

THE INFLUENCE OF SELECTED EDUCATIONAL AND TEACHER DEMOGRAPHIC
VARIABLES ON FIFTH GRADE READING AND WRITING SCORES FOR THE
2000 AND 2001 DELAWARE STUDENT TESTING PROGRAM

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March 2003

This publication is dedicated to my family: my wife, Bernadette, and my two sons, Anthony Jr. and Christopher. Their encouragement, love, and support have inspired me throughout this project. To the thousands of students I have had the privilege to teach, I say thank you as well. I would also like to acknowledge the eternal influences of the following deceased family members: my mother, Dorothy Mae Irvin; my father, Charles Leonard, Sr.; my sister, Linda Marie Irvin; and my mother-in-law, Carmella DiSabatino-Burchess. All praises to God!

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Abstract

The purpose of this study was to examine the relationships that exist between specific teacher variables and their moderating effects upon fifth grade achievement scores from Delaware State's Student Testing Program for 2000 and 2001.

This study examined the important relationships that exist among specific factors that impact student performance scores for the reading and the scaled writing components of the Delaware Student Testing Program (DSTP) spring 2000 and 2001 administrations. The specific variables used as independent variables were related to teacher background, methodology, level of professional development, and perceptions about assessment. These variables were correlated with the two criterion scores.

The sample studied included the New Castle County's databank of scores for fifth grade students enrolled in the Brandywine, Colonial, and Red Clay School Districts. Data on the independent variables were collected from teachers using a teacher survey instrument. The fifth grade test scores were chosen due to the consistency of teacher assignment at this level. Permission to access the student test data was granted by the Delaware Department of Education during the spring of 2000. Included in the available database were the fifth grade

reading and writing scores (DSTP Writing Grades 5 and DSTP Reading Grades 5).

The statistical procedures used to analyze the data included one-way analyses of variance and multiple regression procedures.

The research questions investigated by this study were as follows:

(1) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for reading?

(2) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for writing?

The results of the study showed significant links between the teacher variables and fifth grade DSTP achievement for reading and writing for 200/2001.

The findings further suggest that similar studies need to be conducted to measure the impact of teacher variables across additional grade levels using a larger sample of teacher subjects. This study also indicates the need for additional studies to measure the impact large scale testing on school funding, teacher instructional practices, professional development, remediation programs, and undergraduate teacher preparation programs.

This analysis provides a valuable contribution to the body of literature on statewide testing and instructional practice.

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Chapter I

Introduction

Statement of the Research Problem

The last forty-seven years offers an interesting chronology of events for the educational setting in Delaware. The impact of desegregation and federally mandated school busing to achieve racially-balanced schools has drastically changed the way schools operate, particularly in the New Castle County School System. The schools of New Castle County are currently organized into four school districts: Brandywine, Colonial, Christina, and Red Clay (Lewis, 1988).

Prior to 1978, New Castle County's school system operated within one consolidated unit called the Wilmington Area School District. Horacio D. Lewis (1988) cited the disparities in minority achievement as the primary reason to order the desegregation of Delaware's schools. In his introduction to "Ten Years of Desegregation: Then and Now. The Delaware Experience," Lewis described the challenges that school districts faced after the 1978 desegregation ruling. The key issues cited were: prejudice reduction and multicultural education; disparities in student achievement; self-esteem and nurturing programs; recruitment, employment, and retention of minority teachers and administrators; election of minority

school board members, including Hispanics; the reduction of the disproportionate ratios of minority students assigned to special education; and the incidence of increased school dropout rates and suspension rates for minority students. Indeed, this historical perspective has been linked to current statewide initiatives to hold all schools accountable for student achievement and to improve instructional quality (Lewis, 1988).

During the 2001-2002 school year, the Brandywine, Colonial, Christina, and Red Clay school districts provided educational services to 33 percent of the state's school population. The focus on equal access to quality education has shifted from the constitutional issues of desegregation and integration to the dialogue of proficiency, standards-based education, and large-scale testing.

A report prepared for the Business and Public Education Council by David Hornbeck and John Anderson (1994) cited serious achievement gaps among groups of students in Delaware's public schools. Severe deficiencies in reading, writing, and mathematics skills were found to exist across population demographics and socio-economic conditions. More specifically, this report detailed the four essential components of successful educational systems: all students can learn at significantly higher levels; students can be taught

the skills necessary to be proficient in the core subjects; curriculum content, instructional time, and teaching strategies must be aligned with high learning standards; and every child should have an advocate or support system at the school level.

Hornbeck and Anderson (1994) recommended that educational systems become standards-driven and performance-based. They posited that all of the stakeholders should be held accountable for policies or processes for student promotion. Hornbeck and Anderson (1994) suggested that decisionmakers at the state and local levels place a higher priority on continuous staff development, the delivery of health and social services, and the use of technology.

The independent Curriculum Framework Commission of the Delaware public school system made specific recommendations in order to establish statewide content standards and grade level assessments for reading, writing, mathematics, social studies, and science in grades 3, 5, 8, and 10. This was Delaware's first step in school accountability legislation. Of the seventeen recommendations outlined in the report by Hornbeck and Anderson (1994), five were directly related to the objectives of this study. The recommendations were: to continue the work of the Framework Commission and the initiatives set forth by the New Directions reform agenda; to use the school district interim assessment data to establish

initial baseline performance levels in 1993; to establish extra-time programs or extended year programs for students performing at the lowest of achievement levels; to establish specific grade promotion standards at the third grade level; to establish school-based and shared decision making at the school levels.

As a result of numerous public hearings, legislation was introduced in the Delaware State Senate to implement a systemic reform package mandating a comprehensive statewide student-testing program (Senate Bill 250, Educational Accountability Act of 1998). The focus of the testing effort was to measure if students have learned the material specified by Delaware's mandated content standards.

The new law required for the elimination of social promotions at specific grade levels. It also placed a renewed emphasis on performance-based instruction and staff development. The "accountability" legislation set a timeline for new high school diploma requirements, and it also proposed rewards for school districts that meet or exceed state criteria. The law also prescribed sanctions and the denial of accreditation status for those districts and schools that do not meet basic performance criteria (Senate Bill 250, Educational Accountability Act of 1998).

Iris Metts, State Superintendent, and John Tanner, Director of Test Development, stated the Delaware State Department of Education's position on accountability legislation (Metts & Tanner, Testimony, Senate Bill 250, 1998). They averred that the Delaware State Testing Program (DSTP) used to rank student achievement was very reliable and would serve as a key factor in the improvement of student learning and achievement (Testimony, Senate Bill 250, 1998).

During 1998, students were tested for the first time in grades 3, 5, 8, and 10 in reading, writing, and mathematics (Delaware State Testing Program Manual, 1998). Promotion levels for coursework and state-testing proficiency levels were established under the framework provided by the Accountability Legislation passed by the Delaware State Legislature. A panel of judges, set benchmarks of proficiency, and established cut-off points. These were labeled: Distinguished (Level 5), Standard (Level 4) and Standard (Level 3), Below the Standard (Level 2), and Well Below the Standard (Level 1). During the spring of 2000 and 2001, the administration of the DSTP required students in grades 3 and 5 to have met the standards in reading. Students who did not meet the proficiency level for fifth grade had to participate in mandatory extra-time programs or they were retained in their current grade level (DSTP State Summary Report, 1998).

The DSTP assessed many aspects of reading using literature, informational readings, and technical documents (DSTP State Summary Report, 2000). Students were prompted to read passages and to demonstrate their ability to analyze and interpret what they had read by answering multiple choice questions, short answer questions, and extended response questions.

Because reading has been identified as a critical skill necessary for all areas of education, the reading assessment was particularly valuable to policymakers as well as practitioners in the field. For that reason, the DSTP 2000 reading test scores were used to determine whether or not individual students were promoted to the next grade level. The percentage of students statewide that scored below standard was 14.2 percent, or 7,555 children (DSTP State Summary Report, 2000). The percentage of students that scored below standard in the Brandywine Schools was 13.1 percent (n=746); in the Colonial Schools was 15.9 percent (n=807); and in the Red Clay Schools was 18.7 percent (n=1029) (DSTP State Summary Report, 2000).

Writing was assessed in two ways within the DSTP. First, students are asked to provide a written response to a prompt. Second, to reflect that reading and writing are integrally connected, students are asked to write a short essay

responding to a question about a reading passage. More recently, the State administered a separate writing assessment to students in grades 3, 5, 8, and 10 (DSTP State Summary Report, 2000). Yet, with this burgeoning testing program now four years old, little systematic research has been conducted with all this data. It was the purpose of this study to determine if the grade 5 reading and language scores were related to teacher background, teachers' instructional methodology and/or teacher perceptions about the DSTP.

Research Questions

This study examined fifth grade reading and writing test results for three school districts in the State of Delaware: Brandywine, Colonial, and Red Clay.

(1) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for reading?

(2) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for writing?

Selected factors related to instruction also includes the following teacher data: district and school identifiers, teacher background, instructional practices aligned with

assessment, professional development aligned with assessment, and perceptions about the Delaware Student Testing Program.

Data were collected using a survey designed specifically for this study (Miller, 1999). During the 1995-96 school year, a total of 357 of Delaware's reading, writing, and mathematics teachers in grades 3, 5, 8, and 10 were surveyed using a modified version of a survey instrument sponsored by the Chief Council of State School Officers. The State Collaborative on Assessment and Student Standards (SCASS) worked in partnership on this project involving 2,012 teachers in five states that administered performance-based assessments (Miller, 1999).

Demographic factors related to the students included: several district and school identifiers; teacher gender and grade level course data; student special education code, race codes, and poverty data. The data were collected by the Delaware Department of Education (DOE) and made available from the statewide database.

Teacher assignment information, including district, school, and code was supplied by the Brandywine School District and their full-service data service center. The data service center provides the technological and data based services to the three districts in the study, Brandywine, Colonial, and Red Clay.

Need For This Study

It has been important for the Delaware entire education community to have students promoted to the next successive grade levels having mastered "agreed upon" content-specific standards for learning. By distinguishing the quantifiable classroom level characteristics and teaching practices that influence student learning, more specifically reading and writing skills, this study adds to the literature dealing with student and teacher accountability as mandated by reform initiatives.

Definition of Terms

These frequently used terms applied in the context of this study are defined in the following sections.

4MAT System. A lesson design format that focuses the lesson on four modes of perceiving and processing information: divergent, assimilative, convergent, and accommodative learning as cited by Scott (1994).

Achievement Gap. This trend refers to the statistical analysis of achievement among different racial groups, particularly on national and state standardized tests of achievement as cited by Ballator and Jerry (1999); Hornbeck and Anderson (1994).

Accountability Legislation. State laws that mandate specific education performance requirements for students, teachers, administrators, schools, and school districts. The widespread use of large-scale testing becomes a critical component of educational reform.

Basal Reader. Elementary level reading texts with an emphasis on basic phonetics skills. It is the most widely practiced instructional method to teach reading and comprehension at the elementary level, as cited in Van Prooyan and Clouse (1994).

Concept-Oriented Reading Program (C.O.R.I.). The concept-based reading instructional program cited by Guthrie (1996).

DOE. The Delaware State Department of Education.

DSTP. Delaware Student Testing Program for reading, writing, and mathematics.

High Stakes Testing or Assessment. Tests, evaluations, and examinations which determine student achievement of prescribed curriculums and standards-based learning as cited by Popham (2001).

Literacy. The condition or quality of being literate, or the ability to read or write as defined by the American Heritage College Dictionary (2000).

NAEP. The National Assessment of Educational Progress, also known as "The Nation's Report Card." A nationally

representative and continuing assessment of what America's students know and can do in various subject areas: reading, mathematics, science, writing, U.S. history, civics, geography, and the arts, as cited by Ballator and Jerry (1999); Campbell, Voelkel, and Donahue (1996).

New Directions Initiative. Delaware State's systemic reform effort endorsed by the State Legislature and Senate and the Business Community.

PSSA. The Pennsylvania System of School Assessment.

Performance Levels. Pre-established levels of student performance on statewide assessments; for example, DSTP's performance levels of distinguished, exceeds the standard, meets the performance standard, below the standard, well below the standard, as cited by the Delaware Student Testing Program Summary Report (1998).

Phonics. A method of teaching elementary reading and spelling that is based on the phonetic interpretation of ordinary spelling as cited in Guthrie (1996).

Score Spread. Statistical reliability factors associated with probability values in the .40 to .60 range, and used by standardized test publishers to eliminate test items that are answered correctly by large numbers of subjects, as cited by Popham (2001).

Scales of Specificity. In addition to emphasis on pre-writing, as cited in Wesdorp (1983) identified three levels of instructional specificity: broad and general characteristics of the instructional process; specific dimensions of native language instruction; and instructional variables that influence achievement.

Senate Bill 250. The 1998 Delaware State Senate Bill that mandates academic matriculation and academic promotion requirements using statewide tests at specific grade levels.

Whole Language. The use of real literature and writing in the context of meaningful, functional, and cooperative experiences in order to develop in students the motivation and interest in the process of learning (Traw, 1996).

CHAPTER 2

Review of the Literature

Introduction

The research literature considered as the foundation of this project is grounded in the principles of achievement, instructional practices, and assessment. The related literature analyzes the following: developments and trends in reading and writing instruction, assessment, and achievement; challenges to literacy in the modern society; testing or assessment practice; the significant predictors of achievement using longitudinal comparisons of the National Assessment of Educational Progress (NAEP) data; whole language and phonics approaches to reading and literacy skills; thematic instruction and learning styles; the role of intrinsic motivation in the development of reading and literacy programs; specific writing activities shown to be effective in the development of writing quality; teachers' perceptions about skillful writers; and administrative perspectives on reading and writing initiatives.

An important segment of the literature review is designated to the issues and structure of modern large-scale assessments as well as the perceived purposes of assessment as a valuable teaching and learning methodology. The influence of

teaching experience and career cycles of teachers is also cited in the literature review.

National and State Assessment Trends for Reading and Writing Achievement

National trends in standardized testing, as well as current cultural and social issues, affect the national movement toward increased school accountability for student learning. Jay R. Campbell, Kristin E. Voekel, and Patricia L. Donahue (1997) report that National Assessment of Educational Progress (NAEP) findings have shown modest to mixed state-by-state results for assessment data across all grade levels for reading and writing. Information regarding trends in achievement is invaluable to policymakers and researchers. The replications of key test items over longer periods of time, as well as the insertion of current performance assessment-type response items, provide policymakers, researchers, and practitioners with data to track the progress of students towards the achievement of content standards and national educational goals. "As each assessment is based on a different set of questions and tasks, scale score results and students' reports of educationally-related experiences from the long-term trend assessments cannot be directly compared to the main assessments" (Campbell, Voekel, & Donahue, 1997, p. 2).

Campbell, et al. (1997) also identified specific developments within the NAEP results for reading (1971-1996) and for writing (1984-1996). Specifically, their focus has been on ages 9, 13, and 17. NAEP uses a 0-500 point scale for each of the subject areas assessed. Descriptions of trend patterns, differences between assessment years, and differences between subgroups of students are reported as significant at the .05 level.

Additionally, Campbell, et al. (1997) reported that the overall reading performance of nine-year-olds improved from 1971 to 1980, but declined during the next period 1981 through 1996. Yet, overall the average scores have risen and were higher in 1996 than in 1971. The average scaled score for this age group was 208 (1.0) in 1971, 215 (1.0) in 1980, 217 (1.1) in 1988, and 212 (1.0) in 1996. Grade level assessment data for grades 4, 8, and 11 were also examined and compared. Writing assessment results for fourth grade students revealed no significant increases from 1984 to 1996. The average scaled writing score for fourth grade students was 204 (1.5) in 1984, 202 (1.5) in 1990, 207 (1.6) in 1992, and 209 (1.2) in 1996.

In contrast, Campbell, et al. (1997) reported no significant changes in the percentages of students performing at or above average performance levels for reading and writing achievement. In 1971, 16 percent of all nine-year-old subjects

scored at the 250 performance level for reading. In 1996, 18 percent of all nine-year-old subjects scored at the median performance level for reading. Between years 1984 and 1996, the trends for writing remained unchanged for the same age group. In 1984, 11 percent of all nine-year-old subjects scored at the median performance level for writing achievement. In 1996, 13 percent of all nine-year-old subjects scored at the median performance level for reading.

Campbell, et al. (1997) analyzed additional measures used by NAEP to further identify trends in assessment, including student survey questions. Assessment scores were then correlated with the hours of television watched, group comparisons by race and gender, level of elective coursework, use of a computer to assist in the instruction of students, the amount of hours spent on homework, the amount of pages given for homework, reading-related experiences, and education supporting objects in the home.

Campbell, et al. (1997) also reported advances in the reading achievement of nine-year-old minorities, blacks, and Hispanics. The average scaled reading score gap between whites and blacks was 44 points in 1971. The gap was 29 points in 1990 and 30 points in 1996. Female students were found to have reversed previous trends and have outperformed their male counterparts in reading at each grade level. At grade level

four, the writing scaled score achievement gap for white and black students remained static during the twenty-two year period. The average scaled score gap for writing was 29 points in 1984 and 35 points for 1996. The score gap had been as high as 42 points in 1992. Student-related experience surveys indicate a steady increase in the use of computer technology, word processing, and other instructional activities. Another finding is that the percentage of nine-year-olds doing less than one hour of homework has increased. A decrease in the percentage of students doing more than two hours of homework was also reported. Overall, the number of hours of homework assigned increased as well as the number of pages assigned for reading each day.

Campbell's, et al. (1997) analysis of the NAEP survey data also indicates an increase in the availability and use of computers at home and a decrease in the variety of traditional reading materials in the home. Between 1982 and 1996, nine-year-olds surveyed revealed decreases in the number of hours spent watching television. In 1982, 26 percent of nine-year-old students watched an average of six or more hours of television a day. In 1996, 18 percent of the same age group watched six or more hours of television daily. The analysis of the NAEP data at the national level shows little evidence of significant gains in reading achievement. The disaggregated

data do indicate the influence of demographic variables, in particular the achievement gaps that exist between male and female students, as well as that between white and minority students.

Nada Ballator and Laura Jerry (1999) analyzed the 1998 NAEP reading proficiency levels for the State of Delaware. Using the NAEP national assessments, the reading proficiency levels for Delaware's students (grades four and eight) were compared to similar students located in the Northeast Region and throughout the United States. The average scaled scores were reported in three categories: basic, proficient, or advanced. In 1992, the average reading scaled score for Delaware students in grade 4 was 213 as compared to 215 nationally and 220 regionally. In 1994, the average reading scaled score for students in grade 4 was 206 as compared to 212 nationally and 212 regionally. In 1998, the average reading scaled score for students in grade 4 was 212 as compared to 215 nationally and 225 regionally. Although Delaware results were significantly lower in 1994 as compared to 1992 and 1998, these results also showed that Delaware's reading performance levels remained static from 1992 to 1998. Average scaled scores in the nation and in the Northeast region have risen significantly from 1994 to 1998.

Ballator and Jerry (1999) reported the percentages of Delaware students scoring at or above each of the NAEP proficiency levels for reading and writing achievement: scores below the basic level; scores at or above the basic level; scores at or above the proficient level; scores at the advanced level. In 1992, 24 percent of Delaware's fourth grade students scored at or above the proficient level as compared to 27 percent for the nation and 32 percent regionally. In 1994, 23 percent of Delaware's fourth grade students scored at or above the proficient level as compared to 28 percent for the nation and 28 percent in the Northeast Region. In 1998, 25 percent of Delaware's fourth grade students scored at or above the proficient level as compared to 29 percent for the nation and 37 percent in the Northeast Region. The data indicated Delaware students' performance, as reported by the average scaled score and by the percentage of students scoring at or above each of the performance levels, remained virtually unchanged when compared to achievement gains realized in the nation and in the region.

Challenges to Literacy in the Contemporary Society

Allen Berger (1999) points to several cultural and social factors as having an impact on the achievement levels of students nationwide. The significant challenges to literacy in

the modern society, include the following trends: greater diversity in the school population, newer media, and unwarranted intrusions from the outside world. Diversity requires more differentiated instruction to meet the needs of varying levels of reading abilities among students. Berger believes that the average grade level ability spread for reading is the equivalent of three and one-half years at grade five. The report also cites an alarming trend of unqualified teachers, particularly in the area teaching reading and writing. Berger (1999) reports further obstacles for literacy development, including the shortage of qualified substitute teachers nationwide and the inconsistent quality of standards for teacher preparation programs.

Additionally, Berger (1999) speculates that newer media, such as Internet and the commercial news media, has downgraded its language content. The proliferation of images, beliefs, and opinions projected in the electronic and television media requires the consumer to have adequate literacy skills. The ability to distinguish fact from fiction has become increasingly difficult. Thus, the increased use of computers with the Internet and television media requires an increased emphasis on reading and writing skills attainment. Berger (1999) criticizes the politics behind the perceived failure to learn how to read and its close association with physical and

mental disabilities. There have been alarming increases in the number of diagnosed attention deficit disorders and prescription orders for the drug Ritalin. Hence, "the failure to learn to read has been perceived as a problem of disability rather than socio-economic disadvantage" (p. 14).

Developments in Reading and Writing Instruction

Leroy Kemp and Anita H. Hall (1992) studied the research on effective teaching, student achievement, and teacher performance. Findings indicate that student achievement is directly influenced by instructor competence, lesson presentation, skill practice, questioning techniques, and classroom discipline. Students achieve more when systematic teaching procedures are employed. This type of teaching requires the presentation of content as small steps with additional guided practice after each step. Students receive guidance during initial practice, followed with another high level of successful practice. A specific emphasis is placed on sequential learning and mastery learning with adaptations for the various learning styles of students. The application of previously learned concepts and skills is critical to successful learning. "Only when prior learning is readily accessible are students able to use knowledge for higher levels of critical and creative thinking" (p. 7).

Furthermore, Kemp and Hall (1992) found that effective teachers have a greater degree of classroom management skills. Highly effective teachers also focus on the psychological and social needs of students without sacrificing the academic program. They hypothesize that highly effective teachers consistently engage their students in academic tasks, encourage constructive dialogue on the subjects being explored, and evaluate or assess understanding and mastery of the subject matter. Highly effective teachers also adjust the difficulty level of instruction to meet the diversity of ability levels in a given classroom; in particular, adjusting the difficulty level and assignment of questions to students based on their ability to answer.

Kemp and Hall (1992) also challenge the contemporary issues of equity and access. They cite a lecture given by G. S. Counts in 1945, "Education and the Promise of America," and the five moral commitments of education.

Kemp and Hall (1992) present the concept of diversity and learning styles as counter-productive to systemic standards-based curriculums and large-scale testing efforts. Research indicates that all students, even those from lower socio-economic backgrounds, can learn or achieve at higher levels if taught with effective instructional methods.

What is the role of intrinsic motivation or self-motivation in the acquisition of reading and its related literacy skills among elementary and intermediate level students? The implications about the role of intrinsic motivation as a consistent instructional practice were the focus of a study conducted by Guthrie (1996). Using a sample of one hundred forty third and fifth grade students, a concept-oriented reading instruction program (CORI) was implemented. The design of this science instruction-based study included observations of students' progress in reading during the fall and spring terms. The integrated reading, language arts, and science components engaged students in real-world science observations, self-direction, strategy instruction, collaborative learning, self-expression, and coherence of literary experiences. After pre- and post-assessments during the fall and spring, students improved significantly in higher-order thinking skills: searching multiple texts, representing knowledge, transferring concepts, comprehending informational text, and interpreting narrative text. Most notable were the significant correlations found to exist between levels of intrinsic motivation and the acquisition of cognitive strategies. Students with higher intrinsic or self-motivation to read and engage scored fifty percent higher on the spring assessment than did students

whose motivation was identified as extrinsic-based or task-resistant.

Guthrie (1996) also explored the relationship between motivation and standardized achievement scores. Findings included significant increases in literacy engagement: searching for information, representing ideas through drawing and writing, and transferring conceptual knowledge to new situations. Growth in literacy engagement correlated highly with intrinsic motivation, the extensiveness of reading activity.

Guthrie's (1996) analysis outlines the Concept-Oriented Reading Instruction program, or the CORI Model. The process outlines seven contextual or instructional practices that increase literacy engagement.

- Observational contexts encouraging students to generate questions from real-world observations.
- Conceptual contexts, including the emphasis on substantive or topic-based projects rather than isolated skills practice and rewards.
- Self-direction, including the autonomy to select topics, books, collaborative peers.
- Meta-cognitive skills, including the teaching of specific reading strategies, problem solving, and composition skills.

- Collaborative skills, including the emphasis on communication and social skills.
- Expressive skills, including writing, debating, and group interaction.
- Coherency skills, including organizational skills of planning daily, weekly, and monthly activities.

Are administrators knowledgeable about the reading programs in their schools? Instructional practice in the areas of reading and comprehension routinely engage the variable use of basal readers, phonics instruction, whole language instruction, language experience instruction, and computer-assisted instruction.

Thomas Diamantes (1996) conducted a survey of twenty urban building principals in an attempt to identify key perceptions about instructional practice related to reading skill and school reading programs. The following basic elements of the building level reading program emerged as a result: the identification of goal-setting processes, the most important aspect of their reading program, evaluation methods, and the much needed administrative support for the reading programs.

Results from the programs surveyed indicated that reading activities and time on reading tasks by the students took priority over writing, listening skills, and drill and

practice. One particular finding of this study was the apparent administrative mistrust of basal readers. When asked their preferences regarding whole language or phonics instructional methods, the respondents were equally divided. The comprehension levels of students were deemed as the targets of administrative evaluations.

Implications of the study were as follows: the administration's need to define the term "reading"; the administration's need to observe successful reading programs in place in other buildings; the administrative delegation of leadership roles to effect positive results; the administration's need to develop structured reading handbooks with checklist; the administration's need to develop in-service workshops that are aligned with current research.

Sandra Murdoch (1995) documented instructional practices that advanced students' achievement in reading, writing, and spelling. Among her findings was that teaching students the one hundred most frequently used words in the English language enhances fluency in reading comprehension, writing, and spelling.

The debate over the best practice for initial reading instruction continues despite research indicating an integrative approach will increase students' reading and comprehension skills, one that incorporates several teaching

and learning modes. Nancy Van Prooyan and R. Wilburn Clouse (1994) tested the impact of incorporating three modes of instruction to advance students' reading and comprehension skills. Their goal was to augment the basal reader approach, still the most widely practiced instructional method to teach reading and comprehension at the elementary level. They added language experience, whole language, and computer-assisted instruction as recommended additions to the basal readers approach. They concluded that reading is a fundamental skill and is a highly complex process that involves the reader with the writer, his language, and the printed text.

Based on what we know, it is incorrect to suppose that there is a simple or single step which, if taken correctly, will immediately allow a child to read.

Becoming a skilled reader is a journey that involves many steps. Similarly, it is unrealistic to anticipate the one critical feature of instruction will be discovered which, if in place, will assure rapid progress in reading.

Quality instruction involves many elements. Strengthening any one element yields small gains. For large gains, many elements must be in place (Van Prooyan & Clouse, 1994, p. 6).

Timothy Shanahan (1997) analyzes studies related to integrated instruction, particularly in the content areas of

reading and writing at the elementary level. His examinations indicate the interrelatedness of the two skills. This contradicts any notion that reading and writing are two distinct cognitive activities. Both are necessary to improve the understanding of text.

Furthermore, the structured combination of reading and writing activities are needed to advance students' skills. A departure from the traditional language arts approaches and its reliance on the basal reader, research indicates that students learn to synthesize information using a variety of alternative strategies. Although Shanahan's (1997) thoughts on "curricular integration" does not promise reading improvement, there is widespread instructional practice which has advanced the development of thematic units. Thematic instructional units of study are constructed as integrated elements of social studies, science, mathematics, art, music, or language arts.

Shanahan (1997) cautions educators not to think of integrated instruction as an end in itself, but as a method to effect a particular outcome, higher proficiency rates for readers and writers. In fact, there has been little empirical evidence that integrated instruction leads to better achievement.

Shanahan (1997) reported evidence that integrated instruction leads to improved student attitudes toward learning. Shanahan (1997) recommended the following elements to structure thematic instruction: specific and purposeful unit study, that which goes beyond the typical focus on topics; adjustments of instruction to match the relevancy specific content.

Significant reductions in the amount of time allowed for language arts instruction can also result from an integrated approach to instruction. Accordingly, Shanahan (1997) referred to the value of integrated instruction as a cultural and social activity, not just a cognitive activity. He makes particular distinctions between the language and syntax of science and mathematical texts apart from the text of historians, novelists, and reporters. Considerations for the variations of ethnic, racial, and linguistic groups are important to integrated instructional approaches.

Shanahan (1997) also posits that direct instruction and regular and sustained drill and practice are fundamental strategies that are as equally important as thematic and/or integrated approaches to reading and writing instruction.

Research Studies Related to Whole Language Reading and Writing Instruction, Special Education

Rick Traw's (1996) study of two midwestern regional school districts, Sioux Falls School District, South Dakota, (18,000 students) and West Des Moines School District, Iowa, (7,000 students), examined the impact of whole language teaching strategies on reading achievement. Results of the analysis showed no significant change in standardized reading and language scores for fourth and fifth grade students following the implementation of a whole language curriculum. Teachers employed by the Des Moines and Sioux Falls School Districts first introduced holistic-based teaching, or whole language, as an instructional model during the years 1986 and 1990, respectively.

Demographically, Sioux Falls is predominately a middle-class school district with a five percent minority population. The sample studied included approximately 1,000-1,300 fourth graders. Achievement level scores for the Stanford Achievement were studied. West Des Moines is a predominately upper-class school district with a seven percent minority enrollment. The sample studied included 586 fourth grade and 650 fifth grade students. The test scores were drawn from the results of the Iowa Test of Basic Skills.

Traw's (1996) concept of whole language embodies a philosophy of language development as well as the instructional approaches embedded within and supportive of

that philosophy. This concept includes the use of real literature and writing in the context of meaningful, functional, and cooperative experiences in order to develop in students the motivation and interest in the process of learning.

Traw (1996) supports a widely held contention that students who are exposed to whole language approaches at the primary levels will outperform students who have been using a phonics-based or traditional curriculum. Do standardized tests or state-mandated assessment provide effective measures of students' basic skills?

Traw (1996) outlines the opposing views of traditionalists. He posits the impact of whole language and its focus on specific literacy skills as an advancement of learning and direct teaching strategy. Traw discusses the value of standardized tests in terms of validity. Do these measures accurately assess the skills indicated by the learning standards? Several studies indicate that test scores alone cannot reliably measure performance in literacy. Traw avers that standardized tests do not account for the presence or absence of prior knowledge, now recognized as a significant factor in the process of comprehension. The use of short, artificial reading passages and single correct answer multiple-choice questions are dissimilar to real-life reading

events. Additionally, the recognition of correct writing ability or written expression is at variance with individual ability and rater perceptions of correct writing.

Despite this trend toward more authentic assessments, more expensive and score-sensitive traditional tests continue to be used for large-scale assessment of student learning.

Tests are single-event occurrences and can only measure what is recorded during that single event. An analogy would be to compare what can be recorded in a single photograph to what can be captured by a video camera.

There is no significant quantitative data that suggests whole language is a superior method. In fact, there are no significant differences in the application of this approach when compared to traditional methods involving the basal reader and phonics instruction. The acquisition of reading and writing skills are not improved significantly by either approach (Traw, 1996, p. 325).

Can teachers influence student achievement by adjusting their instruction to match various learning styles? In Harry Scott's, "A Serious Look at the 4MAT Model" (1994), he discusses the spiraling effect of instructional changes and their impact on the American educational system. Educational developments, such as the back-to-basics movement of the 1980's, the explicit teaching method, mastery learning, and

the Hunter Model have developed into the current emphasis on more holistic models of instruction-based on individual needs, learning styles, and assessment. Therefore, Scott (1994) suggests the potential of the 4MAT Model, an eight-step sequential instructional system based on two theoretical constructs--Kolbs (1984) model of learning styles and concept of brain hemispherity. The 4MAT eight-step instructional model is grounded in the research on left and right brain capabilities.

Scott (1994) proposes this and other holistic models of instruction as vital links to integrated curricula, learning styles, and more individualized assessment techniques. The 4MAT method is based on the four learning postulates or four learning quadrants; modes of perceiving and processing information or divergent, assimilative, convergent, and accommodative learning. Learners connect with each of Kolb's postulates through four quadrants or learning styles. The 4MAT system incorporates elements of brain research; in particular, the different ways that the right and left hemispheres of the normal cerebral cortex process information. These contrasting mental operations comprise the left and right modes. The left mode is seen as analytical and "knows" those things we can describe with precision. It examines cause and effect, breaks things down into parts and categorizes them, seeks and uses

language and symbols, abstracts experience for comprehension, generates theory, and creates models. It is sequential and works in time.

The right mode knows more than it can tell, filling in gaps, and imagining. It is intuitive. It senses feelings, forms images and mental combinations, and seeks and uses patterns, relationships, and connections. It manipulates form, distance, and space. Higher-order thinking requires the exercise of both sides of the brain using teaching methods that foster interactive, hands-on, and real-life problem solving (Scott, 1994).

Scott (1994) offers no proof that the 4MAT system is a consistent or valid teaching method for reading and writing instruction. It does have potential for comprehensive use as an effective lesson planning tool. As an instructional strategy, this approach could help teachers address the various learning styles of their students, and at the same time offer as many as eight structured activities designed to develop right and left brain capacities.

Raphael (1996) studied twenty-three fifth grade students to measure the impact of three styles of assessment-- criterion-referenced tests, performance-based assessments, and self-assessments. Of particular interest to this study was the impact of three styles of assessment on one "mainstreamed"

male student labeled as learning disabled in the skill of reading comprehension. The assessment detailed in the study measured students' performance on comprehension and vocabulary. Results indicated that the student's learning disability limited his ability to perform well on criterion-based tests. The premise of Raphael's research was that students in need of special education services benefit from various styles of assessments, thus increasing students' exposure to print media and opportunities to practice reading on a daily basis. Taffy E. Raphael (1996) examined the assessment of special education students as well as the methods to improve the achievement of students who receive special education services in Michigan.

Raphael's (1996) study raises questions of equity in regard to the specific instructional methods, assessment accommodations, and special testing adjustments for handicapped students.

Studies of Pre-writing, Related Instructional Variables, and Writing Achievement

Can the the use of consistent and structured pre-writing activities improve the quality of writing? Liru Zhang and Carol Vukelich (1998) make use of Delaware State's large-scale field test to investigate the effects of pre-writing

activities on male and female writing achievement. Four grade levels, 4, 6, 9, and 11, were assessed. Each of the tested grade levels were divided into control and experimental groups. Results of the study revealed significant performance gains for three of the four grade levels, and consistently higher-scaled scores for females across all grade levels. Curiously, students in the ninth grade performed better without pre-writing activities.

Hildo Wesdorp's (1983) classification of the critical instructional variables associated with writing and achievement advanced the production of a teacher survey instrument that also measured the relationship of instructional variables and achievement for writing. Wesdorp associates "pre-writing activities" with specific emphasis on the organization of text and the generation of ideas as having a direct positive influence on students' writing quality. A questionnaire was developed by Wesdorp (1983) to measure the use of pre-writing activities, types of writing tasks, characteristics of instruction, materials, and feedback. This international study had two goals: to articulate a curriculum for written composition and to study the relationship between instructional variables and writing achievement.

In addition to emphasis on pre-writing, Wesdorp (1983) identified three levels of instructional specificity: broad

and general characteristics of the instructional process; specific dimensions of native language instruction; and instructional variables that influence achievement.

Wesdorp (1983) referenced Bloom (1976) and his four elements of quality instruction: cues, reinforcement, participation, and feedback/correctives as having a positive influence on writing achievement. To illustrate the significant role of cues, or directions, used during the instructional or learning process, eight studies were referenced that researched relationships between the quality of cues, or directions, and the achievement of groups of students.

Wesdorp (1983) examined the influence of the quality teacher directions and cues in the instruction process and the impact on achievement. Gains in achievement correlated highly with the quality and strength of directions, or cues. Wesdorp's analysis also credits the positive relationships of reinforcement and rewards, participation and practice, as well as the independent factors of feedback or corrective evaluation.

The universal characteristics of effective writing instruction was also the focus of Wesdorp (1983). He posits Brinke's (1976) five dimensions of instruction as a universal system of instructional practices; in particular, writing

instruction. The five dimensions are: (1) direction and technical properties of text, including three subscales--producing and receiving ability, oral versus written abilities, and interactionality; (2) content or subject verbal behavior; (3) approach, including seven subscales related to: (a) disciplinary to explicit and systematic teaching strategies; (b) personalness ranges as opposed to non-personal or objective-based strategies; (c) emotionality in reference to their role in approaches to writing and other skills; (d) fictionality and non-fictionality of text used for instruction; (e) creativity and the subscale scales of elaborating and being creative; (f) criticalness with a value range of "critical to adapting"; and (g) correctness in the sense of grammatical constructions.

Wesdorp (1983) categorized Brinke's (1976) fourth dimension as two subcategories, or dimensions--"complexity," a higher-order thinking strategy within Bloom's taxonomy, and "the age of the text" reference to the frequency of students reading and/or exposure to historical text. It is dimension five that drew most attention from research in the Netherlands on the teaching of writing in Dutch. Dimension five refers to functionality and the use of functional objectives to reflect the psychological needs of students. The typical instructional

objective is written to meet the scholastic requirements of a given school.

As a result of the analysis of Brinke's (1976) scales of specificity and the application to Bloom's (1976) higher-order thinking skills, the identification of predictor variables become critical to the development of a teacher survey instrument to measure effective writing instruction. Wesdorp's (1983) investigation points to specific instructional variables that positively correlate with students' achievement in writing.

Ten studies were identified in which the instructional background of students were associated with good achievement, and one hundred fifty-eight studies were identified in which specific variables were associated with writing achievement. The causal relationships that exist among the written abilities of poor and good writers can lead to many conclusions about the teaching of writing. Good writers spend more time and attention on writing tasks, show more attention and structured approaches to writing, show independent or individualized direction on written tasks, discuss their writing product more frequently, and show more audience awareness.

Wesdorp's (1983) investigation demonstrated that good writers reflect instructional practices that emphasize the

development of content and organization; demonstrate self-reflection and discussion of compositions during the process; and show evidence of meaningful feedback and revision activities. Wesdorp's (1983) review of one hundred fifty-eight quasi-experimental studies revealed categorical results for the use of pre-writing activities, feedback techniques, and various approaches that tied grammar instruction. Positive correlations were found to exist for the following variables associated with writing achievement. The following pre-writing activities have shown positive effects on writing, activities focusing on the organization of text, the generation of ideas, and problem solving.

Wesdorp (1983) identified the functionality of instructional objectives as they relate to students' emotional needs as providing a positive influence on writing achievement. The use of transformational sentences combining exercises and peer editing exercises show positive results as well.

The research reviewed by Wesdorp (1983) also denoted the uncertain influence of the writing workshop approach: group work, the reading models approach, as well as methods that rely on conferencing and stepped-up writing frequency. Contrary to widespread practice, there is little evidence in literature that supports the "writing workshop approach" with

an emphasis on conferencing between students and teachers. Wesdorp (1983) also identified methods having shown little to no effect on writing achievement: corrective teacher evaluation, traditional grammar, or generative transformational grammar.

Wesdorp (1983) developed a questionnaire to measure teachers' perceptions about instructional effectiveness. The survey addressed the following variables associated with instruction practices and student achievement in the area of writing: pre-writing instruction, types of tasks to be written, characteristics of writing instruction, materials and instruction aides, and evaluation and feedback techniques. Although Wesdorp's (1983) study is twenty years old, the influence and identification of similar instructional factors are present in the contemporary literature as well.

Studies on the Impact of Socio-Economic Factors and Assessment

Results

The literature confirms the considerable influence of socio-economic factors on writing achievement. Assessment results and student responses to survey items related to skills taught in the classroom is the subject of Robert N. Shields' (2000) study of Pennsylvania's System of School Assessment (PSSA) data. He investigated the relationship of

student survey responses and the achievement scores for the 1999 Grade 9 PSSA Writing Assessment. The student survey addresses six specific writing strategies: the use of pre-writing activities; the knowledge about the three modes of writing; the use of editing and revision techniques; the use of teacher and peer conferencing; and the use of word processing via the computer. The study also investigated the influence of the following factors: state aid ratio as a measure of school/community poverty, student demographic information, enrollment, and enrollment transience.

Sheilds' (2000) survey of the literature suggests that large-scale assessment is a key factor in the advancement of teaching and learning. The study delineates several critical issues related to testing and factors influencing teaching, learning, and achievement; the history of large-scale testing, the influence of psychological testing models, the economy of multiple choice format of test items, norm-referenced testing, accountability, and the influence on curriculum delivery.

Additionally, Sheilds (2000) examined the reliability and validity of large-scale assessments. Indicators show that increasing the variety of tasks or test items reduces the level of measurement error. Furthermore, research indicates that by increasing the number of assessment participants the variation of performance among students within a school

increases. The variation of performance within schools tends to be greater than the variation of performance among schools.

Sheilds' (2000) inquiry shows that knowledge about the types of writing being assessed as the best single predictor of achievement scores on the 1999 PSSA ninth grade writing assessment. The PSSA assesses three modes or types of writing: informational, narrative-imaginative, and persuasive.

Moderating effects were found to exist for the teaching of pre-writing skills, revising and editing skills, conferencing skills, and the use of computerized word processing. Like Wesdorp (1983), Sheilds' (2000) investigation points out some specific instructional variables that correlate with writing achievement. Sheilds (2000) also cited the influence of student perceptions about writing instruction, particularly in regard to knowledge about the three modes of writing-- informational, narrative, and persuasive. Sheilds (2000) also associated the influence of demographic and socio-economic factors on PSSA achievement.

In a parallel study of PSSA results and school district characteristics, Jeffrey F. Zackon (1999) examined the impact of several demographic factors on student achievement. In his expanded analysis of district, school, and individual student performance for reading and mathematics achievement, a multiple regression formula was used to relate the impact of

selected variables on the assessment results. Zackon (1999) analyzed the 1995 school district mean reading and mathematics achievement scores for 468 districts across three grade levels 5, 8, and 11. The study was able to predict the results of PSSA based upon selected school district variables. Five of the thirteen variables selected show significant relationships when regressed upon the criterion variables, reading, and math scores. These factors are the district dropout rates, the education levels of faculty, the education of the district population, the level of low-income students in the district, and the percentage of minorities in the district.

Moreover, Zackon (1999) analyzed the influence of nine additional variables on achievement: the ratio of employees to students; the percentage of vocational education students in the district; the geographic size of the district; the population density of the district; the percentage of students attending non-public schools in the district; the district's per pupil expenditure; the number of transfer students per year; the change in population over the past five years; the number of students classified as disabled special education students.

Zackon (1999) presented the historical literature of education reform, the influence of business on the reform agenda, and the demands of globally dynamic and technology-

based economies. The increased demand for accountability in the United States' schools resulted in two crucial issues facing educators today: there are large numbers of students who fail in schools and who score poorly on large-scale assessments; students who received passing grades appear not to be educated to cope with the demands of the contemporary society, and the new global marketplace.

Because the demand for accountability and proficiency, Zackon (1999) criticized some traditional instructional approaches, including rote memory tasks and lists of facts. It is suggested that higher-order thinking skills are further advanced by authentic- or performance-based instructional practices. These instructional practices are more aligned with the modern criterion and performance-based assessments.

Zackon (1999) pointed to other factors that may influence achievement: the quality of the teacher-preparation programs, the achievement level and aptitude of prospective teachers, the number of children "at risk" for failure entering the nation's schools prior to kindergarten, the national focus on standards-based education across all levels, the contemporary emphasis on school accountability and positive assessment results, grade promotion and retention policies, and school sanctions for poor performance.

Zackon's (1999) inquiry supports the inference that socio-economic factors influence achievement more than factors related to educational practice or quality. Socio-economic factors, such as poverty, median family income, and student attendance rates, account for much more variance in student achievement than do educational factors. Historically, large-scale assessment results have shown to be influenced heavily by socio-economic factors so prevalent in the pluralistic society.

The demographic profiles of teachers are examined by this study and includes a categorical analysis on the influence of teacher assignment, educational background, race and gender on teachers' perception. The gender, race, or ethnicity of teachers and its associative effect on academic achievement was also studied by Ronald G. Ehrenberg, Danile D. Goldhaber and Dominick J. Brewer (1995). Their examination of the 1988 National Longitudinal Study (NELS) attempted to match the race, gender and ethnicity data of teachers and students in order to measure the impact on English/reading, mathematics, science, history/social studies achievement. The specific grade levels chosen were the eighth and tenth grades. During 1988, initial surveys were collected at the eighth grade level and included 24,599 students, 22,651 parents, and 5,195

teachers at 1,035 schools (Ehrenberg, Golhaber & Brewer, 1995).

The survey included response items to measure the effect of teachers' gender, race, and ethnicity, and a fourth dimension--teachers' subjective evaluations of a student potential. A second survey was conducted during 1990 on the same cohort of students and included 18,221 students, 15,908 teachers, and 1,291 school administrators. Results showed no significant links to the academic achievement of students at the eight and tenth grade levels. The data did show links between a teacher's race, gender, and ethnicity, and the teacher's subjective or perceived potential of students (Ehrenberg, Golhaber & Brewer, 1995).

The functionality, history, and politics associated with large-scale testing is well documented in the literature. The widespread use of "high stakes" testing to advance accountability in our nation's schools has raised concerns about the reliability of test constructs and the generalization of those results to larger populations. The effect of assessment results on decision making at the federal, state, and local levels has created a modern testing paradox for state departments of education, school districts, and schools.

Perceptions about the Structure and Uses of Large-Scale Testing

During the 1995-96 school year, 357 of Delaware's reading, writing, and mathematics teachers in grades 3, 5, 8, and 10 were surveyed using an instrument sponsored by the Chief Council of State School Officers. The State Collaborative on Assessment and Student Standards (SCASS) conducted this study that involved 2,012 teachers in five states that administered performance-based assessments. This attitudinal survey used similar response categories to determine the impact of large-scale performance assessment on teaching and learning (Miller, 1999). Response questions included the following types of questions: participation in the development and administration of state assessment; use of various instructional and assessment techniques in the classroom; perception of the effects of state assessments on instruction, curriculum, and student learning; perceptions on the importance of various assessments and instructional techniques; professional development techniques experiences related to performance assessment (Miller, 1999).

Findings of this perception study produced the following data related to Delaware's teachers and their opinions about the state assessment program. Sixty-eight percent of the teachers in the study were English language arts teachers.

Twenty-eight percent of the teachers surveyed reported any involvement with development of the state assessment. Seventy-two percent of the teachers reported their involvement with the administration of the state assessment. Eighty-three percent of the teachers responded that their instruction was aligned with the assessment. Twenty-eight percent of the teachers reported that the assessment accurately measured students' performance (Miller, 1999).

Teachers' level of preparation for teaching standards-based education or their perceptions about assessment in general can affect teacher attitudes about the efficacy of the DSTP as a valid and reliable measure of student achievement. James C. Impara, Barbara S. Plaka, and Jennifer J. Fager (1993) examined teachers' perceptions about the use of assessment and teachers' engagement in pre-service or in-service training related to assessment. The questionnaire used to assess teachers' background factors related to large-scale testing contained the following response categories: beliefs about teachers developed assessment to advance instructional practice; the use of standardized tests to enhance instructional practices; teachers comfort level with interpreting standardized test information; course work and in-service activities related to test and measurement; the recency of course work or in-service; preferences for the best

methods to increase proficiency on test and measurement; the extent that teachers were interested in becoming more proficient; and years of experience.

Descriptive statistics showed that eighty-six percent of the teachers surveyed in this study agreed with the use of teacher-developed assessments to enhance instructional practices. Fifty-five percent of the teacher respondents disagreed or tended to disagree that standardized tests advance instructional practice. Eighty-five percent of the teachers surveyed indicated significant interest in becoming more proficient in interpreting students' test scores (Impara, Plaka, & Fager, 1993). The study's main finding was the need for teachers to have more in-service training related to the interpretation and use of large-scale assessment results.

Diamantes (1996) studied the perceptions of school administrators to help identify specific indicators of effective school-based reading programs. Wesdorp's (1983) study of critical variables impacting writing achievement also referenced the role of teacher perceptions about the characteristics of high-quality writing. Sheilds' (2000) study cited the connections between students' perceived knowledge about the three modes of writing and writing achievement. Teacher perceptions about the effectiveness and legitimacy of large-scale (standards-based) testing can influence

instructional practice. Does this perception about the structure and effectiveness influence the achievement levels of students?

Deborah L. Beresik and Rita M. Bean (2002) investigated the links between teachers' beliefs, classroom atmosphere, classroom practices and use of instructional time, the structure of the PSSA assessment, staff development, and writing achievement (Beresik & Bean, 2002).

During the 1997-98 school year, a self-administered survey was distributed to teachers from eight rural, urban fringe, and central city-type school districts in Allegheny County, Pennsylvania. Districts were selected according to similar district school profile data and a Similar Schools Score Band. Districts were chosen if their composite PSSA school scores fell within 50 points above or below the Similar Schools Score Band. Based on the returned surveys, the final sample of 111 third, fourth, and fifth grade reading and language arts teachers from 23 schools yielded a forty percent return rate. Sixty-seven percent of the schools asked to participate in the study were represented in the final sample. Additional comparisons were made between successful and unsuccessful schools. Additional comparisons were based on other factors: grouping structures; teaching materials; silent reading; library visitation; instructional strategies;

reading instructional techniques; familiarity with the PSSA; preparation for the PSSA; writing; staff development, and beliefs (Beresik & Bean, 2002).

Results indicate teachers favor the use of high expectations, rubrics, scoring guides, and authentic performance tasks as a means to increase student achievement (Beresik & Bean, 2002).

W. James Popham (2001) hypothesized that large-scale testing does an adequate job of comparing norm-reference performance data for state departments of education, school districts, schools, and students. However, policymakers, decisionmakers, and stakeholders should exercise caution when standardized test scores are used as the singular measure to evaluate or to compare the quality of educational delivery systems. Popham's dialogue points out several key test designs, or reliability concerns, regarding test items and their impact on the validity of assessment results. The ideal circumstance would link the standards, the tests, and the criterion-referenced questions used to measure what is learned. If aligned with the local curriculums, large numbers of students would, by design, answer with significantly higher numbers of correct responses. Test publishers' elimination of test items that are answered correctly by large numbers of subjects helped to create the psychometrically balanced score

spread, a statistical concept associated with the normative curve.

Popham (2001) criticized the test publisher's practice of eliminating highly successful responses as a groundless contradiction of the assessment's intended purpose--to measure what students know and can do. Successful classroom instruction that focuses on the target skills and cognitive demands, those aligned with the standards of a particular content area, cannot be effectively measured by this test's design.

Popham (2001) also criticized the widely held perception that inferior schools are those schools in which students perform poorly on standardized tests. This perception is causing irreparable harm to students and their communities. Disproportionately, disadvantaged students, or students from the low socio-economic strata, perform well below their affluent counterparts.

Popham (2001) pointed out the equally disturbing perception of higher performing schools as models of quality education. This inconsistent and misguided perception is projected in the electronic and print media. It is no surprise that schools with more resources outperform schools in economically depressed areas. Research consistently identifies the strong correlations among the variables associated with

affluence and poverty. Each has its own equally dichotomous affect on standardized test scores or achievement. The "manic quest for accountability" is largely influenced by the newsprint media and politicians at the local, state, and national levels. It is this misuse of test data that has the potential to impede any widespread or national progress toward the goal of authentic performance-based achievement. If this score-boosting obsession continues, it will inevitably reduce the amount of quality teaching and by-product of any significant learning. The amount of time and resources devoted to teaching toward standardized tests are issues with serious consequences for stakeholders.

Popham (2001) inferred this trend is leading to "curricular reductionism" (p. 19). The misuse of assessment practices can perilously diminish the educational experience for millions of students. Popham (2001) reported another negative development in this area. There is an increase in the incidence of teacher or administrative cheating during the preparation for or the administration of high-stakes testing.

Although socio-economic factors and the exploitation of test data continue to influence public perceptions about the effectiveness of public schools, Popham (2001) offered two remedies to help redeploy the mission of assessment--improved instruction and improved learning.

Popham's (2001), "The Truth About Testing: An Educator's Call to Action," outlines four rules for the creation of instructionally illuminating large-scale assessments. These are:

(a) identify the most important outcomes and then develop a test for a few high-priority outcomes that can be successfully taught and accurately assessed;

(b) construct all assessment tasks so an appropriate response will typically require the students to employ (1) key enabling knowledge or subskills; (2) the evaluation criteria that will be used to judge a response's quality; or (3) both of these;

(c) create a companion assessment description that spells out for teachers the essence of what is being measured by the test items or tasks;

(d) review the items and descriptions of any high-stakes test at a level of rigor commensurate with the intended uses of the test.

Popham (2001) prescribed a process to follow the identification of key standards and important learning outcomes. The development of various test items to measure those outcomes is essential.

Equally important to Popham's (2001) dialogue is the advancement of classroom assessment. He submits four rules for

the development of classroom tests that will help teachers familiarize themselves with the fundamentals of assessment.

These four rules are:

(a) use only a modest number of major classroom tests, but make sure these tests measure learner outcomes of indisputable importance.

(b) use diverse types of classroom assessments to clarify the nature of any learning outcome.

(c) make students' responses to classroom assessments central to instructional decision making.

(d) regularly assess educationally significant student affect, but only to make inferences about groups of students, not individual students.

Teaching Experience and Stages of Development

How do novice teachers acquire the skills of the veteran teachers? An important set of variables targeted by this study deals with the influence of teacher background data including years of experience teaching language arts, race or ethnicity, levels of undergraduate or graduate education and gender.

David Berliner (1988) constructs a theory about the developmental stages of teachers. Berliner posits that teachers develop through a series of progressive stages, each

with specific characteristics and labeled as follows: novice, advanced beginner, proficient, competent teachers. Berliner identifies field experience as the most specific variable that impacts the development of teachers. Teaching experience is the single most important factor in the career cycle of teachers. Experience is further defined as having consistent exposure to the interpretation of classroom phenomena, discerning the importance of behavioral and instructional events, the establishment of basic classroom procedures including classroom management, and predicting classroom events (Berlenger, 1988).

Betty E. Steffy, Michael P. Wolfe, Suzzane H. Pasch and Billie J. Enz (2000) posit a similar focus on teaching experience and need for professional development to support the growth cycles of teachers. Steffy's, et al. (2000) "Life Cycles of Career Teachers" addresses the current forces impacting the supply and demand of teachers nationwide. In the section of the literature review that focused on the challenges for literacy in the modern society, Berger (1999) indicates an alarming trend of unqualified teachers at the elementary level and the inconsistent quality of standards for teacher preparation programs. There are increased demands placed on teachers to teach to a wider diversity of learners

and to meet the instructional requirements state and national assessments. The resources invested in the nation's teaching corps is a principal responsibility for all school systems.

Steffy's, et al. (2000) advocacy model is grounded in the belief that the teaching profession requires reflective practice, and opportunities for focused training, growth and renewal. The model is outlined as six integrated stages. The quality of teacher growth is qualitatively aligned with the professional training needed to support teachers at each phase of development. The specific stages or levels of teacher growth are posited as novice or pre-service, apprentice, professional, expert, distinguished, and emeritus. Teachers positioned at the novice, apprentice and professional levels are immersed in the culture of the school. In addition to the annual assignment of courses and students, inexperienced teachers are also faced with the adaptation to school procedures and policies, mentoring relationships, and the challenge of school in-service programs. Teachers who have progress to the expert, distinguished and emeritus levels are characterized by the pursuit of leadership in their specific content area. Teachers at the distinguished and emeritus seek leadership in local state and national professional organizations. They also engage in the advancement of the

profession by teaching at the college level or engaging in other professional development activities, Steffy, et al. (2000).

Summary

The purpose of this proposed study was to describe, examine, measure, and identify the specific correlates related to the following factors: teachers' demographic data; teachers' instructional methods related to assessment; teachers' level of professional development related to assessment; and teachers' perceptions about the efficacy of the DSTP. The underlying premise of this study was to show how these factors influenced the Delaware State Testing Program (DSTP) fifth grade achievement results for tests administered during 2000 and 2001. The literature reviewed in the previous section discusses primary level teaching methods and learning principles associated with reading and writing achievement. The discourse also addresses the influence of student socio-economic factors as well as the effect of teachers' perceived efficacy of high stakes large-scale testing at the national and state levels.

At one level of analysis, contemporary assessment practices are being criticized for adherence to normative comparison statistics. This widespread criticism is

particularly apparent among the teacher unions when the comparisons are used to advance state level accountability legislation. Disproportionately, students from low socio-economic groups score lower on standardized assessments as compared to their affluent counterparts. The literature also supports the disproportionately low incidence of higher achievement among low socio-economic groups. The literature suggests that further emphasis on the alignment of teaching and learning standards, curriculum, and assessment is essential in order to accurately measure what is being taught and learned in the nation's schools.

The implementation of the *No Child Left Behind* law (2002), will have far reaching implications for all state and local school systems in the United States. Section 1001 states, "The purpose of this title is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on state academic achievement standards and state academic assessments."

The State of Delaware is aligned with the new federal standards set forth in the *NCLB* and has advanced its own educational program ahead of the social context of desegregation and school busing issues of the seventies and eighties. The school accountability agenda has advanced toward

its next phase--including the provision for student remediation programs and DSTP re-assessments. Statewide, students who achieve at the highest levels on the DSTP have been offered one thousand dollar scholarships. Sanctions for underperforming schools and rewards for superior performing schools have been set for schools throughout the State of Delaware (DOE, 2002).

Schools that underperform on the DSTP are required to develop school improvement plans. Additionally the Delaware Department of Education has issued "accreditation watch" designations for underperforming schools. All sanctions are monitored at the state and district level. Students who scored below the state standard have been issued individual improvement plans. In order to be promoted to the next grade level these students must attend mandatory summer school programs. Students may then prepare to retake specific components of the DSTP (DOE, 2002).

CHAPTER 3

Methodology

Introduction

The purpose of this chapter is to present the methodology used to examine and identify the significant relationships that exist among a teacher's background, teaching methods, teacher's level of professional development in the area of assessment, teacher's perceptions about assessment practice, and their influence upon reading and writing achievement as measured by the Delaware State Testing Program, grade five achievement tests. Also discussed in this section are the procedures used in conducting this study, the design of the study, data collection, and data analysis.

Research Questions

This study examined the 2000 and 2001 DSTP fifth grade reading and writing test results for three school districts in New Castle County of the State of Delaware, including Brandywine, Colonial, and Red Clay School Districts. The research questions are as follows:

(1) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for reading?

(2) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for writing?

Selected factors related to instruction include the following teacher data: district and school identifiers, teacher background, instructional practices aligned with assessment, professional development aligned with assessment, and perceptions about the Delaware Student Testing Program.

The fifth grade level score measures were chosen as the dependent variables due to the increased consistency of teacher assignment at that level of education. Because grade level teacher assignment and mobility factors increase for students at the secondary level, the fifth grade scores were seen as the place where teacher factors are most clearly able to influence student outcomes on a state-wide assessment.

There were 184 teacher subjects in this study. There were approximately 3,100 student subjects, or scores in this study. The 2000 and 2001 achievement scores for reading and writing were examined for the moderating effects of teacher assignment, teacher's background, teacher's instructional practices related to reading and writing instruction, professional development activities, and teacher's perceptions about the efficacy of the DSTP as an accurate measure.

Population and Sample

The goal of this study was to examine the relationships that exist between teaching factors and student achievement. The unit of analysis for this study was the specific teacher assigned to teach reading or writing to the students in grade five. During the 1999-2000 and 2000-2001 school years, 3,100 fifth grade students were enrolled at seventeen elementary schools in three school districts located in Delaware's New Castle County; Brandywine, Colonial, and Red Clay School Districts. During February of 2000, procedural permission to conduct this study was granted by the Delaware Department of Education and each of the three districts in the study.

The first dependent variable examined by this study was the students' mean reading score for the DSTP reading test, years 2000 and 2001. The second dependent variable in this study was the students' average mean scaled score for the DSTP writing, years 2000 and 2001. The following factors were examined for their moderating effect on the student's scores for reading and writing achievement: (a) teacher's background and demographic data; (b) teacher's instructional activities or methods; (c) teacher's level of professional development related to assessment; and (d) teacher's perceptions about effectiveness of the DSTP.

During the months of April and May, 2002, surveys were distributed to the Brandywine, Colonial, and Red Clay School Districts. A total of 23 schools and 184 teacher subjects were surveyed. The teachers in the sample taught reading and writing or both to fifth grade students in the assessment years 2000 and 2001. The surveys were collected from each of the school districts during the first week of June 2002.

The final unit of analysis for this study was the specific teacher assigned to teach reading or writing to the students in grade five. Eighty-four teacher surveys were returned. Due to the incidence of missing data and social issues related to teacher contract negotiations, the final sample included 58 teacher respondents representing twenty-one schools in the three school districts in the study. These totals represent 32 percent of the total number of surveys distributed and 87 percent of the schools asked to participate. Decision Support Systems Research, (2002) indicates that surveys covering socially relevant issues typically yield response rates between 30 percent to 35 percent.

Instrument

Data were collected using a survey designed specifically for this study. During the 1995-96 school year, 357 of

Delaware's reading, writing, and mathematics teachers in grades 3, 5, 8, and 10, were surveyed using an instrument sponsored by the Chief Council of State School Officers. The State Collaborative on Assessment and Student Standards conducted a study, that involved 2,012 teachers in five states where performance-based assessments were administered (Miller, 1999). The Delaware Department of Education distributed a modified version of this questionnaire to English and Language Arts teachers during the 2000-2001 school year. The Delaware Department of Education used the data to gather specific information regarding teachers' perceptions about the efficacy of the DSTP and specific teacher methodologies related to reading and writing instruction.

The fifty-two item survey used for this study also collected data related to: teachers' assignment and background information; teachers' usage of instructional activities related to reading and writing, teachers' level of professional development related to the DSTP; and teachers' attitudes and perceptions about the efficacy of the DSTP. Prior to the analysis of data, the surveyed data were categorized and coded by district, school, and by the fifth grade reading and language arts teacher.

Technical studies of the questionnaire results were analyzed for internal consistency (reliability). N-Way

factorial ANOVAs were used to explain the variance in mean class scores by teachers' categorical background data (race, sex, subject taught, teaching style, ranked opinions, etc.). A multiple regression analysis was used to determine if the independent variables were teachers' opinion scores from Likert-scale-type items. The text of the questionnaire is shown as Appendix A.

District Demographic Information and Background Information on the DSTP for Reading and Writing

The Brandywine School District represents an ethnically diverse suburban area located in the northeastern metropolitan Wilmington, Delaware region (33.48 square miles). During the 1999-2000 school year, the total enrollment for the district was 11,200. The district's disaggregate student enrollment was 57 percent Caucasian and 42 percent minority, including a 37 percent African American population. There were 729 teachers employed by the district: 27 percent male and 72 percent female; 89 percent Caucasian and 10 percent African American.

During the 2000-2001 school year, Brandywine's student enrollment decreased to 10,922. The disaggregate students population remained static, 57 percent Caucasian and 42 percent minority, including a 37 percent African American population. There were 715 teachers employed by the district:

28 percent male and 71 percent female; 89 percent Caucasian and 10 percent African American. During the 1999-2000 and 2000-2001 school years, the percentage of teachers with Masters Degrees and above totaled 45. Teachers in the Brandywine School District had an average of 14 years of teaching experience for the 1999-2000 and 2000-2001 school years, (Delaware Department of Education, 2003).

The Colonial School District represents an ethnically diverse suburban area located in the southeast metropolitan Wilmington, Delaware region (81.24 square miles). During the 1999-2000 school year, the total enrollment for the district was 10,638. The district's disaggregate student enrollment was 50 percent Caucasian and 50 percent minority, including a 41 percent African American population. There were 637 teachers employed by the district: 22 percent male-77 percent female; 87 percent Caucasian and 11 percent African American. During the 2000-2001 school year, Colonial's student enrollment decreased to 10,525. The disaggregate student population remained fairly static, 49 percent Caucasian and 51 percent minority, including a 40 percent African American population. There were 639 teachers employed by the district: 23 percent male and 77 percent female; 88 percent Caucasian and 11 percent African American. During the 1999-2000 and 2000-2001 school years, the percentage of teachers with Masters Degrees

and above totaled 47 percent and 48 percent. Teachers in the Colonial School District had an average of 15 years teaching experience for the 1999-2000 and 2000-2001 school years (Delaware Department of Education, 2003).

The Red Clay School District represents an ethnically diverse suburban area located in the central/west metropolitan Wilmington, Delaware region (68.49 square miles). During the 1999-2000 school year, the total enrollment for the district was 15,638. The district's disaggregate student enrollment was 54 percent Caucasian and 46 percent minority, including a 29 percent African American population. There were 944 teachers employed by the district: 23 percent male-76 percent female; 82 percent Caucasian and 13 percent African American. During the 2000-2001 school year, Red Clay's student enrollment increased to 15,820. The disaggregate student population remained static, 54 percent Caucasian and 46 percent minority, including a 30 percent African American population. There were 964 teachers employed by the district: 24 percent male and 76 percent female; 83 percent Caucasian and 14 percent African American. During the 1999-2000 and 2000-2001 school years, the percentage of teachers with Masters Degrees and above totaled 50 percent and 52 percent. Teachers in the Red Clay School District had an average of 15 years teaching experience for

the 1999-2000 and 2000-2001 school years, (Delaware Department of Education 2003).

During the 1999-2000 school year, the State of Delaware employed 7,311 teachers grades K-12, including 2,769 elementary school teachers. Twenty-six percent of the State's teachers were male and 74 percent were female. Eighty-seven percent of the teachers were Caucasian and 11 percent were African American. Forty-eight percent of the teachers employed in the State of Delaware held a Master's degrees or above. Teachers had an average of 14 years teaching experience for the 1999-2000 and 2000-2001 school years.

During the 2000-2001 school year, the State of Delaware employed 7,466 teachers grades K-12, including 2,857 elementary school teachers. Twenty-five percent of the state's teachers were male and 75 percent were female. Eighty-seven percent of the teachers were Caucasian and 11 percent were African American. Forty-eight percent of the teachers in the State of Delaware held Master's degrees or degrees above a Master's level. Teachers had an average of 14 years teaching experience for the 1999-2000 and 2000-2001 school years (Delaware Department of Education, 2003).

The Delaware State Testing Program (DSTP) is administered to students in grades 3, 5, 8, and 10, in all nineteen school districts in the State of Delaware. Students are assessed in

both reading and writing. Results are used to identify proficiency levels and to prescribe extra-time remediation as well as retention in grade level or below.

During 1998, students were tested for the first time in grades 3, 5, 8, and 10 in reading, writing, and mathematics. Promotion levels for course work and state testing proficiency levels were established as a result of Accountability Legislation passed by the Delaware Legislature (Senate Bill 250, Educational Accountability Act of 1998). A panel of judges to measure students' proficiency levels established cut-off points: Distinguished (Level 5), Standard (Level 4) and Standard (Level 3), Below the Standard (Level 2), and Well Below the Standard (Level 1).

The spring 2000 and 2001 administrations of the DSTP required students in grades 3 and 5 to meet the proficiency standards in reading. Students who did not meet the grade level proficiency for fifth grade had to participate in mandatory extra-time programs and/or be retained in their current grade level. Statewide, 14.2 percent of fifth grade students scored at the "well below" performance level, and 16.5 percent of fifth grade students scored at the "below" performance level for reading achievement. Twenty-five percent of all fifth grade students scored at the "well below performance level" for writing. The percent of fifth grade

students that scored at the "below standard" performance level for writing achievement was 39.8 percent.

Content Validity

The DSTP is aligned with the State's core content standards-based curriculum principles and is an effective measure of student achievement in the disciplines of reading, writing, mathematics, social studies, and science. The DSTP is the primary measure used to validate the State's large-scale testing program and accountability system. Test development and specification for the DSTP have been developed for consistency in measurement of student progress over time. A state committee representative of Delaware's educators and experts from Harcourt Educational Measurement developed the specifications, content, skills, item types and the distribution of important aspects of the DSTP (Delaware Department of Education, 2003).

The DSTP assesses many aspects of reading using literature, informational readings, and technical documents (DSTP Summary Report, 2000). Students are prompted to read passages and then demonstrate their ability to analyze and interpret what they have read by answering multiple choice questions, short answer questions, and extended response questions.

Writing is assessed using two methods within the DSTP. First, students are asked to provide a written response to a prompt. Secondly, to reflect that reading and writing are integrally connected, students are asked to write a short essay responding to a question about a reading passage. In recent years, the State administered a separate writing assessment to students in grades 3, 5, 8, and 10. The writing portion of the DSTP replaced that writing assessment.

Significance

The examination of links between teachers' backgrounds, teachers' methodologies, teachers' levels of professional development, and teachers' perceptions about the Delaware Student Testing Program will help validate the use of specific educational resources that impact upon DSTP achievement.

Delimitations

The social and contractual issues that in turn influenced teachers' response rates, the timeliness of the data collection procedures, and the analysis of teachers' survey data delimited this study. Teachers in this study were selected at the fifth grade level to maximize the links between teacher backgrounds, instructional methods, levels of

professional development, and perceptions about assessment and their associative links with the students' scores.

The potential use of students' assessment results as a component of teacher performance evaluations has been a source of contention between the state teachers' union, local teacher associations, and state level accountability officials. This social issue had a significant impact on teachers' response rates in one of the school districts represented in the study. In this case, the target school district was in the process of contract negotiations, which included a contractual provision to include DSTP scores as part of the teacher's annual performance rating. The study was further limited by the combined effects of volunteerism and truthful responses, the initial return rate of teacher responses, the loss of teachers due to attrition, missing teacher data, and teacher tenure in place.

Despite these limitations, the findings provide valuable information to decision makers about the inter-relatedness of teacher background data, teaching methodology, professional development, and perceptions about large-scale assessment. These findings correlate with the student achievement outcomes for 2000 and 2001. In turn, local decision makers can provide teachers with the best resources in order help teachers

utilize the best methods and helping students towards higher achievement outcomes.

CHAPTER 4

Findings and Results

Introduction

The purpose of this chapter is to present the findings and results of the study. Included in this section is a description of the population used in this study. Procedures used to conduct the study are discussed, along with the results of the methods employed in the study that were described in the previous chapter.

Population and Sample

Approximately 3,100 fifth grade students were enrolled at seventeen elementary schools in three school districts located in New Castle County, Delaware--Brandywine, Colonial, and Red Clay School Districts. During 1998, students were tested for the first time in grades 3, 5, 8, and 10 in reading, writing, and mathematics.

The final unit of analysis for this study is the specific teacher assigned to teach reading or writing to the students in grade five. One hundred eighty-four surveys were distributed to three districts in the study. Eighty-four

teacher surveys were returned. Reduced by missing survey data, the final sample included fifty-eight teacher respondents representing twenty-one schools within the three school districts in the study.

Data Analysis

The research design and analysis process used for this study is based on two assumptions: the influence of specific teacher variables on the 2000 DSTP fifth grade reading scores; the influence of specific teaching variables on the the 2000 DSTP fifth grade writing scores. This section outlines the steps taken to analyze the data. The fifty-two items on the questionnaire required teachers to respond to specific questions structured at the nominal, ordinal, interval, and ratio level. The data were entered into a computerized statistical analysis procedure using Statistical Package for the Social Sciences, SPSS.

One way Analysis of Variance procedures compared the DSTP mean scores for reading and writing, 2000 and 2001 with the four categories of teacher data. The first point of analysis examined the links between teachers' demographic data (Questions 1-7) and the mean scores for DSTP reading and writing in 2000 and 2001. The second point of analysis explored the links between teachers' instructional practices

and the mean scores for DSTP reading and writing in 2000 and 2001 (Questions 8-29). Because of the high level of colinearity that existed among the teaching strategies for reading and writing, regression was the statistical procedure was chosen.

The third point of analysis is the link between the levels of professional development on assessment and the mean scores for DSTP reading and writing in 2000 and 2001 (Questions 30-39). Regression and ANOVA were chosen as the methods for analysis for this section of the teacher questionnaire. The fourth point of analysis is the link between teachers' perceptions about the efficacy of the DSTP and the influence on DSTP reading and writing achievement in 2000 and 2001 (Questions 40-52).

Descriptive Statistics

The dependent variables in this study are the fifth grade DSTP scores for reading and writing for 1999-2000 and 2000-2001. The state range of scaled scores for the reading portion on the DSTP is 150-800 points. The range for the DSTP scaled score for writing is 3-15 points. The mean reading score for 2000 (N = 44) is 458.61. The 2000 mean scaled score for writing is (N=43) is 6.22. The mean reading scaled score for

2001 (N = 57) is 455.51. The 2001 mean scaled score for writing is (N=57) is 6.81.

Table 1 (p. 78) reports the sample means and standard deviations by teacher demographic category and DSTP reading achievement for 2001 and 2002. Table 2 (pp. 79-83) lists the fifty-two teacher questionnaire items by category and by data measurement level, nominal, ordinal, or scale. Table 3 (pp. 84-85) summarizes the 2000-2001 DSTP reading means and standard deviations by the teacher demographic variables of gender, ethnicity, and education level. Six one-way analysis of Analyses of Variance show that means do not differ by gender, teacher race, or level of degree.

ANOVA and Regression Statistics for DSTP Reading 2000-2001

Table 4 (pp. 86-87) shows the significant results for the analysis of variance in the mean DSTP scores as a function of education level and their interaction. Table 5 (p. 88) shows the effect of experience entered into the regression equation as a quadratic. The results indicate a nonlinear effect on experience and DSTP scores for 2000 and 2001. Regression scores on experience and experience squared shows both terms significant for 2001.

Table 4 summarizes the significant relationships between the all variables associated with teacher methodology: the

percentage of time devoted to reading instruction; the frequency of teacher-selected reading materials; the frequency of student-selected materials; the frequency of teacher reading aloud to students; the assignment of reading homework. Table 5 indicates a significant difference in the mean scores of DSTP 2001 based on the frequency of reading-based homework. Table 6 (p. 89) shows the regression result for the constant percentage of time devoted to reading instruction and the assignment of reading homework.

Table 7 (p. 90) summarizes the analysis of variance and significant effects between teachers' level of or participation in national professional assessment development and mean DSTP reading achievement for 2000 and 2001. The relationships here are highly significant in that participation with national or state level assessment programs are associated with higher DSTP scores, whereas participation with district level professional development program is associated with lower DSTP achievement. Table 8 (p. 91) summarizes the significant teacher variables that may influence the mean DSTP reading scores based on teachers' perceptions about the efficacy of the Delaware State Testing Reading Assessment. Significant effects were associated with teachers' perceptions about the similarity of DSTP prewriting components and in-class assignments. Significant results were

also noted for teachers' perceptions about the DSTP as a measure to retain students at the fifth grade level.

Table 1.

Distribution of Means Grade 5 DSTP Reading and Writing Scores
2000 & 2001

	N	Minimum	Maximum	Mean	SD
DSRSS_00	44	395.00	541.52	458.6102	40.36951
DSWRS_00	43	3.00	9.30	6.2248	1.47781
DSRSS_01	57	372.33	543.78	455.5106	41.39375
DSWRS_01	57	2.50	10.06	6.8101	1.91493

Notes: DSRSS 00= DSTP Reading Scaled Score 2000, DSWRS= DSTP Writing Score 2000, DSRSS_01= DSTP Reading Scaled Score 2001, DSWRS_01= DSTP Writing Score 2001.

Table 2

List of Variables in the Study for the 2000-2001 DSTP English Language Arts Teacher Questionnaire

Code	Variable	Unit	Type
dsrss_00	DSTP Reading Score 2000	345-541.52	Interval
dswrs_00	DSTP Writing Score 2000	3-9.3	Interval
dsrss_01	DSTP Reading Score 2001	372-543.78	Interval
dswrs_01	DSTP Writing Score 2001	3.5-10.6	Interval
ID	District Code	31-34	Interval
ID	School Code	151-530	Interval
ID	Teacher Code	2-980	Interval
T2000	Taught in 2000	00	Nominal
T2001	Taught in 2001	1-2	Nominal
T2002	Taught in 2002	1-2	Nominal
Q1:	Elemented teacher 1999/2000	1-2	Nominal
Q2:	Elemented teacher 2000/2001	1-2	Nominal
Q3:	Gender	1-2	Nominal
Q4:	Race	1-5	Nominal
Q5:	Years teaching English	1-30	Interval
Q6:	Educational level	1-4	Nominal
Q7:	Grade teach	5	Nominal
Q8:	Percent teach writing	1-100	Interval

Table 2 (Continued)

List of Variables in the Study for the 2000-2001 DSTP English Language Arts Teacher Questionnaire

Code	Variable	Unit	Type
Q9:	Percent teach reading	1-100	Scale
	<u>How often do you:</u>		
Q10:	Write on teacher assigned topics	1-4	Ordinal
Q11:	Write on student selected topics	1-4	Ordinal
Q12:	Read teacher selected materials	1-4	Ordinal
Q13:	Read student selected materials	1-4	Ordinal
Q14:	Read aloud to class	1-4	Ordinal
Q15:	Give presentation to class	1-4	Ordinal
Q16:	Assign reading for homework	1-4	Ordinal
Q17:	Evaluate with student/teachr conf	1-4	Ordinal
Q18:	Evaluate with student/peer conf	1-4	Ordinal
Q19:	Evaluate in writing	1-4	Ordinal
Q20:	Evaluate with rubric	1-4	Ordinal
Q21:	Teach effective lead/intro	1-2	Ordinal
Q22:	Teach clear and logical progression of ideas	1-2	Ordinal
Q23:	Teach prewriting	1-2	Ordinal
Q24:	Teach adding relevant details	1-2	Ordinal

Table 2 (Continued)

List of Variables in the Study for the 2000-2001 DSTP English Language Arts Teacher Questionnaire

Code	Variable	Unit	Type
Q25:	Teach consideration of audience	1-2	Ordinal
Q26:	Teach smooth transitions	1-2	Ordinal
Q27:	Teach grammar, punctuation, spelling	1-2	Ordinal
Q28:	Teach precise and vivid words	1-2	Ordinal
Q29:	Teach varied sentence length and structure	1-2	Ordinal
Q30:	Days of professional development last year	0-13.5	Interval
Q31:	Attend school in-service	1-2	Nominal
Q32:	Attend district in-service	1-2	Nominal
Q33:	Attend state in-service	1-2	Nominal
Q34:	Attend national/regional in-service	1-2	Nominal
Q35:	Attend professional org. in-service	1-2	Nominal
Q36:	Collegiate or grad course work	1-2	Nominal

Table 2 (Continued)

List of Variables in the Study for the 2000-2001 DSTP English Language Arts Teacher Questionnaire

Code	Variable	Unit	Type
Q37:	Help to develop nation/state assessments	1-2	Nominal
Q38:	Help to develop district/school assessments	1-2	Nominal
Q39:	Administer or observe 2000/01 DSTP	1-2	Nominal
Q40:	Students' reaction to writing prompt	1-3	Ordinal
Q41:	Adequate time for writing prompt	1-3	Ordinal
Q42:	DSTP pre-writing similar to class	1-3	Ordinal
Q43:	Time allotted for pre-writing	1-3	Ordinal
Q44:	Students' reaction to reading passages	1-3	Ordinal
Q45:	Adequate time for reading	1-3	Ordinal
Q46:	DSTP accurate measure of reading/writing	1-3	Ordinal
Q47:	DSTP measure reading skills taught	1-3	Ordinal
Q48:	DSTP measure writing skills taught	1-3	Ordinal

Table 2 (Continued)

List of Variables in the Study for the 2000-2001 DSTP English
Language Arts Teacher Questionnaire

Code	Variable	Unit	Type
Q49:	DSTP accurately reflect ELAC standards	1-3	Ordinal
Q50:	DSTP a single measure for 5th grade retention	1-3	Ordinal
Q51:	DSTP a single measure for summer school	1-3	Ordinal
Q52:	DSTP appropriate support measure	1-3	Ordinal

Table 3

Descriptive Statistics for the Means and Standard Deviations for
DSTP Reading 2000 and 2001 by Teacher Demographic Categories

Demographic Category	2000		
	N	Means	SD
Gender			
Male	6	451.96	34.44
Female	37	460.12	42.00
Ethnicity			
African American	4	426.96	26.08
Caucasian	38	461.94	41.28
Education Level			
Bachelors	6	462.48	20.23
Bachelors + 15	11	468.30	44.57
Masters	3	469.56	54.38
Masters +15	23	452.24	42.03

Table 3 (Continued)

Means and Standard Deviation for DSTP Reading 2000 and 2001 by
Teacher Demographic Categories

Demographic Category	2001		
	N	Means	SD
Gender			
Male	8	430.43	32.18
Female	48	459.72	41.97
Ethnicity			
African American	5	418.87	33.65
Caucasian	49	458.24	41.59
Education Level			
Bachelors	8	462.78	20.23
Bachelors + 15	16	462.31	44.57
Masters	6	463.25	54.38
Masters +15	25	446.84	43.33

Table 4

Regression Coefficients and Univariate Analysis of Variance for
 Mean DSTP 2000-2001 Reading by Educational Level and Years of
 Experience: Experience Entered as a Quadratic Effect

(N=43) (N=55)

2000				
Independent Variable(s)	B	Beta	t	Sig
Years Teaching English	-.41	.09	.16	.86
EXPSQR	-.01	-.08	-.14	.88

2001				
Independent Variable(s)	B	Beta	t	Sig
Years Teaching English	-4.95	1.08	2.38	.02*
EXPSQR	.17	-1.03	-2.26	.02*

* p < .05.

Table 4 (Continued)

Regression Coefficients and Univariate Analysis of Variance for
 Mean DSTP 2000-2001 Reading by Educational Level and Years of
 Experience: Experience Entered as a Quadratic Effect
 (N=43)(N=55)

2000			
Test of Between Subject Effects			
Independent Variable(s)	df	F	Sig
Education Level	4	259.02	.001***
Years Teaching English	1	.209	.651
EXPSQR	1	.143	.707
2001			
Test of Between Subject Effects			
Independent Variable(s)	df	F	Sig
Education Level	4	259.02	.001***
Years Teaching English	1	.209	.003**
EXPSQR	1	.143	.006**
* p < .05. ** p < .01. *** p < .001.			

Table 5

Regression Analysis for the Relationship Between Specific
Teacher Methodologies and Mean DSTP Reading Scores for 2000
and 2001 (N=41) (N=51)

Independent Variable(s)	2000			
	B	Beta	t	Sig
How often Assigned				
Reading for Homework	-10.280	-.228	-1.101	.278
Independent Variable(s)	2001			
	B	Beta	t	Sig
How often Assigned				
Reading for Homework	-19.231	-.448	-2.412	.020*

* $p < .05$.

Table 6

Analysis of Variance for the Relationship Between Teacher Methodologies and Mean DSTP Reading Scores for 2000-2001

2000			
Teacher Variable	df	F	Sig
How often assign Reading for Homework	1	.914	.345
2001			
Teacher Variable	df	F	Sig
How often assign Reading for homework	1	4.562	.038*

* $p < .05$.

Table 7

Analysis of Variance for the Relationship Between Professional Development Activities and Mean DSTP Reading Scores for 2000-2001

2000			
Teacher Variable	df	F	Sig
Participate in the Development of:			
National or State Assessment	1	5.200	.028*
Attended District In-service	1	7.408	.010**
Attended National Regional In-service	1	1.60	.214
2001			
Teacher Variable	df	F	Sig
Participate in the Development of:			
National or State Assessment	1	2.284	.137
Attended District In-service	1	6.393	.015*
Attended National Regional In-service	1	4.08	.049

*p < .05. ** p < .01.

Table 8

Analysis of Variance for the Relationship Between DSTP Reading Scores for 2000-2001 and Teachers' Perceptions About the DSTP

2000			
Teacher Variable	df	F	Sig
Similarity of DSTP and Classroom Pre-Writing Activities	2	1.71	.198
DSTP Results as a Single Measure to Retain Students	1	2.18	.149
2001			
Teacher Variable	df	F	Sig
Similarity of DSTP and Classroom Pre-Writing Activities	2	8.23	.001***
DSTP Results as a Single Measure to Retain Students	1	11.21	.002**
* p < .05. ** p < .01. ***p < .001			

Descriptive Statistics

Table 9 (pp. 96-97) lists the 2000-2001 DSTP writing means and standard deviations associated with teacher demographic by gender, ethnicity, and educational level.

ANOVA and Regression Statistics for DSTP Writing 2000-2001

Table 10 (p. 98) presents the analysis of variance and significant effects for 2000-2001 DSTP writing achievement as influenced by teachers' educational level and years of experience teaching English language arts. Scores did not differ by gender, ethnicity, or educational level. As reported in the analysis of reading DSTP achievement, a non-linear relationship, quadratic effect, exists between teachers' years of experience and the writing achievement.

Tables 11 (p. 99) and 12 (p. 100) review the significant analyses of variance quotients and regression scores for teacher methodologies; the percentage of time devoted to the teaching of writing, and the influence on DSTP achievement.

Tables 13 (pp. 101-102) and 14 (pp. 103-104) specify the regression and analysis of variance proportions for the relationship between teachers' instructional activities and 2000-2001 DSTP writing achievement. Table 14 also specifies the results for five instructional activities/variables entered simultaneously. Conferencing with students and the use

of evaluation rubrics to score writing show positive effects for 2001.

Table 15 (p. 105) specifies the regression analysis of variance proportions for the relationship between teachers' instructional activities/methodologies entered separately and 2000-2001 DSTP writing achievement. Table 15 lists the significant results for five instructional activities/variables entered separately into the regression equation.

Table 16 (pp. 106-109) examines the regression scores for the simultaneous influence of time spent on the teaching of writing regressed upon the following instructional factors: effective leads sentences or paragraphs, the teaching of grammatical structures, relevant content, the use of precise and vivid words, and the acknowledgement of audience. In this analysis, several of the teaching factors show high correlations with higher DSTP reading achievement for 2000-2001 at the $p < .05$ and $p < .01$ levels.

Using analysis of variance and univariate analysis of variance statistical procedures, Tables 17 (p. 110) and 18 (p. 111) show the significant associative interactions between teachers' level of professional development and DSTP writing achievement for 2000 and 2001. Among all factors, significant positive effects were found to exist for teachers' participation in national or level assessment training and

DSTP writing achievement. In the study, negative achievement results were associated with district level in-service programs.

Table 19 (p. 112) is a summary of the analysis of variance scores for the relationship between 2000-2001 DSTP reading achievement and teachers' perceptions about the efficacy of the DSTP. In both years, significant associations were found to exist between the following teacher variables: the amount of time allowed for the writing prompt; reactions to the writing prompt; reactions to the writing-based reading passages; the accuracy of the DSTP as a measure of writing skills; the accuracy of the DSTP as a measure of reading skills; and the accuracy of the DSTP as a measure to retain students in grade five.

For purposes of analysis, the percentage of time spent on the teaching of reading and writing was used as the constant associated with teachers' instructional practices, Q10-29. For purposes of analysis, the number of days of professional development was used as the constant associated with teachers' level of professional development, Q30-38. Due to the redundancy related to nominal level data, question 39 was not used as the constant for the section on teacher perceptions about the DSTP. Questions 40-52 were analyzed for their

individual and group effects upon DSTP reading and writing achievement for 2000-2001.

Table 9

Means and Standard Deviation for DSTP Writing 2000 and 2001 by
Teacher Demographic Categories

Demographic Category	2000		
	N	Means	SD
Gender			
Male	5	6.39	.58
Female	37	6.22	1.57
Ethnicity			
African American	3	4.82	1.05
Caucasian	38	6.34	1.48
Education Level			
Bachelors	6	5.84	.80
Bachelors + 15	11	6.57	1.64
Masters	3	5.97	2.33
Masters +15	22	6.22	1.50

Table 9 (Continued)

Means and Standard Deviation for DSTP Writing 2000 and 2001 by
Teacher Demographic Categories

Demographic Category	2001		
	N	Means	SD
Gender			
Male	8	5.82	1.88
Female	48	6.98	1.90
Ethnicity			
African American	5	5.00	1.63
Caucasian	49	6.34	1.90
Education Level			
Bachelors	8	7.00	1.50
Bachelors + 15	16	7.07	2.20
Masters	6	7.50	1.49
Masters +15	25	6.47	2.00

Table 10

Analysis of Variance for the Relationships Between DSTP
Writing Scores 2000-2001 and Educational Level and Years of
Experience

2000			
Independent Variables	df	F	Sig
Years Experience (linear)	1	1.39	.25
Years Experience (quadratic)	1	1.20	.28
Education Level	3	.22	.88
2001			
Independent Variables	df	F	Sig
Years Experience (linear)	1	9.47	.003**
Years Experience (quadratic)	1	6.68	.02*
Education Level	3	.22	.10

* $p < .05$. ** $p < .01$.

Table 11

Analysis of Variance for the Relationship Between DSTP Writing
2000-2001 and Teacher Methodologies: Percentage of Time
Teaching Writing

Independent Variables	2000		
	df	F	Sig
Percent of Time Teaching Writing	1	3.66	.06
Independent Variables	2001		
	df	F	Sig
Percent of Time Teaching Writing	1	5.67	.02*

* $p < .05$.

Table 12

Regression Analysis for the Relationship Between DSTP Writing
2000-2001 and Teacher Methodologies: Percentage of Time Spent
on the Teaching of Writing (N=42) (N=56)

2000				
Independent Variables	B	Beta	t	Sig
Percent of Time	.03	.29	1.91	.06
Teaching Writing				
2001				
Independent Variables	B	Beta	t	Sig
Percent of Time	.03	.31	2.38	.02*
Teaching Writing				
* p < .05.				

Table 13

Regression Analysis for the Relationship Between DSTP Writing 2000-2001 and Teacher Methodologies: Percentage of Time Spent on the Teaching of Writing Along with Frequency of Teacher-Student Conference; Frequency of Student-Peer Conference; Frequency of Teacher's Written Evaluative Comments; Frequency of Teacher's Use of Rubrics to Score Student Writing (N=40) (N=51)

Independent Variables	2000			
	B	Beta	t	Sig
Frequency of:				
Teacher-Student Conferences	.314	.154	.848	.40
Student-Peer Conferences	-.129	-.071	-.401	.69
Teachers' Written Comments	-.181	-.085	-.471	.64
Teachers' Use of Rubrics	-.066	-.038	-.222	.82

Table 13 (Continued)

Regression Analysis for the Relationship Between DSTP Writing 2000-2001 and Teacher Methodologies: Percentage of Time Spent on the Teaching of Writing Along with Frequency of Teacher-Student Conference; Frequency of Student-Peer Conference; Frequency of Teacher's Written Evaluative Comments; Frequency of Teacher's Use of Rubrics to Score Student Writing (N=40)(N=51)

Independent Variables	2001			
	B	Beta	t	Sig
Frequency of:				
Teacher-Student Conferences	.049	.019	.148	.88
Student-Peer Conferences	-.630	-.279	-1.96	.055
Teachers' Written Comments	-.154	-.064	-.472	.63
Teachers' Use of Rubrics	-.601	-.293	-2.025	.05*

p < .05.

Table 14

Analysis of Variance for the Relationship of DSTP Writing 2000-2001 and the Sum of Teachers' Methodologies, Percentage of Time Spent on the Teaching of Writing Along with Frequency of Teacher-Student Conferences; Frequency of Student-Peer Conferences; Frequency of Teacher's Written Evaluative Comments; Frequency of Teacher's Use of Rubrics to Score Student Writing

Independent Variables	2000		
	df	F	Sig
Frequency of Evaluation	2	1.84	.17
Teacher-Student Conferences	2	2.04	.14
Student-Peer Conferences	2	4.11	.16
Teachers' Written Comments	2	1.88	.16
Teachers' Use of Rubrics	2	1.90	.16

Table 14 (Continued)

Analysis of Variance for the Relationship of DSTP Writing 2000-2001 and the Sum of Teachers' Methodologies, Percentage of Time Spent on the Teaching of Writing Along with Frequency of Teacher-Student Conferences; Frequency of Student-Peer Conferences; Frequency of Teacher's Written Evaluative Comments; Frequency of Teacher's Use of Rubrics to Score Student Writing

Independent Variables	2001		
	df	F	Sig
Frequency of Evaluation	2	6.25	.004**
Teacher-Student Conferences	2	1.16	.32
Student-Peer Conferences	2	5.42	.007**
Teachers' Written Comments	2	1.81	.174
Teachers' Use of Rubrics	2	6.21	.004**

Table 15

Regression Analysis of the Relationship Between DSTP Writing
2000-2001 and Teacher Methodologies Entered Separately:
Percentage of Time Spent on the Teaching of Writing Along with
Frequency of Teacher-Student Conferences; Frequency of
Student-Peer Conferences; Frequency of Teacher's Written
Evaluative Comments; Frequency of Teacher's Use of Rubrics to
Score Student Writing (N=40) (N=51)

Independent Variables	2000			
	B	Beta	t	Sig
Percentage of Time Teaching Writing	.021	.283	1.69	.09
Teachers' Evaluative Written Comments	.024	-.034	-.206	.83
Independent Variables	2001			
	B	Beta	t	Sig
Percentage of Time Teaching Writing	.003	.039	.281	.78
Teachers' Evaluative Written Comments	-.403	-.434	-3.130	.003**

** p < .01.

Table 16

Regression Analysis of the Relationship Between DSTP Writing 2000-2001 and Teacher Methodologies: Percentage of Time Spent on the Teaching of Writing and Lead Introductions; Logical Progression of Ideas; Pre-writing; Relevant Details; Consideration of Audience; Smooth Transitions, Grammar, Precise, and Vivid Words; Varied Sentence Structure; and SUM (N=40) (N=51)

Independent Variables	2000			
	B	Beta	t	Sig
1. Effective Lead	-2.86	-.50	-3.77	.001***
2. Logical Progrssion of Ideas	-1.77	-.31	-2.031	.04*
3. Pre-writing	-3.63	-.52	-3.880	.001***
4. Relevant Details	-2.87	-.50	-3.755	.001***
5. Consideration of Audience	-1.60	-.38	-2.614	.013*
6. Smooth Transitions	-2.93	-.58	-4.720	.001***
7. Grammar	-4.10	-.42	-2.815	.008**
8. Precise and Vivid Words	-2.81	-.61	-5.172	.001***

Table 16 (Continued)

Regression Analysis of the Relationship Between DSTP Writing
 2000-2001 and Teacher Methodologies: Percentage of Time Spent
 on the Teaching of Writing and Lead Introductions; Logical
 Progression of Ideas; Pre-writing; Relevant Details;
 Consideration of Audience; Smooth Transitions, Grammar,
 Precise, and Vivid Words; Varied Sentence Structure; and SUM
 (N=40) (N=51)

2000				
Independent Variables	B	Beta	t	Sig
9. Varied Sentence Structure	-2.55	-.44	-3.140	.003**
10. SUM 1_9	-.57	-.66	-5.68	.001***

* p < .05 ** p < .01 *** p < .0001

Table 16 (Continued)

Regression Analysis of the Relationship Between DSTP Writing
2000-2001 and Teacher Methodologies: Percentage of Time Spent
on the Teaching of Writing and Lead Introductions; Logical
Progression of Ideas; Pre-writing; Relevant Details;
Consideration of Audience; Smooth Transitions, Grammar,
Precise, and Vivid Words; Varied Sentence Structure; and SUM
(N=40) (N=51)

Independent Variables	2001			
	B	Beta	t	Sig
Effective Lead	-3.78	-.48	-3.95	.001***
Logical Progrssion of Ideas	-1.18	-.15	-1.07	.28
Pre-writing	-3.23	-.34	-2.50	.016*
Relevant Details	-4.00	-.61	-5.36	.001***
Consideration of Audience	-1.49	-.30	-2.22	.03*
Smooth Transitions	-2.86	-.42	-3.36	.002**
Grammar	-4.48	-.34	-2.43	.019*

Table 16 (Continued)

Regression Analysis of the Relationship Between DSTP Writing
 2000-2001 and Teacher Methodologies: Percentage of Time Spent
 on the Teaching of Writing and Lead Introductions; Logical
 Progression of Ideas; Pre-writing; Relevant Details;
 Consideration of Audience; Smooth Transitions, Grammar,
 Precise, and Vivid Words; Varied Sentence Structure; and SUM
 (N=40) (N=51)

Independent Variables	2001			
	B	Beta	t	Sig
Precise and Vivid Words	-3.72	-.61	-5.56	.001***
Varied Sentence Structure	-3.32	-.43	-3.35	.002**
SUM 1_9	-.66	-.59	-5.11	.001***

* p < .05. ** p < .01. *** p < .0001

Table 17

Analysis of Variance for the Relationship Between DSTP Writing
2000-2001 and the Sum of Professional Development Activities

2000			
Teacher Variable	df	F	Sig
Attended National Regional In-service	1	4.94	.03*
2001			
Teacher Variable	df	F	Sig
Attended National Regional In-service	1	2.382	.13

* $p < .05$.

Table 18

Univariate Analysis of Variance for the Relationship Between Mean DSTP Writing Scores for 2000-2001 and Professional Development Activities Entered Simultaneously; Participate in the Development of National or State Assessment

2000			
Teacher Variable	df	F	Sig
School In-service Workshops	1	.42	.51
District In-service	1	7.95	.01**
State-Sponsored In-service	1	.12	.73
National Regional In-service	1	3.98	.057
2001			
Teacher Variable	df	F	Sig
School In-service Workshops	1	.25	.62
District In-service	1	4.07	.05*
State-Sponsored In-service	1	.25	.62
National Regional In-service	1	4.20	.04*

* $p < .05$.

** $p < .01$.

Table 19

Analysis of Variance for the Relationship Between DSTP Reading Scores for 2000-2001 and Teachers' Perceptions About the DSTP

2000			
Teacher Variable	df	F	Sig
Students' reaction to writing prompt	2	2.1	.14
Adequate time for writing prompt	2	3.9	.03*
Students' reaction to reading passages	2	1.21	.31
DSTP accurate measure of reading/writing	2	2.53	.10
DSTP measure reading skills taught	2	.17	.84
DSTP a single measure for 5th grade retention	2	2.56	.11
2001			
Teacher Variable	df	F	Sig
Students' reaction to writing prompt	2	4.57	.01*
Adequate time for writing prompt	2	1.31	.28
Students' reaction to reading passages	2	4.39	.02*
DSTP accurate measure of reading/writing	2	3.76	.03*
DSTP measure reading skills taught	2	4.54	.02*
DSTP a single measure for 5th grade Retention	1	5.08	.03*

*p < .05.

The final chapter of this study will summarize the purpose and techniques used in the study. An examination of the research questions, a discussion of the significant findings, as well as recommendations for future research are included in the concluding chapter.

Chapter 5

Discussion

Conclusions and Recommendations

Introduction

The purpose of this chapter is to review the research questions employed for this study, to review the methodology used for this study, and to discuss the findings and implications for further research in the area of large-scale testing and student achievement.

Research Questions

The purpose of this study was to investigate the significant teacher factors that influenced fifth grade DSTP reading and writing for 2000-2001.

(1) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for reading?

(2) Can selected factors of instructional methodology and teacher demographic characteristics predict the Delaware test scores for writing?

This study examined the 2000-2001 DSTP mean reading/writing scores for 3,100 fifth grade students across three school districts located in New Castle County, Delaware.

Permission to conduct the study was granted by the Delaware Department Of Education January of 2000. During June and July of 2000, permission to access the teacher and student database and to survey the specific teachers at grade level 5 was granted by each of the three districts in the study.

The survey instrument used for this study was modeled according to a similar study of teachers involved in large scale performance assessments (Miller, 1999). Response questions included the following types of questions: participation in the development and administration of state assessment; use of various instructional and assessment techniques in the classroom; perception of the effects of state assessments on instruction, curriculum, and student learning; perceptions on the importance of various assessments and instructional techniques; professional development techniques experiences related to performance assessment (Miller, 1999).

During the month of May, 2002, questionnaires were distributed to one hundred eighty-four fifth grade teachers in twenty-four schools. A district office administrator for each collect the surveys from teachers. Three district office contact persons and the principals of each school in the study were involved in data collection process. During the second week of June, 2002 the teacher surveys were collected from

each of the three district office administrators. All follow-up collection of the teacher survey data was handled through individual schools and principals.

Eighty-four teacher surveys were returned. The final sample included fifty-eight teacher respondents representing twenty-one schools in the three school districts in the study. These totals represent 32 percent of the total number of surveys distributed and 87 percent of the schools asked to participate.

The null hypotheses for both research questions were rejected as the results of analysis of variance, univariate analysis of variance and multivariate regression procedures showed several significant relationships or effects for each category of analysis, including the following: teacher demographic variables and DSTP reading and writing achievement; teacher's instructional practices and DSTP reading and writing achievement; teacher's level of professional development related to assessment and DSTP reading and writing achievement; teacher's perceptions about the efficacy of the Delaware Student Testing Program and DSTP reading and writing achievement ($p < .05$, $p < .01$ and $p < .001$).

The teacher variable data were analyzed individually and by each of the four questionnaire categories. Positive effects

were found to exist for teachers' educational background and years of experience teaching English/Language Arts; teachers' percentage of time spent on the teaching of reading/writing along with specific instructional practices; teachers' participation level in national or district level in-service/professional development related to the development of assessments; teachers' perceptions about the DSTP and its accuracy as a single measure of student achievement.

Discussion of Findings

The specific findings of this study were categorized according to the structure of the fifty-two item questionnaire and its associations with fifth grade DSTP reading and writing achievement for 2000-2001.

The significant findings of this study were as follows:

(1) Teacher Background: Six separate analyses of variance showed that the mean reading scores did not differ significantly for 2000 or 2001. Ethnicity and educational level had no effect on the scores for either year of this study. Regression scores on experience in both years showed no significant effect. When the four teacher demographic variables entered in the General Linear Model, no significant effect was found. When the scores were analyzed by the effect of experience, educational level, and the interaction of both,

a nonlinear or quadratic effect seemed to be present. In the sample, the mean reading scores increased with years of experience and with teacher education level, bachelors to masters level. The scores began to decrease as years of experience intersected with the education level at the masters degree level. Regression scores for experience and experience squared showed both terms significant for DSTP reading and wrting scores, 2001 and 2001. This effect was also found to exist for writing achievement.

(2) Regression analysis for the precentage of time devoted to reading instruction and the assignment of reading homework showed significant influence on the scores for 2001.

(3) Participation in or involvement with national or state in-service programs and related development of assessments showed significant influence on the reading scores for 2000. National or state level training approched significance in 2001.

(4) The analysis of variance and regression scores were analyzed for the influence of teacher perceptions about the efficacy of the DSTP as an accurate mesure of student achievement. Significant links were found for the following variables: the similarities of DSTP prewriting and classroom-based prewriting activities for 2001; appropriate time allotments for student prewriting; the use of DSTP to retain

students in fifth grade or assignment of students to extra-time programs.

(5) As with reading, a non-linear relationship or quadratic effect was found to exist between the teachers' experience, educational level, and the achievement scores for writing. The 2001 analysis shows that teachers' educational level and experience had a positive effect on writing achievement. A negative effect was found to exist as experience and educational level exceeded the masters level +15 point. A similar effect was found to exist for reading achievement.

(6) The time spent on the teaching of writing had a significantly positive effect on writing achievement for 2000 and 2001. The use of student-peer conferences and scoring rubrics were found to be significant for 2001. The frequency of writing evaluation had a positive effect on the score for 2001.

(7) The frequencies of the following instructional practices showed significant to highly-significant influences on the writing scores during both years: emphasis on prewriting activities; adding relevant details; consideration of audience; use of smooth transitions; use of conventional grammar, punctuation, and spelling rules; the use of precise and vivid words; and the use of varied sentence length.

(8) Teachers' participation in the development of national or state assessment programs showed a significant impact on the writing scores for 2000. The number of days for professional development was significant for 2000. A negative association was found to exist for district level in-service programs. Caution should be used when interpreting the influence of national or state level inservice related to the development of assessments. The practice of selecting the "best teachers" for district sponsored conferences makes for efficient use of school funds, but may have had a confounding effect on the results of this study.

(9) The writing scores were also analyzed for the influence of teachers' perceptions about the DSTP. The significant findings were as follows: the similarities of DSTP prewriting and classroom-based prewriting activities for 2001; appropriate time allotments for student prewriting for 2001; the students' reaction to reading passages for 2001; DSTP as a measure of what teachers teach for writing for 2001; DSTP as a single measure to be used for the retention of students for 2001. These findings confirm the teachers' perceptions about the consistency of the DSTP assessment and that it does provide an accurate measure of reading and writing achievement.

Limitations of This Study

The data collection procedures used for this study were limited by social and contractual issues involving the state's mandate for large scale testing and local union contract negotiations. The 32% return rate was directly influenced by the mistrust of school official's use of test results at the state and local level. The study was further limited by the combined effects of volunteerism and truthful responses, the initial return rate of teacher responses, the loss of teachers due to attrition, missing teacher data, and teacher tenure in place.

Summary

The significant assumptions of this study are confirmed by the literature, particularly by the literature on the trends in large-scale assessment programs, teacher methodologies, and teachers' perceptions about the purpose and effects of large-scale testing on student achievement. The study's findings are generalizable to the districts, schools, and teachers in the study. While many of the relationships in this study did not show significant results, the magnitudes reflected show trends that could become interesting research projects in the future. In the State of Delaware, standards-based education and school accountability are inextricably linked to student achievement.

Recommendations

Based on the findings of this research study, a focused and systemic approach to professional development is proposed to advance student achievement at the appropriate grade levels.

(1) In the study there are significant links between teachers' educational level, years of experience, and achievement on state tests for reading and writing. School district officials, teachers, and policymakers should align staff development programs with particular emphasis on teacher educational levels and experience in a particular area or methodology related to reading and writing instruction. Particular emphasis needs to be focused on the skill level of teachers entering the field at the bachelors level. The research also suggests that teachers with masters level degrees of preparation need additional training to sustain the delivery of instruction based on best practices.

(2) In the study, teachers who attended or who participated in the development of national or state level assessments showed larger gains in student achievement. State departments of education need to broaden the involvement of classroom teachers in the development of state assessments. Teachers selected to attend these training sessions should be

required to train other teachers in the sponsoring school districts. Funding to support this type of broad-based teacher training initiative would help teachers to develop classroom assessments that reflect the standards and the assessment used to measure proficiency. In order to improve the quality of district level in-service programs, more training is needed to help all teachers deliver standards-based instruction and to construct reliable classroom level assessments.

(3) This study's findings also confirm the significant effects for teaching of the various modes of writing, grammar, and stylistic conventions. The frequency of reading or written homework also aids in the acquisition of literacy skills. Action research conducted internally within schools and school districts can provide the type of useful data found in this study. In turn, highly successful teachers can train other teachers in the instructional practices that lead to higher student achievement at the classroom level and at the state assessment level.

(4) The research findings identified specific issues related to the alignment of the DSTP and classroom practices. Teachers' perceptions about the efficacy of state testing programs play a large role in the success of their students on large-scale assessments. It is critical that teachers feel empowered and vested in the national, regional, and state

initiatives for the improvement of public education. Systemic reforms and public policy issues have teachers unions on guard, fearing that accountability can be used to rate teacher performance or result in demotions and firings. Teachers' daily beliefs and practices are the catalyst that drive education. Their collective voice is critical. More teacher perception data is needed to help decision makers quantify the effectiveness of state assessment programs.

Implications for Further Study

As a result of this project designed to identify specific teacher variables that influence assessment results, some additional research questions have been generated for future consideration. Here are some suggestions:

(1) Replicate similar studies to measure the impact of future DSTP assessment results and teacher factors across four grade levels in a single year or consecutive year. Pooling together the students scores from each assessment year will yield higher degrees of freedom and strengthen the results.

(2) Replicate similar studies to investigate future DSTP assessment results, teacher factors across four grade levels in a single year, adding the largest school district in the State and New Castle County, Christina School District.

(3) Replicate similar studies to examine future DSTP assessment results and teacher factors across four grade levels in a single year, adding the largest school district in the State and New Castle County, Christina School District.

(4) Using a similar construct, conduct a qualitative analysis on the impact of accountability legislation in order to measure the effect on school system funding, teacher practices, professional development on assessment, and school remediation programs.

(5) Conduct a study that measures the influence of teachers' participation in the development of national or state assessments on student achievement.

(6) Conduct large-scale surveys of undergraduate, graduate level teacher preparation program to measure their influence on state assessment results.

In conclusion, this study, like others, has been initiated by researchers to advance the literature of large-scale testing and the field of teaching. Not only is the study significant for the educational community of Delaware and its students, it helps to validate the current accountability legislation and the educational reform initiatives of the 1990's.

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