of action.

Twenty teachers in suburban schools in Perth, Australia were included in the sample. In the mathematics study 10 teachers were assigned to the wait time feedback group and 10 teachers were assigned to a control group receiving placebo feedback. Using audiotapes the teacher wait time and discourse were measured in mathematics and language arts classes. Seven lessons with materials were provided to the math teachers. The hour-long lessons included material-centered problems that were to be solved by the students in whole class settings.

The length of time preceding the teacher utterance was used as the wait time. A post-test of 10 items was given to the mathematic students; language arts classes were not assessed. In the mathematics study 10 teachers were assigned to the wait time feedback group and 10 teachers were assigned to a control group receiving placebo feedback. The experiment was replicated in the language arts classes using the same 10 teachers that had participated in the mathematics wait time study and 10 volunteer teachers for the language arts control group. In each language arts class, students silently read a passage from the text and then participated in a whole class setting discussion. Teachers were able to extend the wait-time to 3 seconds in both mathematics and language arts.

Results of the relationship between teacher wait-time and the quality of student and teacher interaction during informational presentations showed that teachers in the wait-time group asked more appropriate questions, showed evidence that students used the wait-time for thinking, showed increased number of solicitation, and showed a lower proportion of teacher mimicry replaced by teacher probing for additional student

response. Tobin (1986) reported that with the increased achievement in this study there is evidence that students and teachers benefit from extended wait-time in whole class settings.

The teachers' ability to manage instructional time, ability to manage student behavior, ability to manage instructional presentation, ability to monitor instruction, and ability to provide instructional feedback was shown to influence student learning. Further research revealed the magnitude of the importance of the teachers' effectiveness on student achievement.

Student Achievement and Teacher Effectiveness

Behaviors of teachers to improve the academic performance of their students have been addressed over time. In response to legislation requesting a study of equal educational opportunities in public education, Coleman et al. (1966) claimed that the most important responsibility of the school was to teach the skills of "reading, writing, calculating, and problem solving" (p. 20). These were seen as the important skills for independence and productive work. The researchers pointed out that results from tests on these skills are indications of the "outcomes of schooling" (p. 218). Richardson-Koehler (1987) claimed that there is no need to assess material that is not delivered well. Rosenshine and Stevens (1986) purported that training for teachers in specific instructional procedures would lead to increased student engagement in the classroom and increased achievement.

Floyd (1985) explained that effectiveness in teaching received attention in 1978 as part of North Carolina's efforts to assure that educational personnel would become

more qualified and professional. Plans were developed for effective teaching of Initially Certified Teachers to be assessed using the Teaching Performance Appraisal Instrument. Subsequently, the 1980 state mandated teacher evaluation system and uniform performance standards required evaluation for all certified personnel. The 30-hour training program developed to implement the evaluation system was designed to improve quality teaching and student achievement. The training program included ten topics based on effective teaching research, which had been linked with student achievement.

Believing that all students could learn with quality teaching, North Carolina developed End-of-Grade tests. End-of-Grade tests in North Carolina are a part of the ABCs of Public Education, a plan that is based on the belief that all children can learn. The initial grade levels included in the ABC plan were kindergarten through eighth grade. Since the inception of the plan, new standards or gateways have been established for grade levels 2, 5, and 8. As of the year 2000-2001, students in grade 5 were required to perform at Level III or above on end-of-grade tests in reading and mathematics in order to be promoted to grade 6. Level III is defined as the level of demonstrated mastery students need to have of subjects in the fifth grade in preparation for successful achievement in the sixth grade. The end-of-grade tests are multiple-choice tests that test the student's knowledge of competencies outlined in the North Carolina Standard Course of Study. The tests also provided students with the opportunity to achieve on higher-order thinking skills. The measurement of individual skills and knowledge as well as the skills attained by groups of students were the primary purposes of the end-of-grade tests. The group test scores were used for the school, the school system, and for the state for the ABC Accountability Program (Public Schools of North Carolina, 2001).

In an attempt to identify consistently effective teachers, Good and Grouws (1977) conducted an observational study in fourth grade mathematics instruction in a large school district in a mid-west metropolitan area.. Effectiveness was measured in terms of student performance on the Iowa Test of Basic Skills. The researchers were interested in how the teacher functions as an independent variable in order to influence student achievement. Good and Grouws (1975) stated:

To maximize the utility of the data we decided to focus the observation upon teachers' performance in mathematics. This decision was reached because (1) teachers available for observation demonstrated slightly more stability in mathematics than reading and (2) we felt more prepared to do a detailed analysis of mathematics than reading (the co-principal investigator is a specialist in mathematics education; (3) subsequent data from Brophy-Evertson paradigm suggested that teaching effects were contextual (different patterns of effectiveness had been noted in low and high SES teaching situations). Hence, we felt an intensive examination in a single subject area would be a more powerful probe, and for the reasons given above we chose to focus mathematics. (p. 8)

Results showed that effective teachers with high student performance presented with a greater degree of clarity. Teachers with low student performance were less likely to provide sustaining feedback.

Good and Grouws (1975) further explained that, in the rooms of highly effective teachers, teaching time was directed toward the whole class with less teacher warning and praise as well as fewer process questions. Low effective teachers had management and organizational problems. Results showed:

Teaching effectiveness (as operationally defined in this study) appeared to be strongly associated with the following clusters: (1) *student initiated behavior*; (2) *whole class instruction*; *general clarity of instruction*, and *availability of information as needed (process feedback in particular)*; (4) a *non-evaluative* and generally *relaxed* learning environment; (5) *higher achievement expectations*; (6) *classrooms that were relatively free of major behavioral disorders*. (p. 37)

Good and Grouws (1977) conducted a second study of over 100 third and fourth grade teachers in a school district near a large urban city. Nine effective and nine ineffective teachers were identified using individual students' scores on the Iowa Test of Basic Skills. Data collected from the observations were analyzed to see if there were differences in student achievement between the nine high effective and the nine low effective teachers. Results indicated that high- effective teachers explained material more clearly than low-effective teachers and, subsequently, had higher clarity scores. High-effective teachers praise less than the low- effective. However, low- effective teachers did not praise when students approached them about their academic work. Effective teachers were non-evaluative and did not praise or criticize as much as low- effective. Good and Grouws (1977) claimed that this study showed teachers' effectiveness in the classroom to be a highly developed skill.

Using the Tennessee Value Added Assessment System, Wright, Horn, and Sanders (1977) measured the influence of teachers on the students' academic performance over a large population of students using standardized testing. Thirty East Tennessee school systems and 24 Middle Tennessee school systems were included in the study. "TVAAS is a statistical process that provides measures of the influence that

school systems, schools, and teachers have on indicators of student learning” (Sanders and Horn, 1995).

Scores from the 1994-1995 Tennessee Comprehensive Assessment Program (TCAP) in the subjects of math, reading, language, social studies, and science in grades 3, 4, and 5 were included in the study. This student gain score was derived from subtracting the student’s previous year’s scale score from the student’s present year’s scale score. Achievement level was defined as the average of the student’s 1994-1995 scale scores. Classroom student numbers of 10 to 19 were used as small class groups and numbers of 20 to 32 students were used as large class groups.

Results showed the teacher to be the most important factor influencing student performance outcomes. “Effective teachers appear to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classrooms” (Wright, Horn, and Sanders 1997, p. 63). Analysis of results for grades 3, 4, and 5 showed teacher effectiveness, student achievement level, and the school system to be the most important factors effecting student academic gain. The major influences were reported to be teacher effectiveness and student achievement level. The researchers reported that study results show that if students are in an effective teacher’s class one year followed by an ineffective teacher the next year, the student gains academically “but not enough to offset previous evidence of less than expected gains” (p. 64).

Sanders (1998) reported on the TVAAS research initiated in the 1980s. Sanders explained that the system determined the effectiveness of teachers in “sustaining academic growth for student populations” (p. 24). Also referred to as the “Sanders model”(p. 25), the methodology directly links student growth to educational evaluation.

Sanders contended that unexplored questions could be answered with this research methodology. Findings relating to teacher effectiveness included the following:

Of all the contextual variables that have been studied to date (indicators of school socioeconomic status, class size, student variability within classrooms, etc.), the single largest factor affecting academic growth of populations of students is differences in effectiveness of individual classroom teachers. When considered simultaneously, the magnitude of these differences dwarf the other factors. (p. 27)

Claiming that performance assessment accurately shows teacher quality and measures student responses consistently and fairly, Howell, Brocato, Patterson, and Bridges (1999) conducted a study in a Mississippi school district to investigate how teaching influences the instructional program. Using a sample population from a north-central school district, assessment in this research measured language performance and mathematics performance. The independent variable was the Integrated Assessment Staff Development model. Mathematics performance assessment scores for the 5th through 9th-grade students from the 1996-1997 pre-test and the 1997-1998 post-test were used in the study. Results showed no increase in performance assessment scores after performance task instruction when mathematics and language arts scores were analyzed separately.

Brophy's (Brophy and Good, 1986) report based on a thorough study linking teacher behavior to student achievement showed that "some teachers are consistently better than others at producing student learning gain" (p. 340). Achievement data from students of experienced teachers in 88 second grade and 77 third grade classes were obtained from results of the Metropolitan Achievement Test. Student subtests of word

knowledge, word discrimination, reading, arithmetic computation, and arithmetic reasoning were analyzed in the classes of 165 teachers. Results showed correlations to be “positive and usually significant” (p. 340).

Brophy (Brophy and Good, 1986) reported further on the teacher effectiveness study conducted in Texas. This study included the same teachers and data plus one additional year of data. From the 165 teachers, 31 of the teachers were observed for 10 hours during the first year of research and 29 in the second year. Results showed that the strongest and most consistent correlations with student achievement were the process variables involving maximum student engagement and minimal time lost in transition and in correcting student behavior. Students consistently completing their work, answering questions correctly, and meeting high teacher expectations showed achievement gains.

In an attempt to verify correlational findings describing process-product relationships between teaching behaviors and achievement, Anderson, Evertson, and Brophy (1979) conducted an experimental study of effective teaching using an instructional model that included 22 effective teaching principles. The investigators wanted to determine which processes caused which products using instruction in small groups in the primary grades. Nine Anglo schools with predominantly middle-class students and 27 teachers participated in the first grade reading group study. Reading achievement as the student outcome was measured over several months, teacher behaviors were examined in a natural setting, and data were collected on the treatment and control groups throughout the year.

Study results showed that instruction was related to student achievement. Use of time had important relationships with achievement showing that the longer reading

groups had higher achievement. Results on the types of questions showed that questions asked of students without the student use of books as a reference showed more positive relationships with achievement. More effective teachers showed less anger and frustration when correcting students. Higher achievement was shown to be related to fewer interruptions and a smaller percent of interaction with students who had misbehaved. In a study of teaching and student achievement gains in mathematics, Good (1978) showed that student performance gains were higher with direct instruction.

Cunningham (1988) conducted a study in the public school system that included 14 student teachers and regular classroom students in grades 3, 4, and 5. Student teachers were assigned randomly to classes ranging in size from 24 to 35 students. Each student teacher taught science content which the pupils had not previously studied during eight 50-minute lessons on 8 consecutive days. A pair of trained observers using the North Carolina Teacher Performance Instrument rated each student teacher's performance during unannounced observation sessions. Results showed that "the variance accounted for on the classroom achievement tests by the five teaching functions was .70 ($p = .05$)" (p.6). Cunningham concluded that the classroom teachers might have more effect on student achievement than had previously been indicated.

Conversely, in a project funded by the National Foundation Grant under the direction of Richard P. Manatt at Iowa State University, researcher Stow (1979) formed a partnership between teachers, administrators, and university based researchers in West Des Moines, Iowa to conduct a study using student gain scores from beginning to ending of fourth grade mathematics and teachers of students in the third, fourth, and fifth grades. The principal, the director of elementary education, and the assistant superintendent who

evaluated teachers separately had been trained in a series of nine-day workshops. Teachers were included in pre-observation and post-observation conferences and encouraged to adhere to the 17 categories on the evaluation instrument. Even though there were significant gains in student scores, the gain scores did not correlate with the composite scores of teacher performance.

Several studies examining the criterion-related validity of the NCTPAI used teacher performance ratings and student achievement as variables. In a study including students in grades 1 through 6 and 40 teachers in a central North Carolina school district, Riner (1988) found significant positive relationships between each TPAI function rating and California Achievement Tests (CAT) in mathematics. He found no significant relationship for reading. Martin (1988), using TPAI ratings from 47 provisional teachers of grades 2 through 6 in the Charlotte-Mecklenburg Schools Career Development Program, found Function 4: Instructional Monitoring to be a predictor of student achievement in reading and mathematics. Rothenberg (1991) investigated teacher performance function ratings from 29 algebra teachers and 25 English teachers in a large urban school district in North Carolina and CAT scores from 9th-grade students. She found that the teachers' performance had a significant effect in algebra but not in English. Crawford (1991) found the overall TPAI ratings significantly correlated to Algebra I when using twenty-nine 9th grade Algebra teachers and 9th-grade student CAT scores in the Charlotte-Mecklenburg School System. White, Smith, and Cunningham (1987) reported a study in which they used ratings from 14 student teachers and scores from student tests administered on the first and last day of lessons taught. Results showed that,

with the exception of Function 4: Instructional Monitoring, there were significant correlations between each of the teaching functions and student achievement.

White, Wyne, Stuck, and Coop (1987) pointed out that the complex process of teaching could be improved with administrative assistance targeted at improving teaching skills. Observational data, especially helpful for new teachers, can be used to improve teaching performance and enhance student achievement. The primary outcome of effective teaching, student achievement was reported to be best achieved through continuous development of higher level teaching skills.

Evaluation and Teacher Effectiveness

Good and Mulryn (1990) suggested that the widespread concern over teacher evaluations might be attributed, in part, to the lack of knowledge about the teacher actions and student outcomes or because the evaluation process has become a ritual for teachers and principals to fulfill only to meet expectations. Millman (1997) concluded that teachers disfavor using student performance as a measure of teacher effectiveness. Nevertheless, Millman reported, the alternative measurement of teaching success, the principal's evaluation, is viewed by teachers with even less credibility. Shinkfield and Stufflebean (1995) suggested that evaluation of teaching is essential in public schools because the quality of learning depends on the quality of teaching. They pointed out that effective teacher evaluation would be beneficial to the student learner through the teacher's improved teaching performance.

Reichardt (2001) suggested that, when placed in context, evaluating teachers' ability to enhance standards for students is complex and further suggested that a teacher's

quality must be considered in the context of the school in which the teaching takes place. The complexity of using test scores to measure teacher performance is indicated in the need for assessments to be aligned with the standards taught and in the amount of data needed over long periods of time for determining accurate measurement. Pointing out that communication is one component of attracting and keeping high quality teachers, Reichardt emphasized that quality teaching requires a comprehensive approach that improves with each stage of the teacher's career.

Wilkerson, Mannat, Rogers, and Maughan (2000) conducted a study during the 1996-97 school year that examined the performance of K-12 students using reading, language arts, and mathematics tests. Researchers examined the relationship between student test scores and teacher performance ratings by principals, students, and self-ratings by the teacher. Findings showed a highly positive correlation between student feedback of teacher performance and student achievement in the core subject areas. Teacher self-ratings showed high positive correlation with student achievement scores in mathematics and language arts, with a slight positive correlation between self-rating and student achievement in reading. Findings showed that the principal's feedback to teachers showed a slight positive correlation with mathematics. However, there was only a minimal correlation with reading.

Teacher evaluation was considered in a study conducted by Capie, Tobin, and Howell (1980) in Georgia concerning elementary school student teachers' ratings on teacher performance and gains in achievement by their classroom students. Thirty-three undergraduate student teachers and several hundred public school students, located in the same community with similar neighborhoods, in grades K-5 were participants.

Classroom students were given a pre and posttest on their units of instruction. Student teachers were rated by classroom teachers and by college supervisors using the Teacher Performance Appraisal Instrument (TPAI). The Teacher Performance Appraisal Instrument measured the teacher's ability to plan and evaluate instruction, the teacher's classroom administrative abilities, the teacher's professional and ethical behaviors, and the teacher's effectiveness of teaching. Results showed a significant and positive relationship between teaching performance and student achievement.

Tyson and Silverman (1994) researched the differences in appraisal scores from 1988 through 1992 using the Texas Teacher Appraisal System. Participants in the study included 620 teachers in central Texas who had each taught four years. Depending on their professional status, teachers were required to have either two or four observations during each of the academic years included in the study. Summative scores on the evaluations label teachers from "Unsatisfactory" to "Clearly Outstanding" (p. 14). The principal and a second off-campus administrator conducted teacher appraisals on the primary level. The principal and a second on-campus administrator appraised teachers on the secondary level.

The data on the four categories on the appraisal system included (a) instructional strategies, (b) classroom management, (c) presentation of subject matter, and (d) learning environment. Results showed that scores were extremely high with scores increasing over the 4 years, and elementary appraiser's scores were higher than secondary appraiser scores. Discussion of possible reasons for high scores included familiarity with instrument over time, learned expectations over time, higher scores awarded because teachers improve, on-campus primary appraisers, and appraiser obligation or pressure.

Nolin, Rowand, and Farris (1994) submitted a statistical analysis report to the National Center for Education Statistics on Public Elementary Teachers' Views concerning teacher performance evaluations. The study conducted in the 1993 school year originated with a request from the Office of Research, U.S. Department of Education for the Survey on Teacher Performance. The purpose was to determine how teachers viewed performance evaluation in their own school districts and to provide data to the Center for Research on Educational Accountability and Teacher Evaluation (CREATE).

Using a Fast Response Survey System the study was conducted in Rockville, Maryland. In this study, school principals conducted 90% of the elementary teachers' performance evaluations. The sample of teachers located in the 50 states and the District of Columbia included 1,070 full-time teachers in their second year of teaching at their current school either teaching a regular kindergarten class or one of the grades from grade 1 through 6.

Teachers surveyed included 75% with standard certifications, 20% with advanced certification, and 5% with temporary status. Teachers in 520 schools were asked to complete the mailed questionnaire using information from their most recent teaching performance evaluation. After telephone interviews for non-respondents were conducted, 986 teachers with a response rate of 93% were included in the analysis. From the 13 aspects of teaching that might possibly be considered when evaluating teachers that had been identified by the researchers, the elementary teachers submitted the following assessment:

More than 90 percent of elementary teachers said that the following six aspects of teaching should be considered in evaluating a teacher's performance: overall

teaching performance (99%), subject matter knowledge (99%), classroom management (99%), instructional technique (99%), helping each student achieve according to his or her ability (97%), and teaching demands unique to students in the classroom (95%). (p. 7)

The following percentages show results of aspects of teaching believed by teachers to be considered in their last evaluation:

While 99% of elementary teachers said that subject matter knowledge should be a consideration in evaluating a teacher, 65 percent of teachers said it had been considered to a great extent. Although 97 percent of teachers believed that contributing to students' achievement should be a consideration, only 63 percent reported that it actually had been considered to a great extent in their last evaluation. (p. 8)

Over 50% of the teachers reported that these six aspects of teaching had been considered on their last performance evaluations. Over 50% of the teachers rated their last performance evaluator as being competent to evaluate the teaching aspects. Eighty-nine percent of the teachers thought their last performance evaluation ratings were an accurate portrayal of their teaching performance and 74% reported the evaluation helpful in plans for improved performance. Most teachers saw performance evaluations in their schools being used to improve teaching skills.

Bloomberg and Greenfield (1986) pointed out that one of the three major problems identified by former principals was "The problem of exceeding difficulty and accompanying frustration that is attached to the process of terminating a tenured teacher" (p. 148). Another principal solved his concern for inadequate tenured teachers by hiring

an assistant principal who liked confrontations and conflict. It was this principal's contention that "either they're [teachers who teach to the point of harming kids] going to change or they're going to be out" (p.153). Not all principals take the approach of those found in the Bloomberg and Greenfield study. Ward (1995) indicated:

Others [principals] fall prey to concerns that their own competence is somehow made suspect by the negative atmosphere generated by the dismissal of a classroom teacher irrespective of that individual's performance. Still others simply cannot deal effectively with their own aversion to criticizing the work of others or taking actions that so drastically affect the lives of subordinates. (p. 18)

Lortie (1975) conducted a study that included a 1963 sample of 94 teacher tape-recorded interviews from a range of socioeconomic settings and grade levels in the Boston area and 1964 questionnaire responses from teachers and administrators in Dade County, Florida. Lortie reported that some teachers reported an obligation to show respect for the principal and to be loyal. Teachers said that they needed to be sure that the "principal was not embarrassed by reports from the classroom" and that [they must] "inform the principal on anything which might give him trouble" (p. 200). Lortie described this relationship in the following way:

The rhetoric suggests an exchange like that between vassals and lords during medieval times. The superordinate is expected to use his power to protect and help those of lesser rank; they, in turn, are bound in fealty to return the appropriate deference and respect. (p. 200)

McGreal (1982) noted that observers must keep the measures of accountability balanced with instructional improvement when evaluating teachers. A negative impact

on the evaluation process when used for accountability can be the lack of participation by teachers because of negative feelings. McGreal pointed out that effective evaluation encourages attitudes of cooperation when the teachers' instructional improvement is the goal. The trust level between the teacher and the evaluator determines the success of the evaluative process. McGreal emphasized that instruction is most improved when the evaluator is knowledgeable and the relationship between evaluator and teacher is positive and supportive.

Brubaker and Simon (1987) found teachers were treated with respect and that professionalism was evident in all evaluation procedures as well as in hiring co-workers, scheduling, and in methods of instruction with principals incorporating Administrative and Instructional Leadership. This approach was in opposition to the General Managerial approach in which principals chose to enforce orders and give direct demands to teachers rather than include their opinions in evaluation and procedures. Seventy-one percent of the 370 North Carolina principals viewed their leadership approach as being an "Administrator and Instructional Leader" as opposed to the 13% that viewed their leadership approach as "General Manager" (p. 73).

Coker (1985) reported a study assessing the accuracy of the principal's judgment in the effective evaluation of teachers. The sample for the study included teachers and principals from the southeastern United States with a large number of the participants being in Georgia. Usable data from the participants included 46 principals and 322 teachers.

Achievement gains of pupils were used as a basis for estimates of the effectiveness of all teachers. The rating instruments asked the principal to rate the

teacher in comparison to 20 teachers of the same grade in three roles: (a) promoting academic goals, (b) promoting affective goals, and (c) performing other professional functions. The Georgia Teacher Performance Appraisal Instrument ratings were used to evaluate all beginning teachers. The two primary questions asked in the study were (a) how valid principal's judgments are on the average and (b) whether some principals' judgments are more valid than others. The researcher noted that the principals rated about half of the teachers to be more effective than 85% of other teachers and 13% were judged to be superior to all other teachers. The judgments by principals of teachers of a single grade were inter-correlated with expected achievement gains of pupils of high, average, and low ability. Findings for the study showed the following:

Despite our best efforts we have not been able to develop any credible evidence to indicate that principals' judgments of teacher effectiveness have any validity as predictors of how much pupils may be expected to learn about reading or arithmetic from them. The mean correlation between a principal's judgment of a teacher's effectiveness in teaching subject matter and expected achievement gains of the average pupil in that teacher's class in this study was only .20. A correlation this size indicates that only four percent of the variance in principals' judgments reflects differences in teacher effectiveness: 96% of what these judgments indicate has nothing to do with teacher effectiveness. (p. 39)

Coker (1985) noted that the study results were congruent with previous studies that showed that the relationship between the principals' judgments of teacher effectiveness and students' academic gain as shown by test results to be low.

North Carolina's performance appraisal instrument, TPAI, which is an alternative method to scripting and checklist, still requires considerable time. Bradshaw (2000) explained that as part of the North Carolina Teacher Performance Appraisal System (NCTPAS) principals were required to confer with the teacher before at least two of the announced observations, conduct one unannounced observation, document the observation, confer with the teacher after each observation, complete a summative evaluation, and initiate a summative conference for each teacher each year. Bradshaw indicated that the TPAS opportunities that produced positive results included opportunities for teachers and principals to confer using an accepted statewide language of teacher effectiveness, opportunities for principals to spend entire class periods in the classroom observing researched teaching skills proven to enhance student achievement, and opportunities for personnel training and staff development to support effective teaching. Concerns for the TPAS included the amount of time required of school personnel in providing teacher evaluations, the need for renewed and continued observer training, the need for items on the instrument that encouraged creativity, and the use of one instrument for formative and summative rating.

Stacy, Holdzkom, and Kuligowski (1989) pointed out that North Carolina has long addressed the need to learn more about teacher effects on learning and in 1978 contracted with university-based researchers for an empirical study of observable teaching practices relating to student achievements. Holdzkom, Kullgowski, and Stacey (1990) stated that issues concerning the importance of the relationship between learning and teaching are evident in asking, "What is it that teachers do that cause students to learn?" (p. 3). Holdzkom et al., recognized that the teacher evaluation system used in the

1985 Career Development Plan authorized by the North Carolina General Assembly was expected to have a positive impact on student performance. The expected changes in teaching as a result of the Career Development Plan were based on the required teaching behaviors outlined in the functions of the Teacher Performance Appraisal Instrument. It was the premise of Holdzkom et al. that, since research supported correlations between the appraisal system and student achievement gains, the Career Development Plan would also affect student achievement.

Using a unit average for student results from the California Achievement Test for each of the 16 counties participating in implementing teacher evaluations in the Career Development Plan, matched unit averages were presented for 15 additional counties for students in grades 3, 6, and 8 during the schools years from 1985 through 1989. These 15 additional counties did not participate in using the teacher evaluations in the Career Development Plan. In 3rd-grade performance, 40% of the matched units showed growth while 81% Career Development Plan units showed growth. In the 6th-grade performance, 12 Career Development Plan units showed improvement. In the 8th-grade performance, 13 Career Development Plan units showed improvement. Overall, the matched units did not do as well as the Career Development Plan units that showed a general tendency toward improvement in students whose teachers participated in the Career Development Pilot Program implementing teacher evaluation.

Adherent to the importance of administrative evaluation was the belief by Popham (1988a) that the judgment of appropriate teaching for pupils was a crucial influence on student learning.

There are some specializations in which, if the specialist errs, little harm is done. Gardeners who prune a bush improperly can be forgiven because the bush will grow again. Furnace repairmen can, if they fail to correct a problem the first time, return to undertake additional repairs. Even a barber who, rather than subtly shaping, uses clippers like a lawn mower, can be forgiven. Hair grows back. But educational evaluators are dealing with more easily damaged goods. Indeed, the harm that may be done to pupils as a consequence of inappropriate education may be as irreparable as the errors of a surgeon during an open-heart operation. The intellectual, emotional, and physical well-being of hundreds or thousands of learners can be influenced beneficially or adversely because of the actions of educational evaluators. (p. 18)

Teaching License

In view of the close connection between teacher licensure, teacher quality, and student achievement, Darling-Hammond (2000c) reported that student achievement could be highly impacted with an investment of resources in teacher certification and licensure in the areas of reading and mathematics. She pointed out that quantitative results from research show that improvements in teacher preparation and certification influence quality teaching and student academic gain. Using data from a 50-state survey conducted by the National Commission of Teaching and America's Future, case studies from the Center for the Study of Teaching and Policy, the 1993-94 Schools and Staffing Surveys, and the National Assessment of Educational Progress, data were used across states to

determine the influence of teacher qualifications and other variables on student achievement.

Darling-Hammond (2000c) emphasized that teacher licensure and certification combine the two areas of knowledge of subject matter and teaching abilities. The teacher's course preparation in effective teaching is presented by Darling-Hammond research to be a greater influence on teacher quality than subject matter knowledge beyond the knowledge needed to cover the subject matter curriculum. Methods in course preparation for teaching coupled with professional development and in-service on how to teach subject matter to classes of different types of students have been shown to relate more highly with student achievement than has subject matter knowledge. Darling-Hammond explained that standard certification requirements for most states include a degree from a state approved undergraduate or graduate program. Certification must include a major or a minor in the subject area in which the college graduate plans to teach. Requirements specify that prospective teachers must earn "from 10-40 education credits . . . [and] 8-18 weeks of student teaching" (p. 7). Additional tests on teaching skills and subject matter are required for license.

Contributing to research and policy in evaluating initially certified teachers, Brown and Wells (1988) introduced results from a study of North Carolina teachers that correlated the scores on the Teacher Performance Appraisal Instrument (TPAI) and National Teacher Examination (NTE). The researchers explained that teachers, no longer certified upon graduating from an accredited university, must enter a 3-year probationary period with the school system. During this time of limited experience teachers are classified as Initially Certified Teachers. The researchers further explained that teachers

are required to pass the common and the area NTE and must be evaluated in the classroom by trained observers before a license is issued. Participants in the study were 111 Initially Certified Teachers. All participants took the area NTE; only 74 took the common NTE. Results did not show a close relationship between scores on the area or the common NTE and the teacher's classroom performance as measured by the TPAI.

To determine whether teacher qualifications are related to student achievement on the state level after controlling for student poverty and student language background, Darling-Hammond (2000c) reported data concerning teacher qualifications from the 1993-94 Schools and Staffing Surveys. This database included "linked surveys of 65,000 teachers (52,000 public and 13,000 private); 13,000 school principals (9,500 public and 3,500 private); and 5,600 school districts" (p.24). Student achievement data in reading and mathematics were determined by the National Assessment of Educational Progress and included 1990, 1992, 1994, and 1996 assessment data. Darling-Hammond reported that findings from this study supported previous research and, in part, confirmed the premise that "Teacher quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student outcomes" (p. 49).

North Carolina was noted by Darling-Hammond (2000c) to have initiated extensive changes in their teacher qualifications, and results showed a gain in student achievement. She further explained that in the mid-1980s North Carolina made changes to increase state salaries, to initiate improved pre-service teacher education and licensure standards, to extend and improve beginning teacher mentoring, and to develop on-going professional development that attributed to the state's major increase in student

achievement in reading and mathematics. Their student achievement gains in mathematics were higher than in any of the other 50 states. This was presented as being a significant gain because North Carolina had been near the bottom of state rankings in 1990.

Outlining the major reforms and changes in teacher qualifications which were made in the 1983 legislation, Darling-Hammond (2000c) noted that changes were required to be made in “increased licensing requirements for teachers and principals” (p. 19). She pointed out that, in response to the North Carolina 1997 Education Excellence Act, hundreds of millions of dollars were allotted for new reforms in North Carolina. These reforms improved the quality of teaching by: (a) requiring education colleges to supervise year-long student teaching programs and to upgrade licensing standards, (b) creating salary increase incentives for teachers with graduate degrees and National Board Certification, and (c) providing raises in teaching salaries to meet the national average.

Bradshaw (1996) emphasized that the alternative plan offered teachers the opportunity to align teaching goals with school goals and to develop new teaching strategies for improved student achievement. She acknowledged that the organization of the alternative evaluation system was the responsibility of the local school system and that a future consideration for evaluating teaching performance is the use of portfolios to document performance. Dykman and Mandel (2000) recommended that support for teachers during their initial years be strengthened. It was their contention that the Initial License should be the beginning of education for the new teacher.

Teaching Experience

Teaching experience as an influence on student achievement was reported to be marginally higher than either teacher education or smaller classes by Hanushek (1989). However, the researcher explained that there was “no strong evidence that teacher-student ratios, teacher education, or teacher experience have the expected positive effects on student achievement” (p. 47).

Mulholland and Berliner (1992) presented a study with participants from Arizona State University’s Professional Teacher Preparation Program’s first semester students. As part of class instruction, students participated as novice teachers in grades 2 through 6 or in seventh or eighth grade mathematics and reading classes. The study included 42 pairs of participants from the student teachers and the experienced teachers. The Iowa Test of Basic Skills was used as a measurement of student achievement in determining the accuracy of teacher judgment in the order that they expected students to finish the total math and total reading portions of the test. Spearman rank correlations were used to determine the relationship among teachers and showed a wide variability in both experienced and novice teachers’ judgments. Positive correlations of experienced teachers’ predicted reading achievement showed a range from .48 to .95. The range for novice teachers was .21 and .74. Correlations of teachers’ prediction for student achievement for novice teachers in mathematics were nearly identical to that of reading, and for experienced teacher the correlation was slightly lower in math judgments. Results showed experienced teachers to be more accurate than novice teachers in their predictive judgments of student achievement.

Influences on elementary students' growth in reading and mathematics were the emphasis of a study reported by Zuelke (1986) in which

teaching experience, student's time-on-task, quality of the teacher's instruction, principal's evaluation of the teacher, and the student's sense of control over school performance . . . had an impact on sixth-grade students' achievement. (p. 394)

Sixth-grade students in three elementary school districts in a Chicago metropolitan school district were the population studied in the 9-month study, because that grade level had the most students and teachers during the 1981-1982 school year. Middle-class white students made up 85% of the population with other students being Hispanic, African American, and Asian.

Of the 122 variables studied, independent variables included, in part, teacher experience, quality of reading instruction, quality of mathematics instruction, and the principal's evaluation. The dependent variable included mathematics and reading current total raw scores and raw score gains. Data were provided from school records by the principals and school secretaries in the three schools and by three classroom observers. Student classroom behaviors were recorded on a chart using at least one-half of the students in each class and documenting on-task behaviors on a seating chart at 2-minute intervals for 20 minutes on 3 different days.

Teacher experience accounted for a higher variation in students' reading and mathematics achievement than did teacher performance. Subscale analyses of the principal's performance evaluation of the teacher's classroom management abilities were positively associated with reading and mathematics raw score gains. The teacher's

organization of lesson instruction and explanations as observed and recorded by the investigators on a 5-point Likert-type scale were positively related to students' reading raw score gain.

The teacher's classroom processes and student growth were seen as more important than the teacher's years of teaching experience in a 1970 study of parallel-perceptions. In an attempt to determine professional educators' opinions of characteristics that contribute to teacher effectiveness, Blai (1982) used ratings on a scale from completely unimportant (1) to extremely important (9) on a questionnaire including 14 criterion elements anonymously obtained from 58 faculty members of Harcum Junior College. With a response rate of 76%, data from these perception questionnaire results were paralleled with the views of 264 public school teachers and administrators identified in the study as the Delaware Group. Rank-ordered mean ratings of teacher effectiveness showed classroom processes and student growth to be much more important than the non-classroom variables of years teaching experience and community participation.

Rosenbloom, Torrance, and Flanders (1966) reported a study of teacher effectiveness as related to teacher/pupil interaction, teaching experience, and teachers' college course grades in an attempt to better understand teacher characteristics affecting student learning. Researchers from the Minnesota National Laboratory in conjunction with the Minnesota State Department of Education studied the correlation between the teacher's effectiveness as determined by student learning and the teacher's experience, grades in undergraduate and graduate courses, and professional teaching activities.

Students in grades 6 through 12 were given tests of achievement and aptitude in the fall and spring. Teachers completed checklists for two math lessons each week,

monthly reports on their most and least successful lessons, and daily logs of teacher student interaction. Students completed a checklist describing their own perceptions of the learning activities in which they engaged.

Statewide mathematics teachers were invited to apply for study participation. A random sample of 127 teachers was drawn from applicants stratified according to length of experience in teaching math, grades in math courses, and professional contributions. During this 2-year study, data were available for 75 participants at the beginning of the first year and data were available for 63 participants during the second year. The researcher pointed out that the most effective teacher group reasoned teacher effectiveness to be the cause of their least effective lessons, and the least effective teacher group reasoned pupil behavior and the situation to be the cause of their least effective lessons. Results of this study showed that the amount of teaching experience, mathematics courses and grades, and professional activities did not influence the effectiveness of teachers as measured by student learning.

Pearce and Loyd (1987) compared observed ratings of experienced teachers and inexperienced teachers to determine the relationship between teachers' specific teaching behaviors. Participants included 665 volunteer classroom teachers in Virginia. The percent of teachers with less than 6 years experience was 31%; the percent with 6 or more years experience was 69%. Teacher behaviors and student behaviors were observed using an instrument developed for Virginia teacher certification. Observations occurred during 3-minute periods by a single certified observer who had earned a 75% or greater agreement on requirements for observer certification. Results indicated that the number and degree of behaviors were greater for the novice teachers. The study showed more

behaviors of beginning teachers than of experienced teachers in (a) positive instructional and personal interaction, (b) disruptive and behavioral management and (c) positive affect. From study results researchers suggested that “beginning teachers have not yet developed routine or systematic approaches to instruction and classroom management that appear to characterize experienced teachers” (p. 11).

Theoretical Framework and Model For The Study

The theoretical framework for this study was based on research and theory for studying the relationship between the teachers’ performances and students’ achievements. “Theory is an explanation of observed events in terms of the structures and processes that are presumed to underlie them” (Gall et al., 1996, p. 50).

William James’s theory that the classroom teacher’s performance determines student achievement was evident when he said:

“in teaching, you must simply work your pupil into such a state of interest in what you are going to teach him that every other object of attention is banished from his mind; then reveal it to him so impressively that he will remember the occasion to his dying day; and finally fill him with devouring curiosity to know what the next steps in connection with the subject are.” (p. 10)

Dunkin and Biddle (1974) purported that “One does not have to look far within school curricula to identify knowledge and skills that pupils would not learn unless presented to them by a teacher” (p. 21). Dunkin and Biddle believed that teachers differ in classroom behaviors but that “those qualities are measurable in terms of concepts that apply to many teachers” (p. 19). James (1939) claimed “each observer

gains a partial superiority of insight from the peculiar position in which he stands” (p. 264). The independent variables used in this study are a combination of process variables which Dunkin and Biddle (1974) explained in three models of teaching (a) “the trait model, (b) the social system model, and (c) the curriculum model” (pp. 413-415). Variables from these models included the following teacher performance behaviors: “Teacher praise, acceptance, criticism, talk, asking of questions, lecturing, giving directions, use of higher-order knowledge, asking divergent questions, use of abstract thought, . . . postquestion structuring, [teacher] conditions set up in the classroom, and lesson formats” (pp. 413-415). The researchers contended that the relationship between these theories “engage the complex and multiordinate processes of instruction” (p. 413). Dunkin and Biddle suggested “As long as live teachers in conventional classrooms remain, the problem of training them more effectively will depend upon identifying those aspects of teaching that contribute to effectiveness in the complex classroom setting” (p. 24). The dependent variable in this study is the product variable described by Dunkin and Biddle (1974) as pupil achievement determined by a strong and reliable test.

A conceptual framework model of performance and evaluation that explains the variables examined in this study is shown in Figure 2.1. This cognitive map provides a set of “interrelated concepts [teacher performance factors used in effective classroom teaching] organized and developed into interrelated constructs [teacher performance, teacher appraisal, and student achievement] for the purpose of providing a framework for thinking about a particular phenomenon [performance and evaluation]” (Boone, 1985, p. 55). The variables identified in the model are representative of the review of literature on issues relating to effective instructional practices that influence quality teachers and

positive student achievement. “The first step in planning a relationship study is to identify variables that show promise of being important determinants of the characteristics or behavior pattern being studied” (Gall et al., 1996, p. 416).

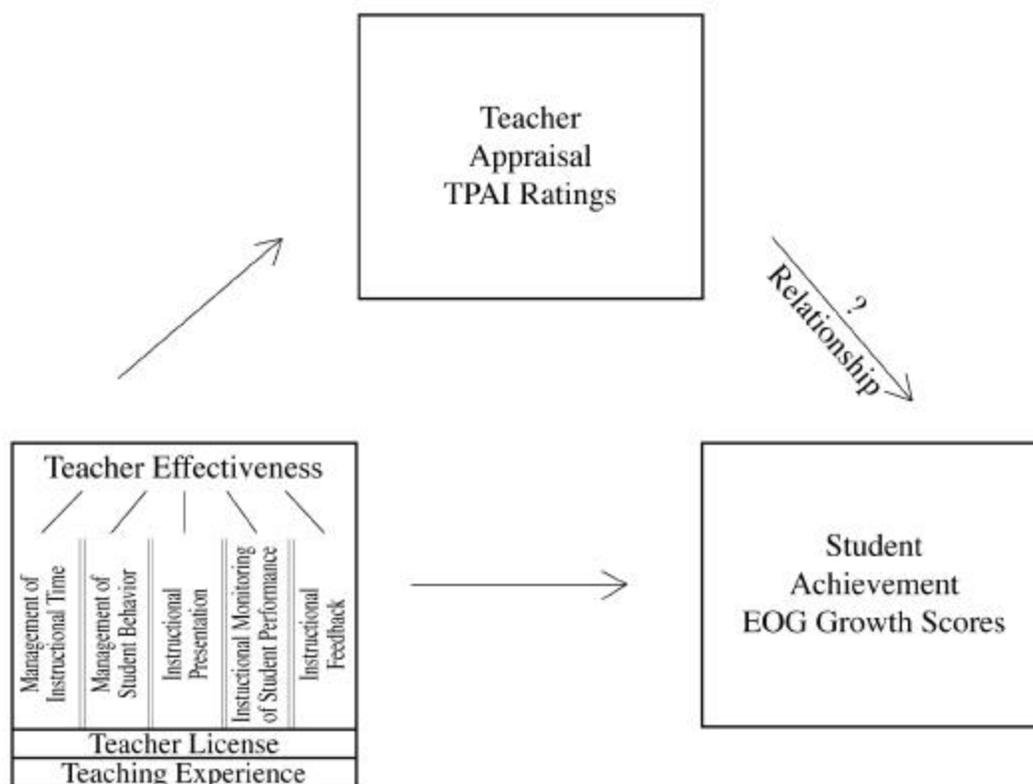


Figure 2.1. A Conceptual Framework for the Study

The model shows the purported relationship between the underlying functions of effective teacher performance and student achievement growth. The teachers' effectiveness is shown in the model to be determined by the independent variables in the study: management of instructional time, management of student behavior, instructional presentation, monitoring, and instructional feedback as well as teachers' license and experience. Student academic growth, the dependent variable in the study, is represented

by the outcome or changes that exist in student learning as a result of teacher effectiveness.

The model was designed to determine whether or not there is a relationship between teacher performance and student performance as shown by a relationship between one measure of teacher quality, TPAI ratings, and one measure of student achievement, EOG growth scores.

Chapter Summary

The review of the literature showed a mixture of concern for teacher performance, student achievement, and evaluation of the teacher's performance. The task of one person teaching a class of individual students provides a challenge and an opportunity that is exceeded by complexities and intricate complications. Teaching was presented as the hardest job there is and student learning was presented as the gravest of responsibilities.

The literature review on teacher effectiveness in the classroom showed inconsistency between the process-product approach to teaching and teaching approaches based primarily on the student and teacher communication and interaction. Quality teachers were described to have developed a sharp awareness of time allocation while concentrating on time to work with low and high students. The literature explored the quality teacher's use of behavioral objectives to design classroom instruction, the quality teacher's ability to link instruction to prior learning imploring a sound knowledge of the curriculum, the quality teacher's consistency in circulating among students, and the

quality teacher's skill in providing appropriate feedback pertaining to student behavior and learning efforts.

Much of the literature concerning the evaluation of the teacher's performance by the administrator was shown to be related to the level of trust, degree of open communication, and expertise of the rater. Teacher ineffectiveness, appropriate classroom evaluation, and administrative feedback to teachers were factors noted as being influenced by limited administrative time resources. Successful teacher evaluation using student scores without the problem of range of student differences was presented as an equitable method of teacher evaluation. Research showed teacher license and teaching experience to be positively related to teacher quality.

Literature was presented that supports the emphasis the North Carolina Department of Public Instruction places on skills needed by the teacher for management of time, student behavior, and instructional presentation. Evaluation of teacher performance using the North Carolina Teacher Performance Appraisal System to identify specific teaching behaviors was presented in research to be a viable method of evaluation. Teacher evaluation and rater judgment, teacher evaluation related to student achievement, and teacher evaluation through a process of multiple types of data including portfolios and alternative assessment were described in the literature. Student academic gains required by the ABC Accountability Standards of North Carolina for end-of-grade testing for grade 5 were presented.

A theoretical model of this study shows a framework of important variables determined by research through this review of literature that effectively influence teacher quality. The direct relationship between these variables and student achievement is

shown in the model. Literature revealed the need for accountability balanced with instructional improvements when evaluating teachers. Further investigation is needed to determine the teacher's effectiveness on student achievement and the influence of the principal's evaluation of the teacher as related to student achievement. It is hoped that this research will add to the knowledge base and help to fill the gap between what is known about teacher performance and student growth.

CHAPTER 3: METHODOLOGY

The purpose of this study was to investigate the relationship between teaching performance of 5th-grade teachers in a school district in North Carolina and student achievement growth in 5th-grade reading and mathematics during the 1999-2000 academic year. This chapter discusses the design and methodology of the study. Instrumentation, data collection, and statistical analyses were included.

Research Design

The research design used in this study was correlational (Gall et al., 1996). The variables were chosen based on the results of the review of the literature. The dependent variable was the students' achievement growth in reading and mathematics. The independent variable was the 5th-grade teachers' performance as determined by the summative evaluation of the elementary school administrator. The teacher performance measures included in the independent variable analyses were (a) management of instructional time, (b) management of student behavior, (c) instructional presentation, (d) instructional monitoring, (e) instructional feedback and (f) overall average of these performance measures. Relationships between independent variables, teachers' years of experience and type of license, were examined in association with student achievement. The purpose of the design was to determine if there was a relationship between the variables. Correlation and regression analyses were used in the organization and interpretation of the data.

Population

The accessible population included sixty-one 5th-grade teachers and the students in their classes. Eight of those teachers taught only classes for students with special needs. Because end-of-grade tests were not administered in these classes, these teachers' ratings were excluded from the study. The study included the entire population of the remaining fifty-three 5th-grade teachers who taught reading and mathematics classes. The general rule was that the entire population would be used if feasible. Including the entire population of 5th-grade teachers was reasonable because the entire population was identified in the school system (Flowers, 2000).

This population was selected because of the district's unique class size reduction program and because Grade 5 was a benchmark in the state's student accountability program. The goal of the system's unique class size reduction program, which was to increase reading and mathematics achievement at all grade levels, reduced class size to 15 students in Grades 1 through 3. The designation of Grade 5 as a benchmark for student accountability was important because Grade 5 became identified as the gateway to middle school. In 53 classrooms with an average of 23 students, class size ranged from 21 to 25.

Instrumentation

The instruments used to measure the students' class average achievement growth in reading and in mathematics were the North Carolina End-Of-Grade Tests. These tests were aligned with the state-mandated North Carolina Standard Courses of Study and measured achievement of curricular objectives in reading and in mathematics. The

instrument used to measure teachers' classroom performance was the North Carolina Teacher Performance Appraisal Instrument (NCTPAI) rating scale (see Appendix A).

The mathematics and reading end-of-grade tests were developed as accountability tests and have been "described as the 'screen' that gauges a child's needs" (Public Schools of North Carolina, 2002, p.7). The end-of-grade tests, as part of the student accountability standards, were developed in response to the 1997 North Carolina General Assembly request that benchmarks be developed to identify grade level student proficiency. The standards were developed with input from the Committee on Standards and Accountability and the Commission of Standards and Accountability. Seeking people interested in students achieving higher levels of achievement, State Superintendent Mike Ward and the State Board of Education included teachers, parents, and business leaders in the development of the student accountability standards (Public Schools of North Carolina, 2002).

The 5th-grade reading end-of-grade test includes 10 passages for the student to read. Reading passages from a variety of content areas include "(art, science, health, mathematics, and social studies), and consumer selections and practical selections (pamphlets, recipes, and projects)" (Public Schools of North Carolina, 1999c, p. 2). Students are asked a total of 65 questions related to the reading passages.

The 5th-grade mathematics end-of-grade test includes test items assessing "numeration, geometry, patterns and pre-algebra, measurement, problem-solving, data analysis and statistics, and computation" (Public Schools of North Carolina, 1999a, p. 2). Students are asked 12 questions on Mathematics Computation and 68 questions on Mathematics Applications.

These reading and mathematics end-of-grade tests are based on the North Carolina Standard Course of Study. The Standard Course of Study is evaluated for revisions every five years, making reading and mathematics tests development a continuous process. The North Carolina Department of Public Instruction's Division of Instructional Services includes curriculum specialists, teachers, administrators, and university professors in the development and updating of the Standard Course of Study.

Content validity was built into the test development process, which includes item development by content experts and a field test of those items to gain the psychometric information necessary to construct tests that are fair to all students (free from bias) using items that reflect a balance of curriculum goals and level of difficulty. (Public Schools of North Carolina, 2003a)

Correlational statistics were used to determine the criterion-related validity of the 5th-grade reading and mathematics EOG tests. Ary et al. (2002) explained the criterion to be "some outcome important to the test user" (p. 245). They claimed the relevance, measurement, and consistency of the criterion to be essential.

Criterion-related (concurrent) validity indicates the extent to which test scores accurately estimate an individual's present position on relevant-criteria. For example, a child's EOG test score should theoretically be similar to the achievement level category their teacher predicted during the EOG test administration. For the 5th Grade EOG Tests of Reading and Mathematics, teachers' judgments of student achievement, expected grade, and assigned achievement levels all serve as sources of evidence of concurrent validity. The Pearson correlation coefficient is used to provide a measure of linear association

between the test scores and these other criteria. Pearson correlation coefficients for the EOG tests range from 0.54 to 0.80, indicating a moderate to high positive correlation between test scores and related criteria. (Public Schools of North Carolina, 2003a)

The use of test scores to predict individuals' scores on other outcomes, such as grade point averages, is another type of validity evidence (Borg et al., p. 197).

Reliability measures for the reading and mathematics EOG tests were developed through the use of internal consistency ratings. Ary et al. (2002) explained that internal-consistency reliability measures include procedures which “assess the inter-item consistency, or homogeneity, of the items. . . . [and] the more homogeneous the domain, the higher the inter-item consistency” (p. 258). The North Carolina State Department of Public Instruction reported the following internal consistency reliability ratings for the reading and mathematics EOG tests:

Reliability for the current EOG Tests of Reading and Mathematics was established through the use of internal consistency ratings. These ratings were derived from field test data using the coefficient alpha (α) index. Coefficient alpha, an index that describes the tendency of items on a given test to correlate positively with one another, is considered to be acceptable at a score of 0.85 or higher. Coefficient alpha index for the EOG Reading is 0.918 and the coefficient alpha index for EOG Mathematics is 0.940. (Public Schools of North Carolina, 2003a)

The measures provided for content validity, content-criterion (concurrent) validity, and reliability showed the EGO reading and mathematics tests to be both valid and reliable.

As a part of the promotion requirements from Grade 5 to 6, Gateway 2 of the North Carolina Statewide Student Accountability Standards requires that students score a Level III or above on the reading and mathematics tests in the fifth grade. Students scoring a Level III or above on the tests are believed to be prepared to successfully master academic challenges in Grade 6. Documentation of student performance and evaluations of focused interventions are evidence of student proficiency at grade level, but the primary factor in promotion is the end-of-grade tests. Student accountability standards were based on the belief that critical to students' success in core academic classes and vocational classes in high school was the development of the essential skills of reading and mathematics (Public Schools of North Carolina, 1999b).

The North Carolina Teacher Performance Appraisal Instrument (NCTPAI) was developed in 1983 by a group of education professors from the University of North Carolina at Chapel Hill at the request of the North Carolina Department of Public Instruction (Ware, Swartz, White, and Stuck, 1992). The researchers reported that their study included the synthesis of over 600 studies which led to the development of the NCTPAI. Criteria for identifying specific teaching practices that were included on the appraisal instrument included the following:

the teaching practice was used by all teachers, regardless of grade level or subject area; the teaching practice was related to student outcomes; the effectiveness of the teaching practice related to student achievement was documented in more than one study; and the teaching practice could be learned by teachers-in-training.

(Ware, Swartz, White, and Stuck, 1992, p. 3)

The instrument uses a 6-point rating scale: unsatisfactory, below standard, at standard, above standard, well above standard, and superior. Thirty-eight teaching practices are delineated under each of the eight major functions; however, ratings are assigned only to the major functions. The findings from this study were a report of the first five teaching functions on the TPAI. The first five teaching functions are (a) management of instructional time, (b) management of student behavior, (c) instructional presentation, (d) instructional monitoring, and (e) instructional feedback. Three of the eight teaching functions on the NCTPAI were not as directly observable of effective teacher performance. Holdzkom and Brandt (1995) explained that the Department of Public Instruction added the last three items on the instrument, and those items were not research-based. The three items that were not included in the study were (a) facilitating instruction, (b) interacting within the educational environment, and (c) performing non-instructional duties. Suggested use of the TPAI for personnel appraisal by White, Wyne, Stuck, and Coop (1987) included the recommendation that ratings on only the first five functions be made in performance evaluation. The researchers explained that even though each of the functions encompasses a cluster of teaching practices, it is recommended that ratings for the major functions, rather than ratings for each of the individual teaching practices, be used in personnel appraisal.

Holdzkom and Brandt (1995) purported that studies were conducted to identify valid target skills of teaching as evidence for content validity for the ratings on the scale. Gall et al. (1996) explained that content validity represents the parallel between the test and the content it is to measure. Holdzkom and Brandt (1995) stated that efforts to assure reliability were conducted by 30-hour training sessions that included videotapes of

teachers demonstrating the appropriate skills. Administrative evaluators attended a total of 24 hours of training sessions in which they rated videotaped teacher performance. Their ratings were then compared to the standard ratings, which had previously been designated to the videotape. These ratings were analyzed to determine rater reliability.

Ary et al. (2002) suggested a method of determining the reliability of ratings with results producing measures of interrater reliability.

A simple way to determine the reliability of ratings is to have two or more observers, independently rate the same behaviors and then correlate the observers ratings. The resulting correlation is called the *interrater or inter-observer reliability*. If the behaviors to be observed are well defined and the observers well trained, the reliability of the observations should be positive and quite high (around .90). (p. 266)

An examination of data available after a 1986 observer training session for the TPAI that included 900 individuals from 140 schools with more than 50% of all persons attending the training sessions identified as principals showed that “On every function, more than a third of all participants chose the correct response, and 85% or more were within the acceptable range” (North Carolina Department of Public Instruction, 1986b, p. 6). Performance was normed by qualified State Department of Public Instruction staff who had reached consensus on the scores.

Reliability and validity of the NCTPAI were reported by Ware et al. (1992) to indicate the following:

Reliability estimates (g-coefficients) of the five subscales when using professionally trained observer/raters have ranged from .77 to .91 when using two

raters. Inter-rater agreement estimates using two raters have consistently been in the low .90s. Validity studies of the NCTPAI have presented mixed results.

Several studies have shown subsets of the five functions, but not all, to be related to student achievement gains. (p. 4)

In a 1986 report from the North Carolina Department of Public Instruction, in which the validity of the TPAI was addressed in training sessions and research studies, Inman (North Carolina State Department of Public Instruction, 1986a) reported that the instrument for teachers:

Did cover the main features of the job.

Had high acceptance for other content and procedures.

High reliability (internal consistency: $\alpha = .95$; appraise-reappraise: $r = .87$).

Inter-rater reliability was not high: $r = .51$).

Items varied in weight relative to the type of teaching assignment. (p. 4)

White, et al (1987) explained two steps beyond the synthesis of empirical research which were taken to insure instrument validity. These steps included the following:

First, the teaching practices contained in this instrument were evaluated by a panel of nationally recognized authorities in effective teaching research. This panel independently analyzed and validated the rationale, method, and results of this research synthesis. Second, the instrument has been extensively field tested with school principals using it to observe teachers in a variety of schools and in a variety of teaching disciplines. The results indicated that the instrument meets the practical criteria of relevance and acceptance. (p. 91)

Data Collection

Data were collected on sixty-one 5th-grade teachers and their respective classes. Of the 61 teachers, eight taught only classes of students with special needs. For these eight classes, data were not collected for reading and mathematics class average students' growth scores; subsequently, these teachers' ratings were excluded from the study. Seven teachers taught reading but did not teach mathematics. Data did not include mathematics students' growth scores for these teachers' classes. Four teachers taught mathematics but did not teach reading. Data did not include class average students' growth reading scores for these teachers' classes. Mathematics students' class average growth scores were reported for 46 teachers' classes. Reading students' class average growth scores were reported for 49 teachers' classes. Data used for the population sample included 53 teachers and their respective classes. All data were collected in the offices of the central administration, coded for anonymity, and submitted to the researcher. Preserving confidentiality was primary in acquiring approval for this study (see Appendix B).

Students' class average growth scores were determined by comparing the class mean of the students' scores on the end-of-grade tests in each teacher's 5th-grade class with the class mean of the same students' scores on the 4th-grade end-of-grade tests in reading and mathematics. End-of-Grade tests are given annually in the third through eighth grades and are scored on a continuous scale. "For a grade level comparison to be made, it is necessary to have the tests in different grades linked, so that scores at each grade level can be expressed in the same units" (Coleman, et al., 1966, p. 273).

The growth score was represented by the difference between the student's 5th-grade end-of-course test score and the same student's fourth grade end-of-course test score. Determining an accurate growth score included the following three-step process:

1. Student scores on the end-of-grade test in each of the teachers' classes were averaged to determine a mean class end-of-grade score in 5th-grade reading and mathematics for each teacher's class.
2. Using the names of each student in each teacher's 5th-grade class, each student's 4th-grade end-of-grade test score was identified. For example, 4th-grade end-of-grade test scores were identified for each student in Teacher A's 5th-grade class. These students' 4th-grade scores were then used to form a pseudo 4th-grade class of student scores representing the same students that were in Teacher A's fifth grade class.
3. Student growth scores were determined by comparing the difference between each student's 5th-grade end-of-grade test score and each student's 4th-grade end-of-grade test score.

Data collection in this manner assured accuracy in recording and emphasized the critical issue of matching each teacher's evaluation ratings with the corresponding end-of-grade reading and mathematics growth scores for that teacher's class.

After recording the data, it was evident that 26 of the teachers included in the study were teachers who held Continuing Licenses, and for that reason these 26 teachers had received Annual Review Evaluations rather than summative ratings. It was determined that the most recent TPAI summative evaluation ratings received by these 26 teachers were evidence of their teaching evaluation ratings and stood as their summative

rating through their Annual Review Cycle. Ratings for these 26 teachers were then secured in the same administrative manner and submitted to the researcher. Five of the 26 teachers' most recent evaluations were from the 1994-1995 academic year, ten were from 1995-1996, six were from 1996-1997, four were from 1997-1998, and one was from the 1998-1999 year. Consequently, each teacher had been evaluated within the past five years.

Each teacher's 5th-grade students' class average end-of-grade growth score in reading and mathematics was representative of student achievement growth. The unit of analysis for the dependent variable was the classroom average. Teacher performance appraisal ratings as determined by the school administrators for summative evaluations were representative of the teachers' quality of instruction.

Analysis of Data

Statistical methods used to interpret the data were descriptive statistics that included characteristics of the data and inferential statistics that included correlation and regression. Inferential statistics were used to show student growth scores and teacher evaluation ratings during the 1999-2000 school year. Because the data were collected at one point in time, the findings were from a sample of time.

The problem of using parameters or statistics could also be addressed logically from the standpoint of arguing that the data determined from the population are really statistics since the data are from a sample of time and not a sample of people. That is, the data are collected at one point in time: that this set of

[teachers] is a sample of others which will exist or have existed at other points in time. (Miller, 2000, p. 9)

This study included the entire census but only for one point in time. The 1999-2000 school year was chosen because the initiation of Gateway 2 during that year challenged 5th-grade students to score a Level III or above on the reading and mathematics end-of-grade tests for promotion to grade 6.

Correlation coefficients were used to examine relationships between the independent and dependent variables. Stepwise regression analyses were used to determine which of the variables were best predictors of student achievement growth in reading and mathematics. Pearson product-moment correlation was selected as appropriate to determine the relationship between the variables because the independent and dependent variables were classified as continuous variables with interval data. “The product-moment coefficient (r) is computed when both variables . . . to correlate are expressed as continuous scores” (Gall et. al., 1996, p. 427).

Davis (1971) explained that because correlation coefficients can be between +1.00 and -1.00 “it is useful to have an agreement as to what is a strong value and what is a weak one” (p. 49). Davis conventions identified the value of coefficients in moderate positive correlations to be between +.30 to +.49, low associations to be between +.10 to +.29, negligible associations to be between +.01 to +.09, and very strong associations to be +.70 or higher.

Point biserial correlation was used to determine the relationship between license with the dependent variables, reading and mathematics class average students’ achievement growth scores.

The point-biserial correlation coefficient (r_{pb}) is the special case of the Pearson r in which one variable is measured on an interval or ratio scale [students' class average reading or mathematics scores] and the other variable is a nominal variable [teachers' license] with two classification [initial license and continuing license] levels (a dichotomous variable). (Hinkle, Wiersma, Jurs, 1988, p. 525)

Regression analyses were performed to determine predictive relationships between values of the independent variable, teacher performance, and values of the dependent variable, class average student achievement growth. Regression was an appropriate analysis because the variables measured were on an interval scale.

Regression coefficients were used to show estimates of magnitude and statistical differences between variables. Regression coefficients are betas used "for estimating Y [student growth] from X [teacher performance], and represent the change in Y [student growth] units per X [teacher performance] unit" (Cohen and Cohen, 1983, p. 42).

Cohen and Cohen (1983) pointed out that regression analysis answers the question "How much do the values of Y , as they vary, coincide with their paired X values, as they vary? [and]. . . . variability is indexed in statistical work by the sd [standard deviation] or its square, the variance" (p. 46). R-square is the square of the correlation r and showed the variation in the values of the student class average growth in reading and mathematics. "An R-square increment is a statistic that expresses the additional variance in the criterion variable that can be explained by adding a new predictor variable to the multiple regression analysis" (Gall et al., 1996, p. 439).

Teacher performance function ratings on Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, Function 3:

Instructional Presentation, Function 4: Monitoring Instruction, Function 5: Instructional Feedback, teachers' years of teaching experience, and teachers' type of license were included in stepwise regression analyses to examine factors as predictors of increased student achievement growth. Kitchens (1987) explained that regression analysis provides the statistical tools needed to describe the relationship in quantitative variables that enables predictions to be made.

The data were analyzed using SAS statistical analysis program Version 8.2 (SAS 1999). For this study, the alpha levels in determining statistical significance were set at .10.

In practice, p usually is set at .05. However, as we explained above, some researchers feel that it is permissible to set p at .10 in exploratory studies in order to increase statistical power. A p of .10 increases the risk of a Type I error, but it might spotlight a potentially important difference, relationship, or effect that would have been overlooked had a lower p value been set. (Gall et al., 1996, p. 187)

This was an exploratory study examining data that answered questions about important relationships in the field of education. Even the smallest indications of relationships between teacher performance and student growth were important to report. "Correlations in the range of .20 to .40 might be all that one should expect to find for many of the relationships between variables studied by educational researchers" (Gall, et al., 1996, p. 459). It was not the intent of the researcher to generalize to other school districts.

Chapter Summary

In this chapter the researcher provided information important to the design of the study. Methods used to answer the research questions were identified. The instrumentation, population to be studied, and procedure for data collection were outlined. A complete description of the design used in the study included identification of variables and methods used for analyses. Instrumentation was explained, and a description of the instrument was included with instrument validity and reliability addressed. A description of the data collection was presented with an outline of the measures used to protect anonymity and provide security. Finally, Chapter 3 included the statistical procedures used for data analyses to answer each of the research questions.

Chapter 4: RESULTS

This chapter includes the results of the study of the relationship between the quality of teacher performance, teaching experience, teacher license, and student achievement growth. A description of the data collected during the study and data analysis results are presented.

Characteristics of the Population

To determine the relationship between 5th-grade class average growth in reading and mathematics in a North Carolina school district and teaching performance, a population of fifty-three 5th-grade teachers and their students for the sample year 1999-2000 were included. Data included 49 reading and 46 mathematics class average students' achievement growth scores. In 53 classrooms with an average of 23 students, class size ranged from 21 to 25.

Table 4.1 shows descriptive statistics indicating the mean, the standard deviation, and the range of the data. The range indicates the difference between the minimum and maximum for that variable. All teachers' performance measures were very highly correlated with one another with a p value of $< .0001$. Highly correlated variables were an indication that teachers receiving high ratings in some areas are very likely to receive high ratings in the other areas. The range of ratings on the teacher performance instrument and the scores on students' end-of-grade tests revealed little variability in the distribution of scores.

Table 4.1

Descriptive Statistics for Variables

Variables	N	Mean	Std Dev	Min	Max	Range
Dependent Variables						
Reading Growth	49	5.88	2.35	3.18	16.34	13.16
Mathematics Growth	46	7.28	2.04	3.33	12.15	8.82
Independent Variables						
Management of Instructional Time	53	4.85	0.89	3.00	6.00	3.00
Management of Student Behavior	53	4.96	0.78	3.00	6.00	3.00
Instructional Presentation	53	4.81	0.81	3.00	6.00	3.00
Instruct. Monitoring Stud. Perform.	53	4.81	0.71	3.00	6.00	3.00
Instructional Feedback	53	4.81	0.79	3.00	6.00	3.00
Overall Functions	53	4.85	0.66	3.00	6.00	3.00
Teachers' Years Experience	53	12.55	11.45	0.00	35.00	35.00

The standard deviations of the means for students' improved performance in mathematics and reading were similar, even though the means showed larger increases in students' scores in mathematics than in reading. The means and standard deviations for the five teacher performance functions were close; however, the mean for Function 2: Management of Student Behavior was somewhat higher. All performance ratings were evaluated on a 1 to 6 scale, although no teachers in this study received a 1 or 2 on any measure. Means of ratings indicated that most ratings were either 4s or 5s. The standard

deviation for years of experience was high due to the large range in years of teaching experience.

Data submitted to the researcher showed that, of the 61 elementary school mathematics and reading teachers in the district, eight teachers taught classes of children with special needs. End-of-grade scores were not available for determining reading and mathematics class average students' achievement growth for these eight teachers; subsequently, teacher performance ratings for these teachers were not included in the data analyses. Table 4.2 shows a description of reading and mathematics classrooms used.

Table 4.2

Description of Classrooms

Classrooms	End-of-Grade Scores
Reading Only	7
Mathematics Only	4
Reading and Mathematics	42
Total	53

Table 4.3 shows the numbers of teachers holding Initial and Continuing License. Initial licensed teachers had acquired between 0 to 4 years of teaching experience and had passed the performance based teaching license requirements. Continuing licensed teachers had more than 4 years teaching experience and met yearly summative teaching review requirements.

Table 4.3

Teachers Holding Initial and Continuing License

License	Total Teachers	Reading Teachers	Mathematics Teachers
Initial	13	12	13
Continuing	40	37	33

Correlation Analyses for Reading

Table 4.4 shows the correlation statistics used to determine the association between the students' class average reading achievement growth scores on the end-of-grade tests and the quality of classroom teaching represented by the teachers' performance function ratings.

Table 4.4

Correlation Between Students' Growth in Reading and Teachers' Performance

Performance Functions	Pearson Correlation Coefficient
Management of Instructional Time	-.01
Management of Student Behavior	.28*
Instructional Presentation	.07
Instructional Monitoring	.03
Instructional Feedback	-.01
Overall Performance	.09

* $p < .10$

Using the criterion p value $< .10$ to judge significance, only Function 2: Management of Student Behavior was significantly correlated with reading. Pearson product-moment correlation showed a positive correlation between the teachers' management of student behavior and the students' class average achievement growth in reading indicating that, in general, the two variables move in the same direction. The coefficient of correlation showed a low association between the two variables ($r = .28$, $p = .05$).

The teachers' performance ratings in the teachers' management of instructional time were not significantly reflected in the students' class average achievement growth scores on the reading end-of-grade test ($r = -.01$, $p = .97$). The relationship between the teachers' instructional presentation and students' class average achievement growth in reading was not statistically significant ($r = .07$, $p = .65$). The relationship between teachers' instructional monitoring and students' class average growth showed no significant association ($r = .03$, $p = .83$). Results showed that the teachers' improved performance in providing instructional feedback was not related to an increase in the students' class average achievement growth scores in reading ($r = -.01$, $p = .95$). There was no significant relationship shown between the overall average of Functions 1 through 5 and students' class average growth in reading ($r = .09$, $p = .55$).

These correlations were measuring individual relationships only and were not representative of how combinations of teacher performance functions might relate to gain in student achievement growth in reading. When the variables were entered into a multiple regression model (Table 4.7), Function 2 was the first and strongest variable

added and was represented in Table 4.4 as having the largest coefficient to have an effect on students reading growth.

Correlation Analyses for Mathematics

Correlation statistics used to determine the association between students' class average mathematics achievement growth scores on the end-of-grade test and the quality of classroom teaching represented by the teachers' performance function rating are shown in Table 4.5.

Table 4.5

Correlation Between Students' Growth in Mathematics and Teachers' Performance

Performance Functions	Pearson Correlation Coefficient
Management of Instructional Time	.24
Management of Student Behavior	.29*
Instructional Presentation	.33*
Instructional Monitoring	.13
Instructional Feedback	.28*
Overall Performance	.30*

* $p < .10$

Using the criterion p value $< .10$ to judge significance, teacher measures Function 2: Management of Student Behavior, Function 3: Instructional Presentation, Function 5: Instructional Feedback, and Overall Performance were significantly correlated with

students' class achievement growth in mathematics. Overall teacher performance ratings were a composite score determined from the average of Functions 1 through 5.

Correlation results indicated low associations between Function 2: Management of Student Behavior ($r = .29$, $p = .05$) and Function 5: Instructional Feedback ($r = .28$, $p = .06$). Moderate associations were indicated for Function 3: Instructional Presentation ($r = .33$, $p = .03$) and the average of the Overall Performance ($r = .30$, $p = .04$). The teachers' performance ratings on Function 1: Management of Instructional Time and the students' class average achievement growth scores on the mathematics end-of-grade tests showed no significant relationship ($r = .24$, $p = .11$). The relationship between Function 4: Instructional Monitoring and students' class average achievement growth in mathematics did not show significant association ($r = .13$, $p = .38$).

The correlation results showed that as teachers' performance improved in Management of Student Behavior, Instructional Presentation, Instructional Feedback, and Overall Average of Functions 1 through 5 students' achievement growth in mathematics improved. This means that for every increase in these function ratings there is a corresponding predicted increase in the students' class average achievement growth in mathematics.

Correlation Analyses for Experience and License

Coefficients of correlation showing the relationship between the teachers' years of experience and teachers' type of license with students' class average achievement growth in reading and mathematics are presented in Table 4.6. Pearson product-moment correlation coefficients were used to examine relationships between years of teacher

experience and student achievement variables. Point biserial correlation coefficients were used to examine relationships between the type of teaching license held by the teachers and student achievement variables.

Table 4.6

Correlation Between Teachers' Years of Experience and License with Students' Achievement Growth in Reading and Mathematics

Teacher Variables	Students' Read Growth	Students' Math Growth
Teaching Experience	-.06	.16
Teaching License	.18	.22

* $p < .10$

Teachers' years of experience were not significantly correlated with students' class average achievement growth scores in reading ($r = -.06$, $p = .69$) or with students' class average achievement growth scores in mathematics ($r = .16$, $p = .28$).

Teachers' type of license was not significantly correlated with students' class average achievement growth scores in reading ($r_{pb} = .18$, $p = .21$). Teachers' type of license was also not significantly correlated with students' class average achievement growth scores in mathematics ($r_{pb} = .22$, $p = .14$).

While some correlation was found to exist between license and years experience and reading and mathematics achievement gain, it was not found to be significant. Table 4.6 represented only the association between the individual variables of license and years experience with both students' achievement growth in reading and mathematics. It was

not representative of the association between combinations of variables and students' growth.

Regression Analyses for Reading

Using Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, Function 3: Management of Instructional Presentation, Function 4: Instructional Monitoring, Function 5: Instructional Feedback, the teachers' years of teaching experience, and teachers' type of license, stepwise regression was used to determine the best predictors of students' class average achievement growth in reading. Stepwise analyses "will start the multiple regression analysis with the most powerful predictor [teachers' performance functions] of the criterion variable [students' achievement outcomes]" (Gall et al., 1996, p. 436).

Table 4.7 shows the sequence of variables added in the stepwise selection procedure to determine the prediction of students' class average achievement growth in reading. The Overall variable showing the average of Functions 1 through 5 was omitted because it is a function of all of the other variables.

Table 4.7

Stepwise Regression of Predictor Variables for Reading Growth

Number of Variable (s) in Model	Variable (s) Entered	Model R ²	Adj. R ²	F Value (Model)	P Value (Model)
1	Mgmt. Behavior (Function 2)	.08	.06	3.92	.06*
2	Manage Inst. Time (Function 1)	.14	.10	3.79	.03*
3	Type of License	.17	.11	2.98	.04*
4	Years of Experience	.23	.16	3.28	.02*
5	Inst. Feedback (Function 5)	.23	.14	2.61	.04*
6	Inst. Presentation (Function 3)	.24	.13	2.16	.07*
7	Inst. Monitoring (Function 4)	.24	.11	1.81	.11

*p < .10

Each line of the sequential models in Table 4.7 includes the variables listed above it. In each model, the model R-square summarized the percentage of the variation in the data explained by that model. The adjusted R-square in which the R-square is reduced due to the number of variables present was used as a tool for determining how many variables to include in the model. The F value tests the significance of the overall model, which is reflected in the p value.

The first variable entered in the model, Function 2: Management of Student Behavior, was shown to have the highest correlation coefficient of the variables. In each sequential step the variable which would add the most explanatory power to the model was added, while retaining previous variables. This caused the Model R-square to increase. The adjusted R-square increased until newly added variables were not

significant at which point it began decreasing. While six of the seven models were significant, the smallest p value and highest adjusted R-square was the four variable model. This four variable model was shown to account for 23% of the variance in students' reading achievement growth with statistical significance for the model of .02.

Table 4.8 shows the estimates of beta coefficients used for predictive power in the best overall predictor model for students' class average achievement growth in reading. All of the coefficients of variables in the model were shown to be significant. Statistical significance of each individual variable is shown in Table 4.8 and significance of the overall model in Table 4.7.

Table 4.8

Best Overall Predictor Model for Reading Growth

	Estimate	t Value	P Values of Variables
Intercept	2.61	1.21	.23
Mgmt. Behavior (Function 2)	1.60	2.96	.00*
Manage Inst. Time (Function 1)	-1.06	-2.02	.05*
Type of License	1.80	2.00	.05*
Years of Experience	-.06	-1.91	.06*

*p < .10

Table 4.8 reflects the best overall predictive model for increase in EOG reading scores. The coefficients in this four variable model reflect the high degree of association between Function 1 and Function 2 and Years of Experience and Type of License. While

it is necessary to include all four variables to provide the best predictive model, the negative coefficients caused by these high correlations should not be interpreted detrimentally. “Even a negative correlation does not rule out the possibility of a positive direct causative relationship” (Glass and Hopkins, 1996, p. 140). The t values shown in the table tested whether the coefficients were different from zero. The low p values show that all variables in this model were significantly different from zero and provide important contributions to the model.

Regression Analyses for Mathematics

Using Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, Function 3: Management of Instructional Presentation, Function 4: Instructional Monitoring, Function 5: Instructional Feedback, the teachers’ years of teaching experience, and teachers’ type of license, stepwise regression was used to determine the best predictor of students’ class average achievement growth in mathematics.

Table 4.9 shows the sequence of variables added in the stepwise selection procedure to determine the best predictor of students’ class average achievement growth in mathematics.

Table 4.9

Stepwise Regression of Predictor Variables for Mathematics Growth

Number of Variable (s) in Model	Variable (s) Entered	Model R ²	Adj. R ²	F Value (Model)	P Value (Model)
1	Inst. Presentation (Function 3)	.11	.08	5.24	.03*
2	Inst. Monitoring (Function 4)	.12	.08	.51	.48
3	Mgmt. Behavior (Function 2)	.13	.07	.64	.43
4	Inst. Feedback (Function 5)	.14	.06	.62	.44
5	Type of License	.15	.05	.53	.47
6	Years of Experience	.16	.03	.27	.61
7	Manage Inst Time (Function 1)	.16	.01	.00	.98

*p < .10

The mathematics model showed only the first model to be significant. The addition of more variables drops the F value and the p value dramatically. The p value of the model dropped dramatically from .03 to .48 when the second variable was added. All other models with more than one variable were shown to be insignificant. The best significant predictor of students' mathematics improvement was Function 3: Instructional Presentation ($b = .79$, $p = .03$). The R-square value of 11% was the amount of variance in the students' class average growth in mathematics explained by the model. This model was selected because it has the highest adjusted R-Square and is the most significant of the models. Table 4.10 shows the best overall predictor model for students' growth in mathematics.

Table 4.10

Best Overall Predictor Model for Mathematics Growth

	Estimate	t Value	P Value of Variable
Intercept	3.50	2.09	.05*
Inst. Presentation (Function 3)	.79	2.29	.03*

*p < .10

The students' class average achievement growth in mathematics is predicted to increase by .79 units for every unit increase in the teachers' improved performance in instructional presentation.

Chapter Summary

Chapter 4 included descriptive statistics showing characteristics of the data and inferential statistics showing regression predictions. Low correlations were present between the teachers' performance ratings on Function 2: Management of Student Behavior ($r = .29$, $p = .05$) and Function 5: Instructional Feedback ($r = .28$, $p = .06$) with students' class average achievement growth in mathematics. Slightly higher correlations were shown between the teachers' performance on Function 3: Instructional Presentation ($r = .33$, $p = .03$) and the overall average of teachers' performance Functions 1 through 5 ($r = .30$, $p = .04$) with students' class average achievement growth in mathematics. A low correlation was present between Function 2: Management of Student Behavior ($r = .28$, $p = .05$) and students' class average achievement growth in reading. The teachers' performance function ratings showed a more intense relationship with 5th-grade students' class average achievement growth scores on the mathematics end-of-grade test than were

shown with the reading end-of-grade test. Neither students' class average achievement growth in reading nor mathematics were significantly correlated with either teachers' years of teaching experience or teachers' type of license.

Using a stepwise regression model that included Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, Function 3: Instructional Presentation, Function 4: Instructional Monitoring, Function 5: Instructional Feedback, the teachers' years of teacher experience, and teachers' type of license, the best predictive models of students' reading and mathematics improvement was determined. The best predictor of students' mathematics improvement was Function 3: Management of Instructional Presentational ($b = .79$, $p = .03$). The R-square value of 11% reflected the amount of variance in the students' class average growth in mathematics explained by the model. The best overall four variable model for reading included the following variables: Management of Student Behavior, Management of Instructional Time, Type of license, and Years of Experience. This model was shown to account for 23% of the variance in students' class average reading achievement growth with a statistical significance of .04.

Chapter 5: SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Chapter 5 presents a summary that includes the purpose of the study, the specific objectives addressed through the research questions, the methodology followed in the study, and the major findings from the statistical analyses.

The primary purpose of this study was to investigate the relationship between the teaching performance of elementary school reading and mathematics teachers in a North Carolina school district, as measured by the North Carolina Teacher Performance Appraisal Instrument and administered by the school administrator, and student achievement growth in reading and mathematics, as measured by the North Carolina 5th-grade reading and mathematics end-of-grade achievement tests growth scores. In addition, the study examined the relationships between the teachers' years of teaching experience and students' achievement growth scores in reading and mathematics and the teachers' type of license and students' class average achievement growth scores in reading and mathematics.

More specifically, the study attempted to answer the following questions:

1. Is there a relationship between the overall teacher performance ratings, as measured by the administrative summative evaluation, and the 5th-grade reading and mathematics student growth scores?
2. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 1: Management of Instructional Time, and the 5th-grade reading and mathematics student growth scores?

3. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 2: Management of Student Behavior, and the 5th-grade reading and mathematics student growth scores?
4. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 3: Instructional Presentation, and the 5th-grade reading and mathematics student growth scores?
5. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 4: Instructional Monitoring of Student Performance, and the 5th-grade reading and mathematics student growth scores?
6. Is there a relationship between the teacher performance ratings, as measured by the administrative summative evaluation on Function 5: Instructional Feedback, and the 5th-grade reading and mathematics student growth scores?
7. Is there a relationship between the type of license and the years of teaching experience and the student growth scores in 5th-grade reading and mathematics?
8. Which of the following was the best predictor of students' class average achievement growth in reading and in mathematics: Management of Instructional Time, Management of Student Behavior, Instructional Presentation, Instructional Monitoring, Instructional Feedback, type of license, or years of teaching experience?

Review of Methodology

The entire population of fifty-three 5th-grade teachers in a North Carolina school district and the students enrolled in the teachers' classes were included in this study. A correlational research design was used to determine the relationships between the dependent variable, students' achievement growth in reading and mathematics, and the independent variables, the 5th-grade teachers' performances as determined by the evaluation of the elementary school administrator, the teachers' years of teaching experience, and the teachers' type of license.

The general rule was that the entire population would be used if feasible. Including the entire population of 5th-grade teachers was reasonable because the entire population was identified in the county (Flowers, 2000). Inferential statistics were used in this study to show student growth scores and teacher evaluation ratings during the 1999-2000 academic year. Because the data were collected at one point in time, the findings were from a sample of time.

The 1999-2000 academic year was identified as the sample in time to use in this study because as a component of Gateway 2 of the North Carolina Student Accountability Standards the 1999-2000 school year was the first year that 5th-grade students were required to attain Level III, or above mastery, on the end-of-grade reading and mathematics tests as a prerequisite to sixth grade promotion. In this study, scores from the North Carolina End-of-Grade Reading and Mathematics tests were used to show student achievement growth. Summative ratings from the North Carolina Teacher Performance Appraisal Instrument were used to show teacher quality. Data were collected in the offices of the central administration and submitted to the researcher.

End-of-Grade tests were developed by the North Carolina Department of Public Instruction to measure academic success in the development of the essential skills of reading and mathematics (Public Schools of North Carolina, NC Department of Public Instruction, 1999b). Content validity of the end-of-grade tests in reading and mathematics was established by test alignment with the state-mandated North Carolina Standard Course of Studies for 5th-grade reading and mathematics. Internal Consistency ratings were used to establish reliability for the current EOG tests in reading and mathematics and indicate a coefficient alpha index of .918 for reading and .940 for mathematics. The North Carolina Teacher Performance Appraisal Instrument (NCTPAI) was developed by a group of educators from the University of North Carolina at Chapel Hill at the request of the North Carolina Department of Public Instruction (Ware, et. al, 1992). Content validity of the NCTPAI was established by a panel of experts (White, et al, 1987). “Reliability estimates . . . of the five subscales when using professionally trained observer/raters have ranged from .77 to .91 when using two raters. Inter-rater agreement estimates . . . have consistently been in the low .90s” (Ware et al, 1992, p. 4). Based on the results of the study at the University of North Carolina at Chapel Hill and subsequent pilot tests, all districts in North Carolina were required to use the instrument for teacher evaluation.

The data for this study were analyzed using the SAS statistical analysis program Version 8.2 (SAS, 1999). Statistical methods used to interpret the data were correlation and regression analyses. The unit of analysis was the classroom average. Correlation and regression analyses were used to determine the relationship between teachers’ classroom performance and students’ class average achievement growth. The first five

teacher performance functions on the North Carolina Teacher Performance Appraisal Instrument were included in this study. These five functions were (a) management of instructional time, (b) management of student behavior, (c) instructional presentation, (d) instructional monitoring, and (e) instructional feedback. Analyses included correlations between teachers' type of license and students' class average achievement growth in reading and mathematics as well as correlations between teachers' years of teaching experience and students' class average achievement growth in reading and mathematics.

Limitations that may have influenced the outcome included the probable generalization only to the small system from which data were collected unless other populations were similar in characteristics and similar assessment strategies were employed. Twenty-six of the teachers in the study did not have summative evaluations for the 1999-2000 year because they were in their Annual Review Cycle. The most recent summative data available were used for these teachers. The Halo effect (Gall et al., 1996, p. 414) may have been an attributing factor when considering administrative performance ratings. If the administrator had previously established a positive or negative impression of the teaching ability, the teacher being rated might receive ratings based on these established impressions. Hertzberg (1968) pointed out that changes in job performances might be attributed to the Hawthorne Effect if certain employees were receiving more attention. Results from this study did not attempt to establish cause and effect but did offer evidence of relationships between variables. The range of data may have limited the findings in this study. There is a compressed range of data represented in the teacher performance ratings and in the student tests scores. The ratings on the

teacher performance instrument and the scores representing student growth do not have much variability in the distribution of scores.

This study differed from other studies in that this study used a measure of student achievement growth that was a direct reflection of the students' academic course curriculum objectives. In this study, the content studied by the students and the measurement of the content occurred in the same year. Also, since the teacher ratings were summative ratings, the same administrator in each school completed the evaluations.

Summary of the Findings

Summary of Population Characteristics

The data sample included 53 teachers. The end-of-grade growth score data collected for the study included 49 reading and 46 mathematics students' class average achievement growth scores. The teachers' years of teaching experience ranged from 0 to 35 years with a mean of 12.55 years ($SD = 11.45$). Forty of the teachers had been teaching more than four years and held continuing licenses. Thirteen of the teachers had been teaching less than four years and held initial licenses.

Reading scores for the end-of-grade class average achievement growth, represented by the difference between the average total of the differences between each student's 5th-grade end-of-grade reading score and their 4th-grade end-of-grade reading score, showed a mean growth score of 5.88 ($SD = 2.35$) with a minimum growth score of 3.18 and a maximum growth score of 16.34. Mathematics scores for the end-of-grade class average achievement growth, represented by the difference between the average

total of the differences between each student's 5th-grade end-of-grade mathematics score and their 4th-grade end-of-grade mathematics score, showed a mean growth score of 7.28 ($SD = 2.04$) with a minimum growth score of 3.33 and a maximum growth score of 12.15. Ratings representing the quality of the teachers' classroom performance, as determined by the school administrator for summative performance evaluation and reported on the 6-point rating scale of the NCTPAI, showed minimum ratings of 3 and maximum ratings of 6.

The summary of findings was presented according to the research questions addressed in the study. The alpha level of .10 was set a priori as the means to establish statistical significance.

Summary of Findings by Research Questions

The research questions are discussed in the order in which they have been presented in this study. In each of the first seven questions, students' class average growth in mathematics is considered first, and students' class average growth in reading is considered second.

Question 1 examined the relationship between the overall teacher performance ratings, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade test. Overall teacher performance was a composite score determined from the average of Functions 1 through 5. Pearson product moment correlations were calculated to determine the direction and strength or magnitude of the two variables at the same time, overall teacher performance, on average, and class

average students' growth in mathematics. Results indicated evidence of a moderate correlation ($r = .30$, $p = .04$) between ratings on the average of Functions 1 through 5, which represented the overall teacher performance, and scores on the end-of-grade tests, which represented the students' class average achievement growth in mathematics. Results of Pearson product-moment correlation for the overall teachers' performance on Functions 1 through 5 and students' class average achievement growth in reading did not show statistical significance ($r = .09$, $p = .55$).

Question 2 examined the relationship between the teacher performance ratings on Function 1: Management of Instructional Time, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade tests. Results of the Pearson product-moment correlation showed that Function 1: Management of Instructional Time did not relate to the students' class average growth scores in mathematics with statistical significance at the established .10 level ($r = .24$, $p = .11$). Pearson product-moment correlation results, using the paired data between teachers' management of instructional time from the NCTPAI ratings and students' class average achievement growth scores in reading from the EOG scores, showed no association ($r = -.01$, $p = .97$).

Question 3 examined the relationship between the teacher performance ratings on Function 2: Management of Student Behavior, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade tests. Results showed that the teachers' performance measure, management of student

behavior, revealed a positive correlation with statistical significance with students' class average mathematics achievement growth ($r = .29, p = .05$). Results of Pearson product-moment correlation for the teachers' performance measure, management of student behavior, and the students' class average achievement growth in reading showed a positive significant association ($r = .28, p = .05$).

Question 4 examined the relationship between the teacher performance ratings on Function 3: Instructional Presentation, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade tests. Pearson-product moment correlation results showed the association between the teachers' instructional presentation ratings and the students' class average achievement growth scores in mathematics to be moderate with statistical significance ($r = .33, p = .03$). Pearson product-moment correlation between the teachers' performance on instructional presentation ratings and the students' achievement growth scores in reading did not show statistical significance using the criterion p value $< .10$ to judge significance ($r = .07, p = .65$).

Question 5 examined the relationship between the teacher performance ratings on Function 4: Instructional Monitoring of Student Performance, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade tests. Findings from Pearson product-moment correlation between the teachers' performance ratings on Function 4: Instructional Monitoring of Student Performance and the students' class average achievement growth scores in mathematics indicated that the

correlation coefficient was not statistically significant using the criterion p value $< .10$ to judge significance ($r = .13$, $p = .38$). Findings from Pearson product-moment correlation between the teachers' performance ratings on Function 4: Instructional Monitoring of Student Performance and the students' class average achievement growth scores in reading indicated that the correlation coefficient was not statistically significant using the criterion p value $< .10$ to judge significance ($r = .03$, $p = .83$).

Question 6 examined the relationship between the teacher performance ratings on Function 5: Instructional Feedback, as measured by the administrative summative evaluation on the TPAI, and the 5th-grade class average mathematics and reading student achievement growth scores, as measured by the end-of-grade tests. Results revealed that, on average, the values of the teachers' instructional feedback are associated with the values of students' class average achievement growth in mathematics with significance using the criterion p value $< .10$ to judge significance ($r = .28$, $p = .06$). Pearson product-moment correlation results showed the correlation between the teachers' performance function ratings in Instructional Feedback and the students' class average achievement growth scores in reading not to be statistically significant using the criterion p value $< .10$ to judge significance ($r = -.01$, $p = .95$).

Question 7 examined the relationship between the teacher type of license and years of teaching experience and the student class average achievement growth scores in 5th-grade mathematics and reading. Pearson product-moment correlation to determine the relationship between the teachers' years of teaching experience and students' class average growth in mathematics indicated the strength ($r = .16$, $p = .28$) not to be statistically significant using the criterion p value $< .10$ to judge significance. Using

Pearson product-moment correlation to determine the relationship between the teachers' years of teaching experience and students' class average growth in reading indicated the strength not to be statistically significant using the criterion p value $< .10$ to judge significance ($r = -.06$, $p = .69$).

Results from point-biserial correlation to show the relationship between teachers' type of license and students' class average achievement growth in mathematics revealed a correlation coefficient of $.22$ ($p = .14$). Results from point-biserial correlation to show the relationship between teachers' license and students' class average achievement growth in reading revealed a correlation coefficient of $.18$ ($p = .21$). License was not shown to be significantly correlated with students' class average achievement growth in either reading or mathematics.

Question 8 examined which of the following was the best predictor of students' class average achievement growth in mathematics and reading: Management of Instructional Time, Management of Student Behavior, Instructional Presentation, Instructional Monitoring, Instructional Feedback, teacher type of license, or years of experience?

Stepwise selection results showed the best overall significant predictor of students' mathematics improvement to be Function 3: Management of Instructional Presentational ($b = .79$, $p = .03$). This indicated that for every unit increase in the teachers' performance ratings on Function 3: Instructional Presentation, the students' class average achievement growth score in mathematics would be expected to increase by $.79$ units. The R-square value of 11% was the amount of variance in the students' class average growth in mathematics explained by the model.

Stepwise selection showed a four variable model to be the best overall predictor for improved student performance in reading. This model showed that a combination of Function 1, Management of Instructional Time, Function 2, Management of Student Behavior, teachers' years of experience, and teachers' type of license was the best predictor of improved students' class average achievement in reading. This four variable model accounted for 23% of the variance in students' improved class average achievement in reading. Regression coefficients for Function 2: Management of Student Behavior ($b = 1.60$, $p = .00$) and license ($b = 1.80$, $p = .05$) indicated that for every unit increase in the teachers' performance ratings on Function 2: Management of Student Behavior, the students' class average achievement growth score in reading was predicted to increase by 1.60 units and for every unit increase in license, the students' class average achievement growth score in reading was expected to increase by 1.80 units. Function 1: Management of Instructional Time and teachers' years of experience were shown to be negative predictors of students' class average achievement growth in reading with the following model coefficients: Function 1: Management of Instructional Time ($b = -1.06$, $p = .05$) and teachers' years of experience ($b = -.06$, $p = .05$).

Conclusions

The following conclusions were based on the findings of this study:

1. Administrative teacher performance ratings on Function 3: Instructional Presentation on the NCTPAI, as a significant predictor of students' achievement growth in mathematics, appear to indicate that administrators are able to identify teachers who are better able to promote academic gain in mathematics in their schools.

2. The model containing administrative ratings on Function 1: Management of Instructional Time and Function 2: Management of Student Behavior, in conjunction with teachers' years of experience and type of license, was found to be the best significant predictor of students' class average achievement growth in reading, which appears to indicate that administrators are able to identify teachers who are better able to promote academic gain in reading in their schools.

3. Teachers with more developed instructional presentation abilities would be expected to have greater increases in mathematics EOG scores among students.

4. Teachers with more developed skills in the management of student behavior would be expected to have greater increases in reading EOG scores among students.

Modification to the Conceptual Framework of the Study

Based on the results of this study, the conceptual framework as previously shown in Figure 2.1 in Chapter 1 has been modified to reflect that the teachers' ratings in Function 1: Management of Instructional Time, Function 2: Management of Student Behavior, and Function 3: Instructional Presentation appear to have a significant

influence on student achievement growth. Figure 5.1 reflects the suggested modifications to explain the outcome of the study.

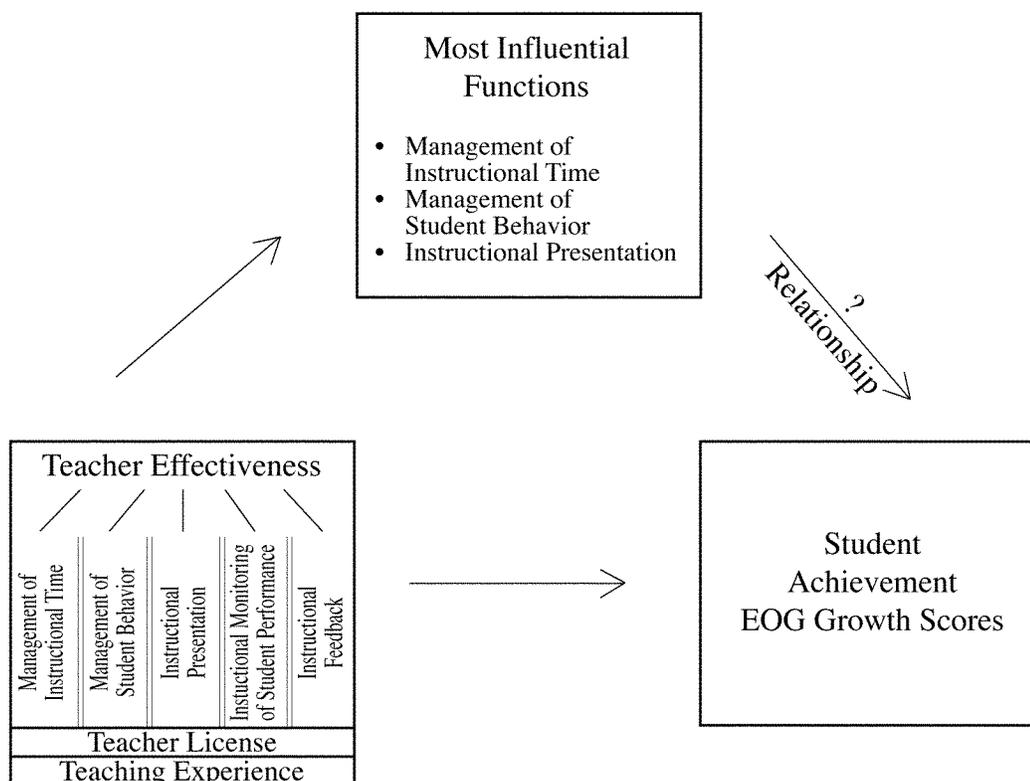


Figure 5.1. Modifications to the Conceptual Framework of the Study

The results from this study which measured the relationship between students' achievement growth, using the EOG class average growth scores from reading and mathematics, and teachers' performance, using the administrative ratings from the TPAI, showed the bulleted teacher performance functions in Figure 5.1 to be the most influential. The results provide support for the belief that teacher effectiveness in the classroom is related to student growth. This exploratory study, which examined only possibilities, did not attempt to show cause and effect.

Implications

The literature review provided support for the complex skill and art associated with effectively teaching a group of students in a classroom and the preponderance of disconcerting problems associated with effectively evaluating the teacher's performance. Glasser (1990) purported that "[Teaching] is not only the hardest job in the school, it is the hardest job there is . . . being an effective teacher may be the most difficult job of all of our society" (pp. 14-17). The findings of previous research presented varying suggestions regarding the quality of teaching and the achievement outcomes of students. The findings in this research showed support for portions of the previous research and, when compared to previously reported studies, some differences.

The relationship between the ratings of the teachers' overall average of the first five teacher performance functions of the NCTPAI was found to be significantly correlated with scores of the students' class average achievement growth in 5th-grade mathematics but not with reading. Evidence regarding the positive relationship of the teachers' effective performance and students' increased achievement was presented in the literature review (Millman, 1997; Good and Grouws, 1977; Kounin, 1970; Wright, Horn, and Sanders, 1997; Howell, Brocato, Patterson, and Bridges, 1999; Brophy and Good, 1986). In a study of teaching and student achievement gains in reading, Brophy (Brophy and Good, 1986) showed that "some teachers are consistently better than others at producing student learning gain" (p. 340).

In a study of teaching and student achievement gains in mathematics, Good and Grouws (1975) showed that student performance gains were higher with direct instruction. However, Stow (1979) worked with teachers of 3rd-, 4th-, and 5th-grade

students to determine if students' gains in mathematics were associated with the performance of the teachers. Even though there were significant gains in student scores, the gain scores did not correlate with the composite scores of teacher performance. These differences in patterns of enhanced student achievement and the findings in this study provide tools for identifying the needs of teachers and students when addressing the issue of accountability measured by teacher performance ratings and student achievement gains.

The relationship between the teachers' management of instructional time and students' achievement in reading and mathematics was not found to be significantly correlated in this study. These findings differed from findings of Emmer, Evertson, and Anderson (1980); Arlin (1982); and Wong Yu Fai (1996). In addition, NCDPI (1986a), Holdzkom and Brandt (1995), and Wong and Wong (1998) offered support for knowledge that the teachers' management of instructional time enhances student achievement. Additional research may prove to be essential in helping to understand why this finding occurred in this study and whether it would be repeated across multiple research studies.

The literature review presented support for the positive influence the teachers' management of student behavior has on improved student achievement (Billups and Rauth, 1987; Soar, 1971; Emmer, 1987; Brophy and Putnam, 1978; Gordon, 1974; James, 1939; Evertson, et al., 1987; Crocker and Brooker, 1986; and Darling Hammond, 2000a). Using the criterion p value $< .10$ to judge significance, Function 2: Management of Student Behavior was significantly correlated with student achievement in mathematics and in reading. Doyle (1986) contended that order in the classroom

depended on the setting. Doyle cited examples of “whole-class lessons versus multiple group arrangements” . . . [and] “snack time versus silent reading” (p. 392) to show that the teacher’s reactions to student behavior are governed by the circumstances of the lesson, the number of students involved, and the division of students into smaller groups with two adults in the classroom. Two approaches addressing improved classroom student behavior included looping and extended time with the same teacher. Looping is the practice of the teacher working with the same students for more than one academic year.

There was no significant correlation shown between Function 3: Instructional Presentation and student achievement in reading. However, the findings indicated that the teachers’ instructional presentation was the best predictor of the students’ class average achievement growth in mathematics. The literature is replete with support for effective teaching practices necessary for the teachers’ instructional presentation (Berliner, 1987; Hunter, 1990; Brophy and Putnum, 1978; Rosenshine and Stephens, 1986; Grouws and Good, 1988; and James, 1939). These findings were consistent with expectations from the Department of Public Instruction in North Carolina for teachers to review previous material, to provide objectives and examples, and to ask questions appropriately while using precise and understandable language which results in higher rates of students’ success.

Studies in the process-product research that preceded the development of the NCTPAI were reported by Good and Grouws (1975). In their study to determine how the teacher functions as an independent variable in order to influence achievement, the focus

was on the single subject area of mathematics. The researchers reasons for the focus on teachers' behaviors that influenced mathematics, specifically, included the following:

To maximize the utility of the data we decided to focus the observations upon teachers' performance in mathematics. This decision was reached because (1) teachers available for observation demonstrated slightly more stability in mathematics than reading and (2) we felt more prepared to do a detailed analysis of mathematics than reading (the co-principal investigator is a specialist in mathematics education). (p. 8)

Good and Gouws (1977) emphasized the imperativeness of stability in context before inferring teacher effectiveness.

Findings showed that the relationship between Function 4: Monitoring Instruction and student achievement was not significant in mathematics or in reading. There is support in the literature for the teachers' need to monitor students' performance in an attempt to stay attuned to the students not attending their academic work, to move closer to those students, and to redirect their attention. Kounin (1970) devised the dimension of "with-it-ness" (p. 66) and Doyle (1986) reported that monitoring student performance prevents lessons being left to chance.

Using the criterion p value $< .10$, Function 5: Instructional Feedback was found to be significantly correlated with mathematics but not with reading. Literature support for the importance of the teachers' effectiveness in providing instructional feedback was presented by Brophy (1981) with an explanation of the clear distinction between teachers praising well rather than often. Rosenshine and Stephens (1986) emphasized that student

errors should not go uncorrected. The effectiveness of instructional feedback was suggested by Burnette (1999), Kohn (1994), and Tobin (1986).

The findings from this study did not show a relationship between the teachers' years of teaching experience or the teachers' type of license and student achievement. The literature showed varied patterns of these relationships. Hanushek (1989) reported that teaching experience as an influence on student achievement was reported to be marginally higher than either teacher education or smaller classes. The literature offered strong support for the relationship between qualified and professional personnel and the effectiveness in teaching (Floyd, 1985; Darling-Hammond, 2000c; Bradshaw, 1996).

This study differed from other studies in that this study used a measure of student academic growth that was a direct reflection of the students' academic course curriculum objectives. In this study, the content studied by the students and the measurement of the content occurred in the same year. Also, since the teacher ratings were summative ratings, the same administrator in each school conducted the evaluations.

The study did not attempt to show cause and effect. This study identified some of the performance and evaluation needs of students, teachers, and administrators and provided a quantitative tool for helping to address those needs.

Recommendations

Based on the findings of this study, the following are recommendations for further research and practice:

1. Conduct a follow-up study in additional school systems to investigate further the relationship between the teachers' performance and students' academic achievement.

2. Conduct a study that includes middle and secondary school teachers and students to determine if school levels influence findings.
3. Conduct a study to determine if required training sessions, which focus on components of the NCTPAI and include both teachers and school administrators, can improve the process for evaluating teachers.
4. Investigate the link between the complex teacher-administrator relationship and its implications for rating teachers' performance and subsequently affecting student performance.
5. Continue the training for administrators and provide periodic retraining on using the instrument the way it is designed to be used. McGreal (1982) reported that the evaluation system is suggested to be only as effective as the training the evaluators receive. Castetter and Young (2000) suggested that the moral tone for performance appraisal is set by the central office and determines the consistency of ethical standards.
6. Encourage teachers to focus attention on Management of Student Behavior and Instructional Presentation.
7. Strengthen the teacher education curriculum in statewide universities so that instruction is focused on developing teachers who are more effective in Management of Student Behavior and Instructional Presentation.

Gall et al. (1996) explained that the nature of exploratory research involves the discovery of unexpected relationships, which might provide insight for additional research. The recommendations in this study were an indication of the nature of exploratory research. Further studies are needed to validate and expand upon these findings. Recommendations based on the results of this study are offered in the hope that

changes will occur to provide practices that may improve teachers' instructional presentation, support teachers in the appropriate management of student behavior, and assist teachers and administrators as they work with limited resources in the hardest and most stressful profession there is--the improvement of student achievement in public school education.

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APPENDICES

APPENDIX A

North Carolina Teacher Performance Appraisal Instrument

PUBLIC SCHOOLS TEACHER PERFORMANCE APPRAISAL INSTRUMENT

- INSTRUCTIONS:**
1. Based on the evidence from observation and discussion, the evaluator is to rate the teacher's performance with respect to the 8 major functions of teaching listed below.
 2. The evaluator is encouraged to add pertinent comments at the end of each major function.
 3. The teacher is provided an opportunity to react to the evaluator's ratings and comments.
 4. The evaluator and the teacher must discuss the results of the appraisal of any recommended action pertinent to it.
 5. The teacher and the evaluator must sign the instrument in the assigned spaces.
 6. The instrument must be filed in the teacher's personnel folder.

Teachers Name _____
 Grade/Subject _____ School Year _____ / _____
 School _____ Certificate: _____ Initial _____ Continuing _____

(Please Check)

6	5	4	3	2	1
Superior	Well Above Standard	Above Standard	At Standard	Below Standard	Unsatisfactory

1. Major Function: Management of Instructional time

- 1.1 Teacher has materials, supplies and equipment ready at the start of lesson or instructional activity.
- 1.2 Teacher gets the class started quickly.
- 1.3 Teacher gets students on task quickly at the beginning of each lesson or instructional activity.
- 1.4 Teacher maintains a high level of student time-on-task.

Comments _____

6 5 4 3 2 1

2. Major Function: Management of Student Behavior

- 2.1 Teacher has established a set of rules and procedures that govern the handling of routine administrative matters.
- 2.2 Teacher has established a set of rules and procedures that govern student verbal participation and talk during different types of instructional activities—whole class instruction, small group instruction, etc.
- 2.3 Teacher has established a set of rules and procedures that govern student movement in the classroom during different types of instructional activities.
- 2.4 Teacher frequently monitors the behavior of all students during whole-class, small group and seat work activities and during transitions between instructional activities.
- 2.5 Teacher stops inappropriate behavior promptly and consistently, yet maintains the dignity of the student.

Comments _____

6 5 4 3 2 1

3. Major Function: Instructional Presentation

- 3.1 Teacher begins lesson or instructional activity with a review of previous material.
- 3.2 Teacher introduces the lesson or instructional activity and specifies learning objectives when appropriate.
- 3.3 Teacher speaks fluently and precisely.
- 3.4 Teacher presents the lesson or instructional activity using concepts and language understandable to the students.
- 3.5 Teacher provides relevant examples and demonstrations to illustrate concepts and skills.
- 3.6 Teacher assigns tasks that students handle with a high rate of success.
- 3.7 Teacher asks appropriate levels of questions that students handle with a high rate of success.
- 3.8 Teacher conducts lesson or instructional activity at a brisk pace, slowing presentations when necessary for student but avoiding unnecessary slowdowns.
- 3.9 Teacher makes transitions between lessons and between instructional activities within lessons efficiently and smoothly.
- 3.10 Teacher makes sure that the assignment is clear.
- 3.11 Teacher summarizes the main point(s) of the lesson at the end of the lesson or instructional activity.

Comments _____

6 5 4 3 2 1

Teacher Name _____

(Please Check)

6	5	4	3	2	1
Superior	Well Above Standard	Above Standard	At Standard	Below Standard	Unsatisfactory

4. Major Function: Instructional Monitoring of Student Performance

- 4.1 Teacher maintains clear, firm and reasonable work standards and due dates.
- 4.2 Teacher circulates during class work to check all student's performance.
- 4.3 Teacher routinely uses oral, written, and other work products to check students progress.
- 4.4 Teacher poses questions clearly and one at a time.

Comments _____

6 5 4 3 2 1

5. Major Function: Instructional Feedback

- 5.1 Teacher provides feedback on the correctness or incorrectness of in-class work to encourage student growth.
- 5.2 Teacher regularly provides prompt feedback on assigned out-of-class work.
- 5.3 Teacher affirms a correct oral response appropriately and moves on.
- 5.4 Teacher provides sustaining feedback after an incorrect response or no response by probing, repeating the question, giving a clue, or allowing more time.

Comments _____

6 5 4 3 2 1

6. Major Function: Facilitating Instruction

- 6.1 Teacher has an instructional plan which is compatible with the school and system wide curricular goals.
- 6.2 Teacher uses diagnostic information obtained from tests and other assessment procedures to develop and revise objects and/or tasks.
- 6.3 Teacher maintains accurate records to document student performance.
- 6.4 Teacher has individualized plan that matches/aligns objectives, learning strategies, assessment and student needs at the appropriate level of difficulty.
- 6.5 Teacher uses available human and material resources to support the instructional program.

Comments _____

6 5 4 3 2 1

7. Major Function: Interacting Within the Educational Environment

- 7.1 Teacher treats all students in a fair and equitable manner.
- 7.2 Teacher interacts effectively with students, co-workers, parents and community.

Comments _____

6 5 4 3 2 1

8. Major Function: Performing Non-Instructional Duties

- 8.1 Teacher carries out non-instructional duties as assigned and/or as need is perceived.
- 8.2 Teacher adheres to established laws, policies, rules, and regulations.
- 8.3 Teacher follows a plan for professional development and demonstrates evidence of growth.

Comments _____

6 5 4 3 2 1

Evaluator's Summary Comments and Recommendations _____

Initially License Personnel 3 (ILP 3) Only:

- Do Recommend Clear Licensure.
- Do Not Recommend Clear Licensure.
- Recommend re-employment for next year.
- Do Not Recommend re-employment for next year.
- A recommendation for re-employment for next year can not be made at this time _____

The Recommended Evaluation Status of this employee for the next school year _____ / _____ is _____ and their employment level will be _____

Employee's Reaction to Evaluation _____

 Evaluator's Signature Date Employee's Signature Date

Signature indicates that the written evaluation has been seen and discussed.

Other persons who collected data used in the summative evaluation of this employee.

In accordance with North Carolina General Statute 155-C-325, a copy of this evaluation is maintained in your personnel file.

**The Rating Scale
 Level of Performance**

6. **SUPERIOR:** Performance within this function area is consistently outstanding. Practices are demonstrated at the highest level of performance. Employee continuously seeks to expand scope of competencies and constantly undertakes additional, appropriate responsibilities.
5. **WELL ABOVE STANDARD:** Performance within this function area is frequently outstanding. Some practices are demonstrated at the highest level while others are consistently high level. Employee frequently seeks to expand scope of competencies and often undertakes additional, appropriate responsibilities.
4. **ABOVE STANDARD:** Performance within this function area is frequently high. Some practices are demonstrated at the highest level while others are consistently adequate/acceptable level. Employee sometimes seeks to expand scope of competencies and occasionally undertakes additional, appropriate responsibilities.
3. **AT STANDARD:** Performance within this area is consistently adequate/acceptable. Practices fully meet all performance expectations at an acceptable level. Employee maintains an adequate scope of competencies and performs additional responsibilities as assigned
2. **BELOW STANDARD:** Performance within this function area is sometimes inadequate/unacceptable and needs improvement. Employee requires supervision and assistance to maintain an adequate scope of competencies, and sometimes fails to perform additional responsibilities as assigned.
1. **UNSATISFACTORY:** Performance within this function is consistently inadequate/unacceptable and most practices require considerable improvement to fully meet minimum performance expectations. Employee requires close and frequent supervision in the performance of all responsibilities.

APPENDIX B

Project Approval Form

North Carolina State University is a land-grant university and a constituent institution of The University of North Carolina

**Office of Research
and Graduate Studies**

NC STATE UNIVERSITY

Sponsored Programs and
Regulatory Compliance
Campus Box 7514
1 Leazar Hall
Raleigh, NC 27695-7514

919.515.7200
919.515.7721 (fax)

From: Debra A. Paxton, Regulatory Compliance Administrator
North Carolina State University
Institutional Review Board

Date: August 23, 2001

Project Title: Relationship Between Teacher Performance and Student Growth Outcomes in
North Carolina's Public School's Fifth Grades

IRB#: 261-01-8

Dear Ms. Spiggle:

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101.b.4). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review.

NOTE:

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations.
For NCSU projects, the Assurance Number is: M1263; the IRB Number is: 01XM.
2. Review de novo of this proposal is necessary if any significant alterations/additions are made.

Please provide a copy of this letter to your faculty sponsor. Thank you.

Sincerely,

Debra Paxton
NCSU IRB

North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
SUBMISSION FOR NEW STUDIES

Title of Project: RELATIONSHIP BETWEEN TEACHER PERFORMANCE AND STUDENT GROWTH OUTCOMES IN NORTH CAROLINA'S PUBLIC SCHOOLS' FIFTH GRADES

Principal Investigator Jo Anne Blackmon Spiggle Department Occupational Education

Source of Funding (required information): researcher
(if externally funded include sponsor name and university account number)

Campus Address (Box Number) _____

Email: _____ Phone: _____ Fax: _____

RANK: Faculty
 Student: Undergraduate; Masters; or PhD
 Other (specify): _____

If rank is *other* than faculty, name of faculty sponsor overseeing the research: Dr. Jim Flowers
Faculty Sponsor's Email jimflowers@ncsu.edu Campus Box 7607 Phone 919-515-1758

As the principal investigator, my signature testifies that I have read and understood the University Policy and Procedures for the Use of Human Subjects in Research. I assure the Committee that all procedures performed under this project will be conducted exactly as outlined in the Proposal Narrative and that any modification to this protocol will be submitted to the Committee in the form of an amendment for its approval prior to implementation.

Principal Investigator:

Jo Anne Blackmon Spiggle _____
(typed/printed name) (signature) (date)

As the faculty sponsor, my signature testifies that I have reviewed this application thoroughly and will oversee the research in its entirety. I hereby acknowledge my role as the principal investigator of record.

Faculty Sponsor:

Dr. Jim Flowers _____
(typed/printed name) (signature) (date)

PLEASE COMPLETE IN DUPLICATE AND DELIVER TO:
Institutional Review Board, Box 7514, NCSU Campus (Leazer Hall Lower Level)

.....
For IRB office use only

IRB Committee Reviewer

Approve Approve pending modifications Table Disapprove

Reviewer Name: _____ Signature: _____ Date: _____

Final IRB Committee Decision

Exempt Review Expedited Review Full Review Not Approved

Committee Chairperson Date

RECEIVED: _____ SENT TO REVIEWER: _____ LETTER TO PI: _____

North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
PRELIMINARY QUESTIONS

- 1) Is this a taste and food quality evaluation and consumer acceptance study, where (i) wholesome foods without additives are consumed or (ii) food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture ?
 Yes No
- 2) Will the subjects remain completely anonymous (i.e. no identifiers which can link an individual subject to their data – projects using coded data sheets with a “key” linking code numbers to subjects are not anonymous)?
 Yes No
- 3) Will anyone other than the PI or the research team have access to the data (including any completed surveys) from the moment they are collected until they are destroyed?
 Yes No
- 4) Is your subject population going to consist of only elected or appointed public officials?
 Yes No
- 5) Does your research involve the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior?
 Yes No
- 6) Does your research involve the analysis of existing data, documents, records, pathological specimens or diagnostic specimens?
 Yes No
- 7) In your estimation does the study involve no more than minimal risk to the subjects (see definition of minimal risk in the Policies and Procedures page)
 Yes No

North Carolina State University
 Institutional Review Board for the Use of Human Subjects in Research
 GUIDELINES FOR A PROPOSAL NARRATIVE

In your narrative, address each of the topics outlined below. Failure to follow these directions will result in delays in reviewing/processing the protocol.

A. INTRODUCTION

1. Briefly describe in lay language the purpose of the proposed research and why it is important.
The purpose of the proposed research is to investigate the relationship between the teaching performance of elementary school reading and mathematics teachers in North Carolina, as measured by the North Carolina Teacher Performance Appraisal Instrument and administered by the school administrator, and student achievement growth in reading and mathematics, as measured by the North Carolina fifth grade reading and mathematics class growth scores. The importance of the study is evidenced by the current emphasis on accountability in education that places great emphasis on student achievement. The teacher is the key factor in managing change in increased student achievement. Critical to the issue is the predicted teacher shortage, teacher satisfaction, and teacher recruitment in North Carolina. Therefore, the principal's ratings of the teachers should not only reflect student achievement in that teacher's class but should also contribute to the retainment and recruitment of quality teachers able to positively impact student achievement.
2. If student research, indicate whether for a course, thesis, dissertation, or independent research.
dissertation

B. SUBJECT POPULATION

1. How many subjects will be involved in the research? 80
2. Describe how subjects will be recruited. N/A. Local superintendent of schools has agreed to provide the data in anonymous form.
3. If applicable, please provide the IRB office with a copy of any advertisement to be used in recruiting subjects. This includes print ads as well as scripts for radio and television ads. If this is not applicable, please check here
4. List specific eligibility requirements for subjects (or describe screening procedures), including those criteria that would exclude otherwise acceptable subjects.
The entire population of fifth grade teachers will be eligible.
5. Explain any sampling procedure that might exclude specific populations (women, minorities, elderly).
none
6. Disclose any relationship between researcher and subjects - such as, teacher/student; employer/employee.
none
7. Check any vulnerable populations included in study:
 - minors (under age 18) - if so, have you included a line on the consent form for the parent/guardian signature
 - fetuses

- pregnant women
- persons with mental, psychiatric or emotional disabilities
- persons with physical disabilities
- economically or educationally disadvantaged
- prisoners
- elderly
- students from a class taught by principal investigator
- other vulnerable population.

If any of the above are used, state the necessity for doing so. Please indicate the approximate age range of the minors to be involved. _____

C. PROCEDURES TO BE FOLLOWED

1. In lay language, describe completely all procedures to be followed during the course of the experimentation. Provide sufficient detail so that the Committee is able to assess potential risks to human subjects. Data provided by the county superintendent's office will be summative teacher evaluation ratings by the school administrators of the 80 teachers of reading and mathematics in the county system. The class growth scores on the End-of-Grade Reading and Mathematics tests are readily attainable and will be provided by the county superintendent's office. An explanation of how data will be obtained and kept anonymous is described in D.4.
2. What will subjects be asked to do? No request will be made of subjects.
3. How much time will be required of each subject? none

D. POTENTIAL RISKS

1. State the potential risks (physical, psychological, financial, social, legal or other) connected with the proposed procedures and explain the steps taken to minimize these risks.
no risk
2. Will there be a request for information which subjects might consider to be personal or sensitive (e.g. private behavior, economic status, sexual issues, religious beliefs, or other matters that if made public might impair their self-esteem or reputation or could reasonably place the subjects at risk of criminal or civil liability)? If yes, please describe and explain the steps taken to minimize these risks.
no
3. Could any of the study procedures be considered as offensive, threatening, degrading, or could study procedures produce stress or anxiety? If yes, please describe why they are important and what arrangements have been made for psychological counseling.
no
4. Describe methods for preserving confidentiality. How will data be recorded and stored? How will identifiers be used? How will reports will be written, in aggregate terms, or will individual responses be described?
All of the teacher evaluation data provided to the researcher will be totally anonymous. Only I.D. numbers will be used to identify teachers. No names of teachers, principals, or schools will be known to the researcher and will not be a part of the research results.

There will be no "key" available to the researcher linking any code numbers to subjects. The data will be kept in secure files for a period of 3 years. It will not be available for anyone else to view.

5. If audio or videotaping is done how will the tapes be stored and how/when will the tapes be destroyed at the conclusion of the study.
no audio or videotaping will be done
6. Is there any deception of the human subjects involved in this study? If yes, please describe why it is necessary and describe the debriefing procedures that have been arranged.
none

E. POTENTIAL BENEFITS

Please address benefits expected from the research (this does not include compensation for participation, in any form). Specifically, what, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (knowledge may be gained that could help others), please explain.

Determining which of the major teacher functions are more highly correlated with student growth scores will benefit teachers by providing opportunities for administrators to design training and staff development more specifically aligned to teaching functions that determine student growth outcomes. In addition, designing intervention strategies for improved teaching can be targeted towards the individual teaching function that most influences student growth. Also, exploring the impact of multiple teaching functions on increased student growth will benefit administrators and teachers in designing and revising evaluative instruments.

F. COMPENSATION

1. Explain compensation provisions if the subject withdraws prior to completion of the study.
none
2. If class credit will be given, list the amount and alternative ways to earn the same amount of credit.
none

G. COLLABORATORS

If you anticipate that additional investigators (other than those named on **Cover Page**) may be involved in this research, list them here indicating their institution, department and phone number.

no additional investigators

H. ADDITIONAL INFORMATION

1. If a questionnaire, survey or interview instrument is to be used, attach a copy to this proposal.
2. Attach to this proposal a copy of the informed consent document that you will use.
3. Please provide any additional materials or information that may aid the IRB in making its decision.

Letter from county school superintendent is provided.