

**A STUDY TO ASSESS THE RELATIONSHIPS AMONG STUDENT  
ACHIEVEMENT, TEACHER MOTIVATION, AND INCENTIVE PAY**

by

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Dissertation submitted to the Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of  
DOCTOR OF EDUCATION

in

Educational Leadership and Policy Studies

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July, 2000  
Blacksburg, Virginia

Incentive Pay, Student Achievement, Teacher Motivation

## ABSTRACT

The purpose of this descriptive study was to investigate the relationships among the awarding of career pay, teacher motivation, and student achievement. This study sought to answer the following questions: (1) Is there a difference in intrinsic and extrinsic motivation of those teachers who receive career pay as opposed to those teachers who do not receive career pay? and (2) Is reading and mathematics achievement higher in teachers' classes where teachers receive career pay than in classes where teachers do not receive career pay?

According to the U.S. Department of Education projections, by the year 2009 school systems will face a 2- 2.5 million teacher shortage. Some 200,000 new teachers are needed annually to enter the profession. Career pay may prove to be a method to reward, to attract, and to retain excellent teachers.

Student achievement was assessed using the California Achievement Test. Pretest and Posttest gain scores were used to assess higher achievement in reading or mathematics for teachers who received career pay as opposed to those who did not receive career pay.

A Teacher Motivation Questionnaire was used to assess intrinsic and extrinsic motivation of teachers. Specifically, the instrument was used to determine if teachers who received career pay were more intrinsically or extrinsically motivated than teachers who did not receive career pay.

Data collected were analyzed using the Statistical Package for the Social Sciences

using regression analysis, frequencies, reliability, and t-tests.

Conclusions of this study are that teachers who receive career pay are not more intrinsically or extrinsically motivated than teachers who do not receive career pay and that student achievement is not increased by the awarding of career pay.

## DEDICATION

This dissertation is dedicated to my wonderful parents, Dave and Helen Shorter, who provided much support and died while I was completing this study. I also dedicate this manuscript to my supportive husband, Frank III, and my son and daughter, Frank IV, and Pamela II, who cheered me on, and helped, and loved me throughout the completion of this study.

## ACKNOWLEDGEMENTS

I thank God for his blessings and for leaving me on Earth long enough to complete this study. I also thank my husband, Frank A. McKinney III, for his love, support, and encouragement to complete the doctoral program. My appreciation to my son, Frank A. McKinney IV, for his love and motivation. Thank you to my daughter, Pamela A. McKinney II, for her encouragement and for the time I spent away to complete this study.

I want to thank my co-chairs, Dr. Jimmie Fortune and Dr. Christina Dawson, for their time, encouragement, and academic assistance. I also want to express my appreciation to Dr. Dave Parks for his help, encouragement, belief in me, and support. My appreciation to Dr. Robert Richards for his motivation, encouragement, and assistance. Thank you to Dr. Richard Salmon for his recommendations and support. A sincere appreciation to Dr. Patrick Carlton for his support and willingness to assist with this research study.

A study like this can only be accomplished with the assistance of many people. I express a sincere appreciation to the principals, assistant principals, teachers, and students in the study.

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## CHAPTER 1

### INTRODUCTION

Legislators, administrators, and educators continually search for ways to improve the quality of the nation's school systems. When the National Commission on Excellence in Education reported warnings of a "rising tide of mediocrity," incentive pay in education once again became an important issue (Hatry & Greiner, 1985). Specifically, the Commission reported that salary, promotion, tenure, and retention decisions should be tied to an effective evaluation system that includes peer review so that superior teachers can be rewarded, average teachers can be encouraged, and poor teachers can be either improved or terminated (H. C. Johnson, 1985). Incentive pay is used to describe a pay supplement that is awarded to teachers in addition to the regular salary. Incentive pay in the form of career ladder or merit pay once again became a popular concept as a method to improve teaching performance. Failed school reforms over the last twenty-five years is another reason school systems are adopting "pay for performance" plans (Wilms & Chapleau, 1999).

The first formal merit pay plan for teachers was created in 1908 in Newton, Massachusetts. Interest in merit pay for teachers reached its peak in the 1920s, diminished with the move toward the single salary schedule in the 1930s and 1940s. The merit pay concept was revived in the mid-1950s. Merit pay became 10 percent of all pay in the 1960s and declined in the early 1970s. Further, according to the National Education Association, by the 1972-1973 school year only 5.5 percent of the nation's school systems

used merit pay (ERIC Clearinghouse, 1981). In 1960, John W. Gardner, former Secretary of Health, Education and Welfare, in an essay on education for the President's Commission on National Goals identified a need for merit pay to be adopted with appropriate safeguards to ensure fair treatment. James Koerner promoted merit pay in the 1960s. In 1963, Koerner (as cited in Bruno & Nottingham, 1974) wrote:

Until school boards face up to the whole matter and begin to pay their teachers, not according to a set schedule wherein the worst are paid as well as the best, but for the basis of individual performance, teaching will continue to be a field that fails to attract high quality people and put them through demanding programs. (Bruno & Nottingham, 1974)

Merit pay programs have been present in school systems for many years, but have failed because they were poorly planned or lacked adequate funds. Sergiovanni (as cited in ERIC Clearinghouse, 1981) suggested that teachers do not find their greatest satisfaction in merit pay programs but in intrinsic rewards such as a sense of achievement in reaching students or the recognition of their colleagues.

Deci (1971) and Meyer (1975) agreed with Sergiovanni's assessment of merit pay programs. They stated that not only are merit pay plans an inadequate means of motivating employees, but they may actually reduce motivation. Deci reported that merit pay plans could focus so much attention on money concerns that teachers lose sight of their original interest in teaching. He suggested that the focus of merit pay programs should be on the improvement of instruction. Johnson (1984), in agreement with Deci, Meyer, and Sergiovanni, indicated that merit pay is not an effective incentive for all employees, especially teachers. The National Commission on Excellence in Education defined merit pay as "performance-based" compensation that rewards superior teachers

(Uzzell, 1983, p.27). Incentive pay is used to describe a pay supplement that is awarded to teachers in addition to the regular salary.

According to Johnson (1984), entrepreneurial, achievement-oriented individuals seem to be attracted to organizations in which rewards are based on competency and performance. Teachers, according to Johnson, are diligent workers but are not entrepreneurial or achievement-oriented in a financial sense. They are generally conservative, seek the security of good salaries, and are more motivated by the content and process of their work than by the extra monetary compensation (Johnson, 1984).

The RAND Corporation's study (as cited in Rosenholtz & Smylie, 1984) of educational change and innovation indicated that teachers expressed little motivation to change unless there was strong appeal to their sense of professionalism. The RAND study clearly indicated that the study was not an argument against paying teachers more for better teaching. The report stated pointedly that research is not available to support the link between incentive pay and teaching performance.

Research on career ladder or merit pay indicates that monetary incentives seem to motivate some people. Cherrington, Reily, and Scott (1971) reported that there is an inherent relationship between work performance and satisfaction that is relative to reward. Participants in their study who were well rewarded expressed satisfaction, whereas participants who were poorly rewarded expressed dissatisfaction. Satisfaction was expressed by lower performers when they were rewarded, but they continuously performed at a lower rate of productivity. Employees who performed at a higher rate expressed dissatisfaction when poorly rewarded, and their performance substantially

declined. Productivity was significantly higher when rewards were related to performance.

In rewarding incentive pay, motivation should be assessed. Kopelman (1983) reported that the stronger the relationship between job performance and rewards, the higher the expectancy that the effort expended will lead to rewards. Moreover, the “law of effect” states that behaviors that are reinforced are more likely to be repeated, whereas behaviors that are punished are less likely to be repeated (Kopelman). This law’s implication for educators is that if a teacher receives incentive pay based on performance, he or she will more likely repeat the behavior that earned the incentive pay. In contrast, the teacher who did not receive the incentive pay based on performance will probably try to improve his or her performance to qualify for the incentive pay. Or, the incentive pay may have an adverse effect.

Andrew, Parks, Nelson, and the Phi Delta Kappa Commission on Teacher/Faculty Morale (1985) reported a high correlation between high teacher morale and student achievement. Hills, Manigan, & Dow (1987) argued that pay-for-performance or merit pay can be a powerful motivating tool when used effectively.

The relationships among student achievement, teacher motivation, and incentive pay were investigated in this study.

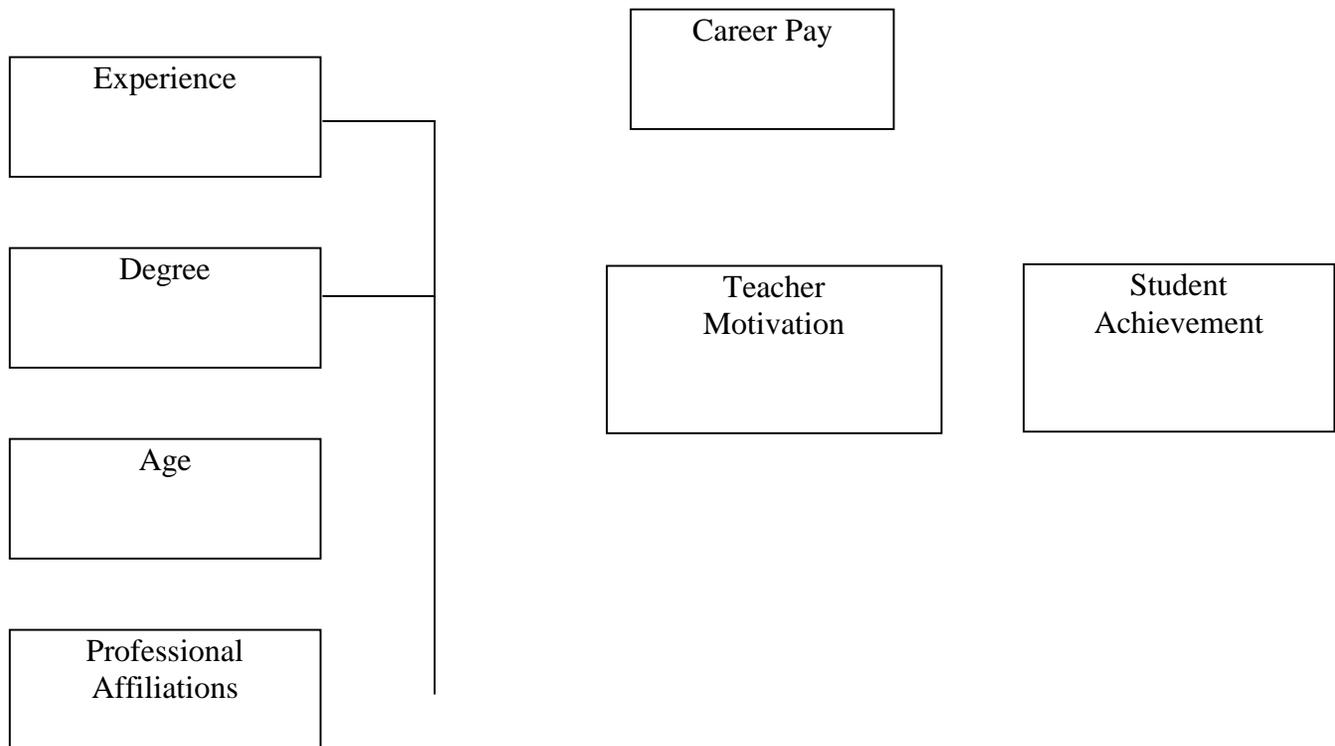
#### Statement of the Problem and Purpose of the Study

School boards of education are faced with annual increases in the demand for classroom teachers while the supply of new teachers is constantly decreasing. School

boards must demonstrate methods for attracting and retaining the most qualified teachers.

Incentive pay may be one method of accomplishing this task.

The purpose of this study was to answer the two research questions: (1) What are the relationships among the awarding of incentive pay, teacher motivation, and student achievement? and (2) Is incentive pay a factor in higher student achievement? A theoretical framework is presented in Figure 1.



## Significance of Study

The United States public schools will experience annual increases in the demand for classroom teachers. The school board and the school administration in the Southeastern U.S. school district in this study are concerned about the results achieved through the expenditure of school district funds to attract teachers. During 1999-2000 school year, the school board requested a review of all pay scales.

This study was designed to assess whether incentive pay produced desirable outcomes for the school system. If desirable results were not achieved, then the school system is incurring undesirable opportunity costs. The funds expended on the incentive pay plan could be used to achieve desired goals through other means. Incentive pay may be one way of helping to alleviate the coming shortage of teachers.

According Figure 1 Model of the relationships among variables in the study school districts will face a 2 - 2.5 million teacher shortage. Approximately 200,000 new teachers are needed annually and by 2001, teaching vacancies are expected to be 11,000 ("Teacher Shortage" 1999). As the number of new teachers graduating from teacher training programs is projected to decline, the teacher labor pool will decrease significantly. Incentive pay may be one way of attracting and keeping some of the best and brightest teachers.

Achievement scores for students preparing to teach are declining as compared to the population of teacher trainees 10 or more years ago (Rosenholtz & Smylie, 1984). Several different measures of academic ability were used to assess this decline including the Scholastic Aptitude Test (SAT), the American College Testing Program (ACT), high

school grade point averages, the Graduate Record Examination (GRE), and the National Teacher Examination (NTE). In essence, the average SAT scores of collegebound seniors who plan to major in education is far below the average for other collegebound seniors. General strong negative relationships have been reported between teacher academic ability and teacher retention (Schlechty, Vance, & Weaver, 1983). Of the teachers in the upper 10% of measured ability, only 37% remained in the education field after 6 years. Conversely, 63% of the teachers in the bottom 10% remained in the teaching field. Studies of teachers' intentions to remain in the teaching field indicate that larger numbers of the poorest teachers plan to stay in teaching and larger numbers of the best teachers plan to leave. Schlechty & Vance also (1983) reported that 26% of teachers in the upper 20% of measured ability intended to remain in the teaching field until age 30, whereas, 57% of the teachers with the lowest verbal ability intend to remain in teaching. These correlational studies are important because of the direct, strong relationship between measures of teachers' verbal ability and student learning outcomes (Rosenholtz & Smylie, 1984; Schlechty & Vance, 1983).

The relationship between classroom performance as evidenced by results on the California Achievement Tests in reading and mathematics was contrasted with the awarding of incentive pay. Specifically, the salary increase was assessed as to its relationship to student achievement scores. Moreover, boards of education and other stakeholders in education would benefit from the knowledge of whether or not career or incentive pay is operating as an extrinsic reward to teachers who receive the pay. Policy issues of attracting and retaining effective teachers, and the effectiveness of incentive pay

were identified as important factors. Specifically, this research study focused on an important aspect of incentive pay. What are the relationships among the awarding of incentive pay, teacher motivation, and student achievement? Is incentive pay a factor in higher student achievement?

### Limitations of the Study

There are two major limitations of this study. Due to fixed constraints of testing at the fourth grade level, and being able to control other variables, there was a need to confine the research to one elementary grade level within a school system. A school district in the Southeastern United States was selected to serve as the focus of this study. The second limitation is that the number of teachers involved in the study were only those teachers who received the incentive pay and a matched subset of teachers who did not.

### Definitions

For purpose of this study, the following definitions apply:

Achievement was defined as summary cognitive measure of what a student had learned as a result of many units or months of work (Guida, Ludlow, & Wilson, 1985). Gains in reading and mathematics scores on the California Achievement Test were used as the measures of achievement.

Incentive pay refers to the amount of compensation awarded teachers for completion of specific stipulated criteria (see Appendix A for a complete description).

Career teacher refers to a teacher with 10 or more years of service with the school division who is eligible for a career teacher supplement based on specific criteria (see Appendix E for a description of criteria).

Non-career teacher refers to a teacher who was not receiving the career teacher supplement with approximately the same number of years of teaching experience as the career teacher.

Motivation was defined as a process governing choices made by persons among alternative forms of voluntary activity. Motivated behavior is variable, constructive, and goal-directed (Vroom, 1982). Motivation had two components in this study: intrinsic and extrinsic motivation.

The Teacher Motivation Questionnaire was used to measure teacher intrinsic and extrinsic motivation. (McNeil, 1987; see Appendix C).

Number of professional affiliations referred to membership in professional organizations and the number of organizations for career and non-career teachers.

Highest degree earned was represented by bachelors, masters, specialist certificates, and doctoral degrees.

These variables were used to assess the relationship among incentive pay, teacher motivation, and student achievement (See Appendix C for these criteria).

## Organization of the Study

This report consists of five chapters. Chapter One contains the topic, the problem, the purpose, the significance, the limitations, and definitions of relevant terms used in this study. A review of literature is presented in Chapter Two; theories of work motivation as well as incentive, career ladder and merit pay literature are included. Chapter Three contains the research methodology; the population, design of the study, instrumentation, validity, reliability, data collection procedures, and statistical procedures are identified. An analysis and interpretation of the data are included in Chapter Four. The summary, conclusions, discussion, limitations, recommendations for practice, and recommendations for future research are presented in Chapter Five.

## CHAPTER 2

### REVIEW OF RELATED LITERATURE

The relationships among incentive pay, teacher motivation, and student achievement were examined in this study. This research focused on career incentive pay, implementation of career ladder or merit pay programs, and their effects on student achievement and teacher motivation. The relationship between teacher motivation and student achievement also was studied.

Three major areas are addressed in the literature review as they pertain to this study: (1) student achievement; (2) incentive pay in the form of career, career ladder or merit pay; and (3) work motivation.

#### Student Achievement

Bloom (1976) described the classroom alterable variables. Alterable variables are those classroom variables that can be changed in such a manner that student learning can be improved. Moreover, by altering the variables, learning conditions can be identified that enable virtually all students to learn at a high standard.

The first alterable variable Bloom reported as important when measuring achievement was time versus time-on-task. Time available for learning has been described as a time-on-task variable. Further, the amount of time the student has been actively engaged in the learning process has demonstrated quantitative as well as qualitative differences. If the instruction is poor, and students are unable to understand the lesson, they cannot actively engage in the learning process.

The next alterable variable that might affect student achievement is cognitive entry characteristics. These characteristics tend to be highly alterable because they are the specific knowledge abilities, or skills, that are necessary prerequisites for the learning task. These prerequisites correlate +.70 or higher with measures of achievement in a participant. Further, these prerequisites, when identified and measured, replace intelligence and aptitude tests in the prediction of later achievement. Therefore, according to Bloom, cognitive entry characteristics demonstrate a high correlation with achievement and have a causal effect on later achievement. Cognitive entry characteristics would be extremely important with sequential learning tasks, where the knowledge base for learning task B is determined by mastery of task A.

Bloom's next alterable variable in the classroom includes the use of formative testing. Achievement tests are used for summative purposes; the learning value of summative testing is limited. Limited learning takes place because the student is not given the opportunity to correct mistakes or learn from the summative testing procedure. Student scores on summative tests are converted to grades or other indexes that compare each student's scores with a set of norms. This alterable variable, if used for formative testing, would be an integral part of the formation of the learning process. When Bloom researched the effects of formative testing, he found that when formative tests and corrective procedures were used, the proportion of students reaching the mastery standard increases on each subsequent task until as high as 80% or 90% of the students are able to reach the mastery standard on the final learning task.

Formative tests ensure that most students have the necessary cognitive prerequisites for each new learning task. Consequently, students have increased interest in learning and greater confidence in their own ability to learn. Moreover, this formative testing procedure may be considered as an example of cybernetic feedback - corrective procedures. This periodic formative testing can be used to ensure that learning has taken place. Teacher developed tests, quizzes, and program tests are examples of formative tests.

Bloom's next classroom alterable variable consists of the teaching process and the teacher. The relationships between teacher characteristics and student learning have been represented by correlations of less than +. 20. However, Bloom (p. 24) suggested that perhaps researchers had not studied the correct teacher characteristics. Bloom's research indicated three characteristics of teaching that are alterable in the classroom - cues, reinforcement, and participation. *Cues* refer to the instruction as to what is to be learned. *Reinforcement* refers to the reward the student receives for his or her learning. *Reinforcement* is important because research relates student learning to the variety and frequency of reinforcement. *Participation* is the student actively engaging in the learning process.

Cues, reinforcement, and participation are important alterable learning variables because Bloom indicated that teacher interaction with students in the classroom reveals that teachers frequently direct their teaching and explanations to some students and ignore others. Students in the top third of the class are given the greatest teacher attention. Students in the bottom third of the class receive the least attention and support. This lack

of interaction with lower students is alterable and could serve to improve student achievement.

Parent status versus home environment process is Bloom's last reported alterable variable. Socio-economic status reveals correlations of +. 30 to +. 50 between measures of school achievement. Socio-economic status in itself is not alterable; however, this information is helpful in obtaining assistance for students who are considered at-risk. Researchers have attempted to alter home environments using home visitations, special courses for parents, and parent involvement in the schools as well as audio-visual and written materials that have been designed to assist in the child's development.

Bloom indicates that the classroom teacher can have a significant effect on student achievement, while other researchers indicated that the classroom teacher exerted very little influence. Evidence from Bloom's study should prove helpful information in identifying those alterable classroom variables that influence student achievement.

Achievement gains according to Sanford and Evertson (1983) are determined to a great degree by time-on-task and time allocated to learning. Students who spend more time on task tend to demonstrate more achievement gains than students who spend less time on task.

Travers (1972) examined the work of Harry and Margaret Maslow which work which emphasized the importance of external stimuli in the classroom. According to the Maslows, the classroom teacher must provide an adequate amount of external stimuli for students. An under stimulated classroom may contribute to discipline problems. They

further indicated that classroom lethargy, disciplinary problems, and lack of learning are caused by an insufficiency of stimuli.

Dyer (1973), retired vice-president of the Educational Testing Service, in his accountability report on the public schools, indicated that it is important for teachers to be accountable for student learning in concert with students' parents, the administration, staff, and fellow teachers. All of these constituencies, according to Dyer, share a joint responsibility for making sure student learning is at its highest level. Moreover, Dyer reported that for student learning, inputs consist of all the characteristics a student brings to the learning process such as his/her physical make-up, past learning, interest, values, feelings about him- or herself and others. The inputs are the initial student status. Outputs are the comparable attributes of the same student when he has completed a segment at a specific learning point. This, notes Dyer, is the student's final status for the time period and becomes the initial period for the next learning task. The educational process consists of all of the activities that take place between the student's initial status and his/her final status. The education process is all of those activities, either planned or unplanned, that aim to help the student learn. Conditions in the home, the community, and the school are all part of the student learning process.

Ross (1984) reported that using achievement test score information makes it possible to rate and to pay teachers on the basis of how well students learn. The use of test-score information can be used to rate and to pay teachers on the basis of how well students learn as opposed to tying compensation to the number of credits teachers accumulate. Ross recommended analyzing two or three years worth of class scores to

identify a trend. Moreover, teachers with outstanding test scores could be a helpful resource to teachers who consistently demonstrate low-test scores.

Rothstein (1997) suggested that student achievement is difficult to compare over time because of factors such as changes in curricula, student population changes, unreliable background data, and inconsistent test administration. These factors make the analyses of variables affecting student achievement problematic. Further, Rothstein asserted that objective measures of student achievement over a period of time are difficult to acquire. An example of the unreliability of standardized test scores is the fact that in 1976, white students were 67 percent of all SAT test takers and had an average score of 944. In 1995, white students were 63 percent of all test takers, and their average score was significantly unchanged at 946. Conversely, in 1976, African-American students were 6.5 percent of all test takers and scored an average of 686. In 1995, the average score was 744 with a test taker percentage of 9.7 percent. This 58-point increase is substantial. Rothstein reported that the increase may be due to improved socioeconomic circumstances of African-American students or improvement in the instruction of African-American students. A point made by Rothstein was that SAT scores are unreliable because so much about the characteristics of the test takers is unknown.

Sanders and Horn (1998) found that ethnicity, socioeconomic level, class size, and classroom heterogeneity were poor predictors of student academic growth. Effectiveness of the teacher was the major determinant of student academic progress. Teacher effectiveness was measured by a statewide testing program, which tests each student each year in several academic subjects with the application of a statistical approach that

enables a massive multivariate longitudinal analysis. Since an individual student's academic growth is followed over time, the student is his or her own "control." This method allows the removal of exogenous factors that influence achievement and that are consistently present with each student over time. The effects of teachers on student achievement were found to be both additive and cumulative. Sanders and Horn recommended a component linking teacher effectiveness to an effective evaluation system.

Sanders and Horn (1998) cited the study conducted by Sanders and Rivers (1996), who found that more African-American students than would be expected in their study were assigned to ineffective teachers. Student achievement, as measured by achievement tests, within both the White group and the African-American group were the same when they were assigned to effective teachers. In essence, African-American and White students made the same academic progress when assigned to teachers of comparable effectiveness. This information is important to understanding student achievement and student learning outcomes.

Guskey (1998) in his discussion of student achievement, noted that a learning outcome of the Kentucky's Education Reform Act is that all Kentucky students, not only affluent students, will learn. Schools with high percentages of students from low socio-economic strata need extra guidance and assistance, extra resources, and extra time. Guskey reported that the teachers in Kentucky are rising to the challenge by helping students of all backgrounds to learn. Guskey noted that the percentage of poor children attending a school could be used to predict initial results on statewide testing. However,

academic improvement cannot be predicted by socioeconomic status. In essence, Guskey asserts that socioeconomic status can serve as a baseline data point, but that increases in student achievement cannot and should not be predicted on the basis of student family income level.

Traina (1999) did a historical study of 125 prominent Americans to identify the characteristics of a good teacher. He found three characteristics that were described time and again: competence in the subject matter, deep caring about students and their success, and distinctive character. He emphasized the power of the combination of these attributes.

Covino and Iwanicki (1996) studied of the behaviors of effective, experience teachers, and identified the constructs of effective teaching. Berliner and Rosenshine (as cited in Covino & Iwanicki, 1996) found the following direct instructional variables that consistently related to student achievement:

Positive correlations were found when teachers gave directions about the task students were to engage in, focused on academics, covered more content, monitored to ascertain student engagement, asked lower level concrete questions, gave academic feedback, and operated classrooms with warm, friendly environments. (p.327).

Brooks 1985, Emmer et al. (1980), Evertson and Emmer (1982), Evertson et al. (1983), and Doyle (1986) (as cited in Colvino & Iwanicki, 1996) found that effective teachers give clear directions, establish rules, explain rules, quickly stop inappropriate behavior, and utilize activities that students can enjoy with a high rate of success. These findings are important in assessing an effective teacher for student achievement.

Teacher expectation is another important component of student achievement. The Rosenthal and Jacobson 1968 study demonstrated how students performed relative to

teacher expectations. Rist (as cited in Covino & Iwanicki, 1996) noted that higher- ability students, compared with lower-ability students, were called on more often by teachers, received more attention from teachers, and- were worked with more by teachers. This aspect of student achievement aspect is important because students achieve at higher levels when their teachers believe in their ability and when students are engaged in the learning process for longer periods of time.

Time-on-task and time to learn are important variables to assess student achievement. One of the earliest studies on learning-time was conducted by Joseph Rice in 1897. Rice's study involved time as the only independent variable. Specifically, his study looked at the effects of an extra 15 minutes per day for spelling instruction (see Anderson, 1984).

The amount of learning time is important to student achievement because students enter into the learning environment with varying degrees of knowledge. Therefore, when classroom learning time is fixed, some students will almost certainly learn at a high level, some at a moderate level, some at a low level, and some will not learn at all.

Anderson (1984) reported student achievement gains in one school that incorporated the time component of the Achievement Directed Leadership (ADL) program. This time component specifically focused on "student engaged time" - the amount of time students actually spend working on and trying to accomplish assigned academic tasks. Third and fourth grade students were tested with the Stanford Achievement Tests. Students made an average gain of 4 percentile points in reading (55<sup>th</sup> to 59<sup>th</sup> percentile) and 12 percentile points in mathematics (from 47<sup>th</sup> to 59<sup>th</sup> percentile).

The 12- point gain was statistically significant ( $t=3.58$  with 135 degrees of freedom,  $p<0.01$ ). The ADL program's time-on-task component consisted of incorporating three general areas of allocated time for student learning: (1) utilization of scheduled time, (2) reduction in the amount of non-academic time, and (3) reorganization of the time scheduled for academic work. Each of the three components had very specific tasks teachers were to follow with the goal of increasing learning time and subsequent academic achievement by students.

In a discussion of time-on-task and student achievement, Anderson makes the point that a 5 minute increase in the instructional day translates to 15 hours over 180 school days. Guskey (1998) recommended additional learning time for schools with high percentages of low socioeconomic students.

### Incentive Pay

Incentive pay has been used for a number of years as a motivational tool for educators. For example, in Douglas County, Colorado, principals can receive \$1,000-\$2,000 bonuses if they achieve goals of increases student achievement. In several other school districts including Columbus, Ohio; Charlotte-Mecklenburg, North Carolina; Indianapolis, Indiana; and Dallas, Texas, principals' salaries are tied to performance. In Houston, Texas, principals can earn up to a \$7,500 a year when they agree to sign an accountability contract regarding job performance. In Florida, a new state law encourages school districts to design performance-pay plans for principals and teachers. According to Allan Odden, head of the Consortium for Policy Research in Education, performance-based accountability is a current nationwide educational issue.

A 1998 survey by the National Association of Elementary School Principals (NAESP) indicated that approximately 15 percent of elementary school principals were working with incentive or performance-pay contracts. One-fifth reported that some portion of the performance pay was based on student achievement (Bushweller, 1999).

An early study of incentive pay plans by (Robinson, 1983) indicated that 239 school districts at one time had merit pay or incentive plans for teachers, but discarded the plans. The reason the plans were discarded and the percentages of schools that discarded them was reported as follows:

- Administrative problems (40%)
- Personnel problems (38%)
- Collective bargaining (18%)
- Financial problems (17%)
- Other problems (6%)

Robinson identified criteria for successful incentive pay plans, with over three-quarters of a century of cumulative information, as follows: Effective evaluation procedures, administratively workable school board and management commitment, staff involvement in program development, teacher satisfaction, adequate fiscal rewards available to all who qualify, plausible definition of superior performance, valid measures of results, and assessment measures objectively and consistently applied. Other research data also include the need for these criteria.

Hills et al. (1987) reported that pay-for-performance or merit pay can be a powerful motivating tool when used effectively. Moreover, government officials are promoting merit pay. In corporate America, merit pay is established in the majority of U.S. companies. This merit pay in government as well as in U.S. companies is used as a tool for improving productivity.

Lawler (as cited in Johnson, 1984), an expert on compensation and motivation, noted that incentive pay plans are effective in some types of businesses. For example, in piecework, an incentive plan would be effective because an employee's individual productivity can be compared by a count of items made or sold.

Mamman's (1997) study of 126 Australian employees found that manual employees are more likely to prefer performance-based pay systems than non-manual employees. Moreover, he found that preference for performance as a criterion for pay determination would vary with the nature of the job and that employees prefer multiple criteria to determine their pay. Farth, Griffin, and Balkin's study (as cited in Mamman, 1997) reported that high-ability employees tend to prefer performance-based pay systems more than do low-ability employees.

Incentive pay for teachers is reported in the literature in forms of career ladder pay, merit pay, and pay for performance (Hatry & Greiner, 1985). Each form will be discussed.

Merit pay plans for teachers are defined as formal processes in which a significant amount of a teacher's compensation is based on an explicit and substantive assessment of at least some aspect of teacher performance on at least an annual basis (Hatry & Greiner).

Inman (as cited in H.C. Johnson, 1985) described merit pay as a system that rewards exemplary teaching with either a bonus or an increase in annual salary.

Iman described career ladder systems as levels of teachers from apprentice teacher through several intermediate steps to the highest level of master teacher. Hartly & Greiner (1985) described career ladder/master teacher/differentiated staff incentive terms as those that are applied to plans in which new positions are established which may include training other teachers. Extra pay for additional duties and responsibilities are also characteristic of career ladder master teacher plans.

In pay-for-performance or performance-by-objectives plans teachers and their supervisors jointly set annual objectives. This process can be used as a motivational tool and does not have to be used with compensation (Hatry & Greiner 1985).

Teacher incentive pay plans have been influenced by politics at the national, state, and local levels. Merit pay was a political initiative to attract and keep the highest quality teachers in the public schools. A Merit Pay Task Force of the 98<sup>th</sup> Congress, 1<sup>st</sup> session was appointed and presented Report No. 98, 1983. Superintendents, boards of education, teachers, parents, administrators, city and county officials, students, teacher unions and associations, business communities and citizens as taxpayers, influence the politics of local incentive plans.

The Lebanon, Connecticut, merit pay plan was an interesting plan that lasted from 1977-1980. It was both controversial and short-lived. Lebanon public schools had approximately 1,200 students and eighty teachers. In the first year of the plan, bonuses ranged from \$100-\$500. Approximately 70 percent of the total staff qualified for merit

pay increases. For the last two years of the plan, the maximum was \$900. Initially the plan was supported by the teachers and the community. Prior to the implementation, the teachers' union leadership was elected in part because they opposed the merit pay plan. The new union leadership did not allow teachers to participate in the development of the plan.

The Lebanon merit pay plan awards were meant to stay confidential, but community members found out which teachers received merit pay increases and requested their children be placed in these teachers' classes. This caused much dissension among teachers who felt that there was a lack of objectivity in the evaluation process. The elementary school teachers felt they should have larger increases because they felt they were providing the educational foundation for students' future achievement.

The Lebanon Public Schools' merit pay plan ended after three years with much teacher dissension and demoralization, though the superintendent felt the plan was effective for student achievement; however, it was never formally evaluated (Hatry & Greiner).

Hoerr (1998) noted that good teachers are currently underpaid and thought an incentive pay system would help pay for better performance. Further, he reported that society would probably support increased funding for a system that rewarded quality teaching. He cautioned public schools to learn from private schools that had merit pay plans in place. Where merit-based systems were in place in private schools, a high sense of trust existed between teachers and principals. Teachers must feel a sense of trust that

principals will not demonstrate favoritism, recrimination, or politics in making decisions about remuneration or rehiring.

Confidentiality is another important variable of merit pay that Hoerr viewed as important to a successful merit pay system. He also discussed the possibility of collaboration among schools with only one administrator, affording administrators the opportunity to compare teacher evaluations (Hoerr, 1998).

Merit pay programs, as seen by Hoerr (1998), would require principals to be true “instructional leaders” of their schools. They would need to be very knowledgeable about learning that does or does not take place in classrooms, engaging in dialogue with teachers about quality teaching and how it is measured (Hoerr, 1998).

Meier (1998) discussed principals as instructional leaders and noted that not all principals have the time or knowledge to be instructional leaders for their buildings. This situation, she suggested, could be addressed by letting others in the school community take the lead. Accountability to community members and stakeholders is of the utmost importance.

Sanders and Horn (1998) reported on the first career ladder program for teachers in Tennessee as part of the 1984 Comprehensive Education Reform Act initiated by then Governor Lamar Alexander. This was performance- based and tied to student achievement. In 1997, the career ladder program was stopped with no new career ladder status teachers added.

Incentive pay plans usually reward individuals as opposed to instructional groups or organizations. Jacobson (as cited in Tomlinson, 1992) reported that group incentives are

intended to reduce teacher competition, a factor that is often cited as a detriment to school improvement.

In the future, group or organizational incentive pay plans may be more effective. In the private sector, in a 1992 study of variable pay and recognition programs, the Conference Board's research report indicated that organization-wide incentive plans grew from 13 percent in 1990 to 33 percent in 1992. This increase was the largest growth of all of the variable pay and recognition programs in the study. Individual incentive plans decreased from 35 percent in 1990 to 25 percent in 1992 (Peck & Parkinson, 1995).

### Work Motivation

Russell (1971) defined motivation with three characteristics: (1) it is a presumed internal force, (2) it energizes for action, and (3) it determines the direction of that action. Intrinsic reinforcers are essential cues inherent in the learning process and are not extraneous ingredients imposed from outside. Extrinsic reinforcers are tangible or intangible, not a part of the internal learning process, and are imposed from the outside.

Herzberg, Mausner, and Snyderman (1959) offered suggestions based on their studies of work motivation among employees: They recommended (1) that jobs be structured to maximize workers' ability to achieve meaningfully job related goals, and (2) that the accumulation of achievement lead to a feeling of personal growth in the individual, accompanied by a sense of increasing responsibility.

Jacobson (as cited in Tomlinson, 1992, p.50) noted that the central premise of performance-related pay -- that reward can effectively motivate teachers to improve their performance -- is based on the assumption that teachers are primarily motivated by

money. Herzberg identified a two-factor approach for understanding employee motivation. First, he divides employee behaviors into two categories—motivation and hygiene factors. Herzberg defines motivators as those factors that stimulate psychological growth. Motivators in this intrinsic category include achievement, recognition, responsibility, and advancement and work itself. In contrast, hygiene factors are rewards extrinsic to the content of work. Herzberg asserted that improving hygiene factors, such as salary, may help to reduce job dissatisfaction, but he contended that because these factors do not promote psychological growth, they will have little effect on increasing teachers' efforts. Further he stated that pay incentives may prevent job dissatisfaction, but cannot be used to improve performance. In reference to teacher performance, Herzberg's work indicated that intrinsic rewards are more effective than salary levels in improving teacher performance. (Jacobsen, - as cited in Tomlinson, 1992).

Lawler, (1973) described Maslow's motivation theories as "intrinsic motivation" when people work to obtain outcomes such a feelings of growth. "Extrinsic motivation" is related to rewards such as food and water. Further, he stated that motivation based on growth needs does not decrease as the needs become satisfied. He asserted that as people experience growth and self-actualization they simply want more.

Natriello (as cited in H. C. Johnson, 1985) reported that in an evaluation system that rewards of teaching performance, a source of motivation would have to be present such as professional satisfaction in a job well done —(intrinsic motivation)-- or the receipt of merit pay—(extrinsic motivation). He described Lawler's model of extrinsic teacher motivation (see Figure 2).

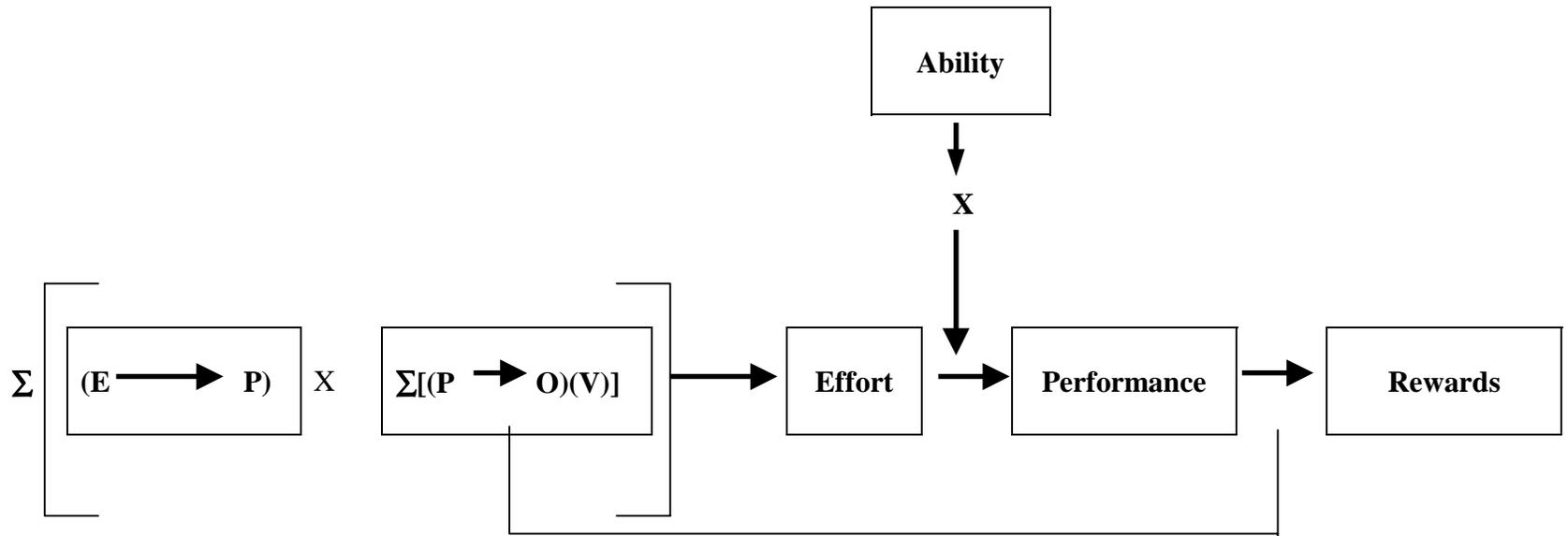


Figure 2 Extrinsic Teacher Motivation Model (Lawler, 1976).

In Figure 2, an individual's motivation to perform a certain task is the result of his or her subjective probability that effort on his or her part will lead to successful performance (E-P), multiplied by the product of his probability that performance will lead to an outcome (P-O) and the value of that outcome to the individual (V). The sum can then be used to predict the effort that a person will devote to a task. Effort is combined with the ability to produce a certain level of performance, which in turn leads to a reward.

Figure 3 illustrates a model of intrinsic motivation. First, the model shows how the intrinsic motivation model differs from the extrinsic motivation model in that the subjective probability of effort leading to successful performance is depicted as influencing the subjective probability that performance will lead to an outcome. Secondly, the connection between performance and rewards is shown as more direct than in the extrinsic model. This more direct connection is due to the fact that employees may give themselves intrinsic rewards (Natriello, as cited in Johnson).

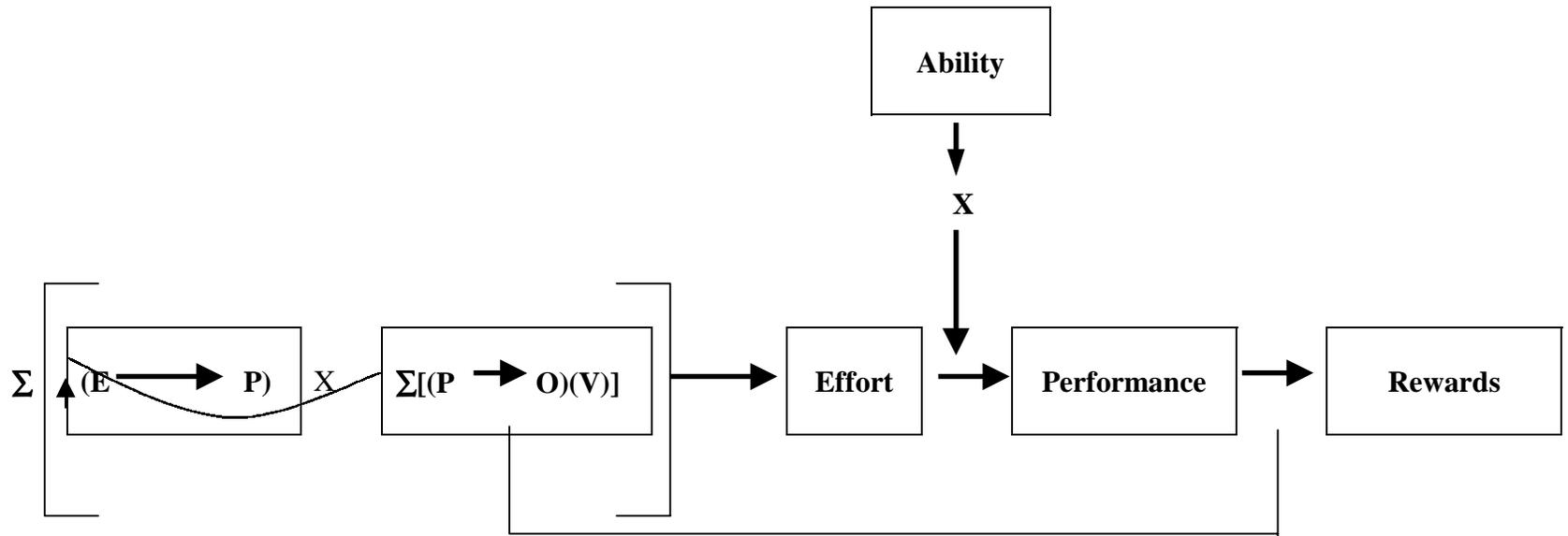


Figure 3 Extrinsic Teacher Motivation Model (Lawler, 1976).

## Summary

Given the findings in this review of the literature, this study examined the relationships among awarding incentive pay, teacher motivation, and student achievement. Specific teacher behaviors that lead to increased student achievement have been identified in the literature. Moreover, motivational variables that potentially have an effect on intrinsic and extrinsic motivation have been identified. This study attempted to identify the extent to which student achievement is either increased or not effected by incentive pay.

## CHAPTER 3

### METHODOLOGY

This chapter describes the population, sampling procedure, and instrumentation used in this study. Reliability and validity of the survey instrument are also discussed.

#### Population and Samples

The populations for this study were 4th grade level teachers who received career teacher pay and 4th grade teachers who did not receive career pay in a U.S. Southeastern school district. At the time of the study, there were approximately 188 4th grade teachers. Of those 188, approximately 40 (21%) received career pay. Schools with a 4<sup>th</sup> grade teacher who received career pay, and a 4<sup>th</sup> grade teacher who did not receive career pay, but had approximately the same number of years of teaching experience, were asked to participate in the study. Nineteen schools agreed to participate in the study. The samples for this study were 19 career and 19 non-career teachers with 10 students per teacher.

The student population in classes with teachers who received career pay was approximately 475. The population for students of teachers who did not receive career pay was also approximately 475 students.

Systematic sampling was used to obtain students for the study. Students were selected from alphabetized class lists. Every other student was selected to participate in the study until a sample of 10 students from each class was selected.

The 4th grade level was selected for the study because the SRA Achievement Test and later the IOWA tests were administered to all 4th grade students as required by state

testing requirements. The IOWA Test and CAT Achievement Test afforded the possibility of using the SRA I.Q. scores if mental ability became a factor.

### Design of the Study

A pre-test-post-test quasi-experimental design was used to conduct this study (Campbell and Stanley, 1963). Two groups were used. Group 1 was composed of teachers receiving career pay; group 2 was composed of teachers not receiving career pay. Other independent variables were teacher age, number of years teaching, highest degree earned, number of professional organizations, extrinsic motivation, and intrinsic motivation.

### Instrumentation

To measure student achievement gains, the California Achievement Test was administered to 4th grade students in January as a pre-test and again in May as a post-test. The California Achievement Test was chosen because it is curriculum referenced and provides a valid measurement of academic basic skills. Moreover, this test was designed for the evaluation and measurement of school achievement.

The Teacher Motivation Questionnaire was used to obtain information regarding teacher motivation and was administered to the two groups of teachers. The questionnaire was developed using intrinsic and extrinsic factors as motivators. Frederick Herzberg's motivation-hygiene theory was used as a theoretical basis and a 5-point Likert scale was used to record the responses. Construction and structure of the Teacher Motivation Questionnaire was developed and focused on the motivation and hygiene factors proposed by Herzberg. The intrinsic factors contain the following: (1) achievement, (2)

recognition, (3) work itself, (4) responsibility, (5) advancement, and (6) possibility of growth. Intrinsic factors tended to make tasks more interesting, enjoyable and psychologically rewarding. Herzberg identified motivational factors as intrinsic. Herzberg associated hygiene factors and factors with the context or setting of the organization as extrinsic, factors such as: (1) policies of the organization, (2) administration, (3) technical supervision, (4) salary, (5) working condition, (6) status, (7) job security, (8) effects on personal life, (9) interpersonal relations with supervisors, peers and subordinates.

The original questionnaire consisted of eighty-eight items that focused on motivation and hygiene factors. Six areas represented intrinsic motivation and seven areas represented extrinsic motivation on the questionnaire. The questionnaire for this study was modified from eighty-eight questions to sixty-one questions to reflect those that were not worded dichotomously. Three open-ended questions were added to obtain information on the advantages, disadvantages, and possible improvements of the incentive program. In the demographic section of the questionnaire, two additional questions were added regarding verbal ability on the SAT and GRE to assess any relationship that may exist between student achievement and the verbal ability of teachers.

### Validity

Validity of the Teacher Motivation Questionnaire consisted of a review panel of two college professors, two psychologists, two public school administrators, and four classroom teachers. This review panel made minor suggestions for improvement. Subsequently, the instrument was changed, and all thirteen content areas were thought to

reflect motivational factors described in the literature.

### Reliability

Reliability of the Teacher Motivation Questionnaire was determined by using the Spearman Rank Order Reliability Test. Which resulted in a reliability coefficient of  $+ .80$ . A summary for the original questionnaire can be found in Appendix A. Appendix B contains a summary of the application of the Spearman Rank Order Reliability Test to the study questionnaire. Homogeneity of the Teacher Motivation Questionnaire was determined by using Cronbach's coefficient Alpha from SPSSx. According to Borg and Gall (1983) Cronbach's coefficient Alpha can be used when items are not scored dichotomously.

Since reliability in educational measurement is defined as the level of internal consistency or stability of the measuring device over time, the Teacher Motivation Instrument was field tested in November and again in April in order to determine internal consistency. Thirty-four participants were used in assessing the Teacher Motivation Questionnaire.

The Teacher Motivation Questionnaire was used to measure the amount of intrinsic and extrinsic motivation of teachers who received career pay and those who did not receive career pay. High extrinsic scores would indicate that the teacher is motivated by factors provided by the organization. Piamonte (1979) described extrinsic rewards as events or conditions, that are not natural and are the inevitable consequences of certain types of behavior. High intrinsic motivation scores would indicate that the teacher is motivated by feelings of gratification of contributing to the school district, helping

students or meeting personal goals. According to Piamonte, the organization or school system has little direct control over the intrinsic rewards.

### Data Collection Procedure

Prior to administering the questionnaire to the teacher groups, permission was obtained by the school division. Principals granted permission for the teachers to participate in the study.

Teachers not receiving career pay were the control group. The instrument was administered to all fourth grade teachers in the school system who receive career pay where there was a teacher in the building with approximately the same number of years of experience who did not receive career, provided the principal agreed to let the teachers and students participate in the study.

Surveys were administered to career and non-career teachers in order to assess their intrinsic and extrinsic motivational levels. The response rate return was an 89 percent return rate. An incentive of a teacher supply store coupon was placed in each teacher's envelope with the intrinsic and extrinsic motivational surveys.

The demographic information for this study was obtained from the 13 items of Part I of the Teacher Motivation Questionnaire, which is included in Appendix C. Questions regarding advantages, disadvantages, and improvements to the career teacher program were added to the survey to obtain additional information for future implementation.

Approval was obtained from the Director of Research of this southeastern school division to administer pre- and post-California Achievement tests. The California Achievement Tests served as the dependent variable. The results of the California Achievement Tests were used to measure achievement in reading and mathematics.

Statistical Procedures Regression Analysis was used to determine the amount of variance

in student's achievement gain scores accounted for by independent variables. This method assists in studying the effects of independent variables on the dependent variables by using regression and correlation principles.

The independent variables included in the analysis were:

1. Age of the teacher;
2. Number of years teaching;
3. Highest degree earned;
4. Number of professional organizations;
5. Extrinsic motivation; and
6. Intrinsic motivation.

Each variable was entered into a regression analysis in order to determine its effect on the posttest scores in reading and mathematics. According to Borg and Gall (1983) the basic form of data analysis in a prediction study consists of correlating each predictor variable with each criterion. The purpose of the Regression Analysis was to determine the effectiveness of the independent variable in assessing the variance in the dependent variables.

## CHAPTER 4

### ANALYSIS AND INTERPRETATION OF THE DATA

The primary purpose of this study was to investigate the relationships between the awarding of incentive pay and student achievement. A second purpose was to determine whether teachers receiving incentive pay are more intrinsically and extrinsically motivated than teachers not receiving incentive pay. Data were collected on the following additional variables to determine the extent to which they, individually and as a group, along with the motivation and incentive pay variables, explain the variance in student reading and mathematics gain scores.

1. Age of the teacher
2. Number of years of teaching experience
3. Highest degree earned
4. Number of professional organizations

Statistical analysis of the data is arranged in four sections. The first section is a description of the two samples. The second section is an analysis of motivational differences for career and non-career teachers. The third section is a comparison of the reading and mathematics achievement of the students of career and non-career fourth-grade teachers. A fourth section contains the results of an exploratory regression analysis.

### Description of Career and Non-career Teachers

Thirty-eight teachers participated in the study, 19 career teachers and 19 non-career teachers. Descriptive data for the two groups of teachers are in Table I. All were fourth-grade teachers in a large city school division in southeastern Virginia. Career teachers were older than non-career teachers. Sixty-eight percent of the teachers in the career category were 40 years old or older whereas only 37% of the non-career teachers were 40 years old or older.

Table 1

Distribution of Career and Non-career Teachers Groups by Age, Gender, Number of Years Teaching, Highest Degree Earned, Number of Professional Organizations, Extrinsic Motivation, and Intrinsic Motivation

Age

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Less than 30 years	0	0	1	5
30-39 years	3	16	8	42
40-49 years	9	47	5	26
More than 50 years	4	21	2	11
Missing	3	16	3	16
Total	19	100	19	100

Gender

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Male	1	5	2	11
Female	15	79	16	84
Missing	3	16	1	5
Total	19	100	19	100

Number of years teaching in the school system

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Less than 10 years	1	5	6	32
10-20 years	13	68	7	37
More than 20 years	2	11	1	5
Missing	3	16	5	26
Total	19	100	19	100

Highest degree earned

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Bachelor	9	47	10	53
Master's	6	32	7	37
Specialist	0	0	1	5
Doctorate	1	5	0	0
Missing	3	16	1	5
Total	19	100	19	100

Membership in Professional Organizations

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>Total Memberships</u>	<u>N</u>	<u>Total Memberships</u>
Memberships	16	59	17	60
Missing	3		2	
Total	19	59	19	60

Enrollment of respondent schools

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
200-400	0	0	0	0
401-600	1	5	0	0
601-800	8	42	9	47
801-1,000	5	26	4	21
1,001-1,500	2	11	2	11
more than 1,500	0	0	1	5
Missing	3	16	3	16
Total	19	100	19	100

Attending graduate courses regularly

Variable	Career teachers		Non-career teachers	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Yes	9	47	6	32
No	7	37	10	53
Missing	3	16	3	16

Both career and non-career groups were comprised primarily of females. There were two males in the non-career group and one male in the career group. Because of the small number of males, gender was not used in the analysis of data.

Career teachers had more years of teaching experience in the school system than non-career teachers. Seventy-nine percent of career teachers had 10 or more years of teaching experience in the school system as compared to only 42% of non-career teachers.

Thirty-two percent of career teachers have master's degrees, and thirty-seven percent of non-career teachers have master's degrees. One teacher, in the non-career teacher category, obtained a specialist certification. One teacher in the career category obtained a doctorate. The education levels in both areas are only slightly different.

Career and non-career teachers reported very little difference in affiliation with professional organizations. Sixteen career and seventeen non-career teachers reported that they belonged to a professional organization. Career teachers belonged to fifty-nine professional organizations; non-career teachers belonged to sixty organizations. Three career and 2 non-career teachers did not report belonging to professional organizations.

Student enrollment of respondents' schools indicated sixty-eight percent of both career and non-career teachers reported student enrollments of 601-1,000 students. In both the career and non-career groups, two teachers from each group reported enrollments of 1,001-1,500. Enrollment was not an important factor in this study.

Seven of the career and ten of the non-career teachers reported that they did not enroll in graduate courses regularly. Nine career, and six non-career teachers reported regularly attending graduate courses.

### Motivational Differences of Career and Non-Career Teachers

Motivation was measured with McNeil's (1987) "Attitude Toward Teaching Survey." It was developed to measure the attitudes toward teaching of public school teachers by looking at both intrinsic and extrinsic motivation. Herzberg's motivation-hygiene theory identified the need to avoid pain and the need for psychological growth as two basic needs of individuals. In the work environment, Herzberg identified feelings of satisfaction and motivation to invest effort in the work as psychological needs. He identified aspects of the job that produce pain avoidance as hygiene factors. Moreover, he identified motivational factors as intrinsic and hygiene factors as extrinsic factors.

### The Intrinsic and Extrinsic Motivational Scales

The items in the intrinsic motivation scale are displayed in Table 2. Cronbach's alpha was calculated as a measure of internal consistency of the items. With 16 items, the alpha was .4318. A decision was made to try to increase the alpha by eliminating several items. The remaining items (36a, 24a, 51a, 37a, 27a, 40a, 18a, 29a, and 28a) produced the highest alpha (.61). These nine items served as the measure of intrinsic motivation (see Table 2).

Items in the extrinsic motivation scale are in Table 3. Cronbach's alpha also was calculated as a measure on internal consistency of extrinsic items. With 9 items the alpha was .4184. Again, in order to increase the alpha, several items were eliminated. The

remaining four items (14a, 19a, 57a, and 23a) produced the highest alpha (.59). These four items served as the measure of extrinsic motivation (see Table 3).

Table 2

Items in the Measure of Intrinsic Motivation

<b>Item Number</b>	<b>Item</b>
36a	I can be depended upon to do a good job.
55	I am personally responsible for part of the education of every student I teach.
35	Teaching is usually challenging.
24a	One of the best things about teaching is seeing the students learn.
16	I set goals for myself and achieve them.
51a	I like to spend a lot of energy to make my classes interesting.
37a	I would like my students to learn more.
53	Teaching is an important job.
34	My attitude toward work is to work only as hard as I have to.
38	My students think I am a good teacher.
27a	I set tougher standards for myself than my principal sets for me.
58	My principal values my educational opinion.
40a	My peers respect my work.
18a	I spend some of my free time on a regular basis for self-improvement for teaching by reading professional articles, attending workshops and meeting.
29a	Participating in opportunities for professional growth is important to me.
28a	My co-workers think I am a good teacher.

Note: Adapted from McNeil (1987).

a Items in the final scale used for data analysis

The items in the extrinsic motivation scale are in Table 3.

Table 3

Items in the Measure of Extrinsic Motivation

<b>Item Number</b>	<b>Item</b>
39	The policies of my school system allow me to do my job effectively.
14a	The principals for whom I have taught appreciated the effort I invested in teaching.
19a	I have the support of the entire staff in doing my work.
31	My job as a teacher requires too much of my time after the close of the regular school day.
57a	Positive aspects about teaching outweigh the negative aspects.
22	My student load is reasonable.
23a	I think teachers should be paid on experience.
26	My salary is reasonable for the amount of work I do.
43	I am satisfied with my salary.

Note: Adapted from McNeil (1987)

a Items in the initial scale used for data analysis

Motivational differences of career and non-career teachers were assessed using t-tests to address two research questions: (1) Are career teachers more intrinsically motivated than non-career teachers? (2) Are career teachers more extrinsically motivated than non-career teachers? Data for the analyses are in Table 4.

The results of the analyses indicate that there are no significance differences in the intrinsic and extrinsic motivation of career and non-career teachers. This is the same finding as the McNeil study in 1987. The reward of incentive pay did not demonstrate a difference in motivational levels of the two groups.

Table 4

Comparison of Intrinsic and Extrinsic Motivation of Career and Non-career Teachers

Variable	Career teachers			Non-career teachers			
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	<u>t</u>
Intrinsic motivation	17	4.42	.26	16	4.51	.31	-.89
Extrinsic motivation	17	4.04	.43	16	4.20	.51	-.97

## Differences in reading and mathematics Achievement of Students of Career and Non-career

### Teachers

Reading and mathematics achievement were measured as gain scores between January and May on the California Achievement Test. The gains in total reading and total mathematics scores were compared for the students of career and non-career teachers using t-tests (see Table 5). Reading and mathematics gain scores for students of career teachers did not differ from reading and mathematics gain scores for students of non-career teachers.

Table 5

Comparison of Gains Total Reading and Total Mathematics Scores on the California  
Achievement Test for Students of Career and Non-Career Teachers

<b>Variable</b>	<b>Career teachers</b>			<b>Non-career teachers</b>			
<b><u>Teachers</u></b>	<b><u>N</u></b>	<b><u>M</u></b>	<b><u>SD</u></b>	<b><u>N</u></b>	<b><u>M</u></b>	<b><u>SD</u></b>	<b><u>t</u></b>
Dependent variables							
Reading gain score	16	12.18	16.91	15	5.88	24.81	.83
Mathematics gain score	16	28.14	16.87	15	19.96	15.71	1.39

## Prediction of Reading and Mathematics Gain Scores From Selected Teacher

### Variables

Although the number of subjects was small (n=38) an exploratory regression analysis was performed to see if any of the seven teacher variables alone or in combination were useful in predicting the gain scores of students in reading and mathematics (see Tables 6 and 7).

The variables were:

1. Career Pay
2. Age of the teacher
3. Number of years of teaching experience
5. Highest degree earned
6. Number of professional organizations
7. Extrinsic motivation
8. Intrinsic motivation

Although student gain scores in reading and mathematics were higher in career teachers' classrooms, none of the independent variables proved to be by itself, or in combination with other variables, significant predictors of reading or mathematics gain scores.

Table 6

Statistics for the Regression of Reading Gain Scores on Seven Teacher Variables

<b>Variables</b>	<b><u>B</u></b>	<b><u>SE</u></b>	<b><u>Beta</u></b>	<b><u>t</u></b>
Constant	-6.84	62.35		-.11
Career Pay/Non Career Pay	-1.96	3.47	-.13	-.56
Age of the teacher	-.25	2.89	-.02	-.09
Number of years teaching experience	3.42	3.78	.18	.91
Number of professional affiliations	14.97	22.75	.13	.66
Highest degree earned	-.82	5.58	-.03	-.15
Extrinsic motivation	9.68	6.82	.27	1.42
Intrinsic motivation	-8.43	10.7	-.16	-.78

Table 7

Statistics for the Regression of Mathematics Gain Scores on Seven Teacher Variables

<b>Variables entered</b>	<b><u>b</u></b>	<b><u>SE</u></b>	<b><u>Beta</u></b>	<b><u>t</u></b>
Constant	10.56	52.23		.202
Career Pay/Non-career	-2.07	2.91	-.18	-.71
Age of the teacher	3.11	2.89	-.02	-.09
Number of years of teaching experience	3.42	2.42	.18	.91
Number of professional affiliations	14.97	22.75	.33	1.29
Highest degree earned	1.46	4.67	.06	.31
Extrinsic motivation	-.27	5.71	-.01	-.05
Intrinsic motivation	1.69	9.04	.04	.19

In an assessment of the effectiveness of the incentive program in this Southeastern school division, career teachers reported increased salaries, personal accomplishment, extra compensation, professional growth, status enhancement, increased self-esteem, extra compensation, and recognition as advantages to the career incentive program. Eighty-one percent of career teachers reported compensation as an advantage of the career

teacher program. Fifty percent of career teachers reported personal accomplishment as an advantage of the career teacher program.

Non-career teachers reported the main advantage of the career teacher supplement to be the compensation for career teacher status. Sixty-nine percent of non-career teachers cited compensation as the main advantage of the career teacher supplement. Only 8% of the non-career teachers reported personal accomplishment, recognition, and professional growth as important factors of the career teacher supplement. In a combined analysis of career and non-career teachers, both groups identified compensation as the primary advantage of the career teacher supplement.

Career teachers reported disadvantages of the career teacher program as activities unrelated to teaching, short reapplication time, high expectations of the program, decreased classroom involvement, and lack of reliable and valid measures of teaching satisfaction and effectiveness. Thirty-one percent of career teachers reported activities unrelated to teaching as a disadvantage. Thirty-one percent of career teachers reported no disadvantages of the career teacher program.

Non-career teachers named as disadvantages to the career teacher program the lack of inclusion of previous teaching experience credit as criteria for the supplement, additional work requirements, less classroom time, too many extracurricular activities required, and too much time spent on activities for the supplement. Twenty-three percent of non-career teachers reported too many activities as the major disadvantage to the career teacher supplement.

Activities unrelated to teaching, lack of recognition, and no disadvantages were

areas reported by career and non-career teachers as disadvantages of the career teacher supplement. Twenty-four percent of career and non-career teachers reported no disadvantages of the career teacher supplement. Twenty-one percent reported activities unrelated to teaching as a disadvantage of the career teacher program.

Career teachers reported that the following improvements to the system should be made: (1) increased compensation, (2) provide criteria relating to teaching, (3) more job opportunities, (4) lengthen the renewal period, and (5) more recognition. Nineteen percent of career teachers cited both increased compensation and the need for criteria relating to teaching as the most important methods to improve the career teacher program.

Non-career teachers noted the following improvements needed for the career teacher program: (1) provide criteria related to teaching, and (2) allow all teaching experience to qualify. Forty-six percent of the non-career teachers reported that providing criteria related to teaching is a recommendation to improve the career teacher supplement. Thirty-one percent of the non-career teachers reported that all teaching experience should qualify for the career teacher program. Both career and non-career teachers cited the most improvement needed for the career teacher program is to provide criteria related to teaching. Thirty-one percent of career and non-career teachers reported that criteria related to teaching should be a part of the career teacher program.

Table 8: Career Pay Teachers

Raw Data Matrix: Respondents by Advantages, Disadvantages, and Needs Improvement on the Career Teacher Program

<b>Respondents</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Improvements</b>
1.	Salary Increase Personal Accomplishment	*	More Recognition More first Time approvals
2	Extra Compensation Advancement	Not enough jobs to meet criteria	Ensure enough job opportunities Limit career positions to two years
3	Reward, something to work for, supplement	*	Supplement increased, renewed every five years
4	Salary increase	*	*
5	*	*	*
6	*	*	*
7	Supplemental income, enhanced resume	*	Increase supplement in relation to activities
8	Increased money, status	Activities unrelated to teaching	Provide criteria related to teaching
9	Professional growth, monetary compensation	Difficult to obtain if not a classroom teacher	*
10	Self-esteem, increased salary, compensation for extra time efforts	Short reapplication time	Make reapplication time five years
11	Increased compensation	High expectations	Opportunities to participate in career activities
12	Salary supplement	Lack of recognition, activities unrelated teaching	Larger supplement, variety of career activities

13	*	*	*
14	Increased professional development opportunities	Decreased classroom involvement	*
15	Compensation	*	Terminate program
16	Professional growth	Unpopular with some	Expand to include teacher activities
17	Compensation respect	Extra curricular activities from the classroom	Let teachers decide to participate without administrative pressure
18	Recognition	Lack of measurement of teaching satisfaction and effectiveness	Need measurement for teacher effectiveness
19	Supplement	*	More recruitment from site administrators

\* - no response

Table 9: Non-Career Pay Teachers

Raw Data Matrix: Respondents by Advantages, Disadvantages, and Needs Improvement on the Career Teacher Program

<b>Respondents</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Improvements</b>
1	Compensation, Accomplishment	Too many activities	Provide criteria in advance
2	Not sure	Lack of previous teaching experience credit from another system	Allow all teaching experience to qualify
3	Will apply in the future	*	*
4	Compensation	Additional work	Assess classroom activities as well as extracurricular activities
5	Opportunity for staff development	Less classroom time	Reward for student activities as opposed to committees and extracurricular activities
6	Recognition and compensation	No additional recognition	Allow all teaching experience to qualify
7		only certain years of service count	Consider the entire teaching career
8	Compensation	Disagree with compensation for extracurricular activities	Lack of support of the program
9	*	*	*
10	*	*	*
11	Compensation	Too many extracurricular activities	Emphasis on teaching ability as opposed to extracurricular activities

12	Compensation	*	Increase supplement, more opportunities at site level to qualify
13	Compensation	Too much time spent on career activities	Unfair method to measurer Teaching ability
14	*	*	*
15	*	*	*
16	Compensation	*	Emphasis on teaching ability as opposed to extracurricular activities
17	*	*	Extra paper work lack of emphasis on teaching
18	Compensation	*	Should be less than 10 years of experience as a requirement, compensation should come earlier
19	*	*	*

\* - no response

## THEMES

### Advantages

#### A. Career teachers

1. Compensation  $13/16 = 81\%$
2. Personal accomplishment  $8/16 = 50\%$
3. Recognition  $2/16 = 13\%$
4. Professional growth  $3/16 = 9\%$

#### B. Non-career teachers

1. Compensation  $9/13 = 69\%$
2. Personal accomplishment  $1/13 = 8\%$
3. Recognition  $1/13 = 8\%$
4. Professional growth  $1/13 = 8\%$

#### C. Combined Summary

1. Compensation  $22/29 = 76\%$
2. Professional growth  $4/29 = 14\%$
3. Recognition  $3/29 = 10\%$
4. Personal accomplishment  $9/29 = 3\%$

### Disadvantages

#### A. Career teachers

1. Activities unrelated to teaching  $5/16 = 31\%$
2. No disadvantages  $5/16 = 31\%$
3. Unpopular  $2/16 = 13\%$
4. Lack of activities for criteria  $2/16 = 13\%$
5. Lack of recognition  $1/16 = 6\%$
6. Short reapplication time  $1/16 = 6\%$
7. High expectations  $1/16 = 6\%$

#### B. Non-career teachers

1. Too many activities  $3/13 = 23\%$

2. Lack of previous teaching experience credit from other systems 2/13 = 15%
3. No disadvantages 2/13 = 15%
4. Additional work 1/13 = 8%
5. Less classroom time 1/13 = 8%
6. No additional recognition 1/13 = 8%

### C. Combined Summary

1. No disadvantages 7/29 = 24%
2. Activities unrelated to teaching 6/29 = 21%
3. Lack of recognition 2/29 = 7%

## Improvements

### A. Career teachers

1. Increase compensation 3/16 = 19%
2. Provide criteria relating to teaching 3/16 = 19%
3. More job opportunities 2/16 = 13%
4. Length renewal period 2/16 = 13%
5. More recognition 1/16 = 6%
6. Limit career position to two years 1/16 = 6%
7. No improvements 1/16 = 6%
8. Terminate program 1/16 = 6%
9. More site recruitment 1/16 = 6%
10. Less site recruitment 1/16 = 6%

### B. Non-career teachers

1. Provide criteria related to teaching 6/13 = 46%
2. Allow all teaching experience to qualify 4/13 = 31%
3. Increase compensation 1/13 = 8%
4. Provide criteria in advance 1/13 = 8%
5. Increase career criteria opportunities at the site 1/13 = 8%
6. Earlier compensation 1/13 = 8%
7. Extra paper work 1/13 = 8%

### C. Combined summary

1. Provide criteria related to teaching 9/29 = 31%
2. Increase compensation 4/29 = 14%
3. Increase career criteria opportunities at the site 3/29 = 10%



CHAPTER 5  
SUMMARY, CONCLUSIONS, DISCUSSION, LIMITATIONS,  
RECOMMENDATIONS FOR PRACTICE AND RECOMMENDATIONS FOR  
FUTURE RESEARCH

Chapter 5 is divided into six sections. The first section contains a summary of the purpose, methods, and procedures in the study while the second section contains conclusions. Reported in the third section is a discussion of the findings in relation to the literature and speculation on why the results turned out as they did. Identified in section four are the limitations of the study. The fifth section contains recommendations for school systems. Reported in the sixth section are recommendations for further study.

Summary

The school system in this study utilized the same incentive pay system for over fifteen years. Teachers who have taught for ten or more years may apply for incentive pay based on criteria, which are in addition to their teaching assignment. This study had two purposes: (1) to investigate the relationship between the awarding of incentive pay and student achievement, and (2) to determine whether teachers receiving incentive pay were more intrinsically and extrinsically motivated than teachers who did not receive incentive pay. Intrinsic and extrinsic motivation of career and non-career teachers were assessed using an instrument developed by McNeil (1987). The McNeil instrument was designed to measure intrinsic and extrinsic motivational factors of teachers who participated in a career ladder/merit pay pilot program in North Carolina.

The sample for this study included fourth grade teachers who received incentive pay matched with a subset of fourth grade teachers who did not receive incentive pay. Achievement gain scores in math and reading were used as the criteria. The mean reading gain score for career teachers was 12.18 ( $N = 16$ ,  $SD = 16.91$ ) and for non-career teachers, it was 5.88 ( $N = 15$ ,  $SD = 24.81$ ). Although the reading gain score for career teachers was higher, it was not significantly different from the reading gain score for the non-career teachers ( $t = -.56$ ,  $b = -1.96$ ,  $SE = 3.47$ ,  $Beta = -.13$ ). The mean math gain score was 28.14 ( $N = 16$ ,  $SD = 16.87$ ) for career teachers and 19.96 ( $N = 15$ ,  $SD = 15.71$ ) for non-career teachers. The differences in mean scores for career and non-career teachers were not significant.

Intrinsic and extrinsic motivation for career and non-career teachers demonstrated no significant differences. The findings of this study demonstrated that teachers who received incentive pay were not more intrinsically or extrinsically motivated than teachers who do not. Intrinsic motivation for career teachers ( $N=17$ ,  $M = 4.4$ ,  $SD = .26$ ) revealed no significant difference for non-career teachers ( $N = 16$ ,  $M = 4.5$ ,  $SD = .31$ ). Extrinsic motivation for career teachers ( $N=17$ ,  $M = 4.0$ ,  $SD = .43$ ) was not significantly different from that of non-career teachers ( $N= 16$ ,  $M=4.2$ ,  $SD = .51$ ).

The following is a summation of the above findings:

1. There are no differences in the intrinsic and extrinsic motivation of career and non-career teachers.
2. There are no differences in the reading and mathematics gain scores of students of career and non-career teachers.

3. Neither career pay, teacher motivation, age, gender, number of years teaching in the school system, highest degree earned, membership in professional organizations, enrollment number for participant's schools, nor regular attendance at graduate courses predict gains in reading and mathematics scores.

### Conclusions

From an analysis of the study data, career pay did not influence teachers' motivation, nor did it have an effect on the mathematics or the reading achievement of their students. The personal variables of age, gender, years of experience, degrees earned, membership in professional organizations, and graduate study did not effect either reading or mathematics scores, nor did school size affect reading and mathematics gain scores.

### Discussion

The relationships among the awarding of incentive pay, teacher motivation, and student achievement were assessed in this study. In order to be eligible for incentive pay, participating teachers had to have a minimum of ten years of teaching experience with continuing contract status and satisfactory teacher evaluations. Additionally, participating teachers must have completed professional involvement activities within 19 areas of the career teacher program. The areas ranged from successfully completing additional graduate study in their teaching fields to chairmanship of a subcommittee involved with the school's Staff Improvement Plan or the Comprehensive Educational Growth Plan, to serving as a member of a school planning committee (see Appendix D for the 19 criteria for achieving career teacher status).

Findings in this study as well as in the literature suggest that effective teaching is

difficult to measure. Teachers have little faith in incentive programs that are based on measures of their performance. That is why this southeastern school division and other divisions create programs that do not use performance measures. They pay for extra responsibilities, duties, or work.

Jacobsen (as cited in Tomlinson, 1992) noted that the central premise of performance-related pay is that rewards can effectively motivate teachers to improve their performance. In this study the criteria were not based on performance and the program did not show evidence of increasing motivation. Possibly a more performance-related program would reproduce Jacobsen's results.

Hoerr (1998) noted that good teachers currently are underpaid. He suggested that an incentive pay system would help pay for better performance and reasoned that society would support increased funding to a system that rewarded quality teaching. If this were true, it would be possible to quantify the results of teaching and demonstrate that teachers are raising student achievement.

Stanley (1999) identified a performance pay program where teachers received annual incentive rewards based on submission of portfolios demonstrating outstanding performance in three areas: assessment and instruction, knowledge of content and pedagogy, and collaboration and partnership. Moreover, teachers in this school division may also qualify for an incentive by demonstrating outstanding performance on content standards. In this school division described by Stanley, the incentive pay functioned to focus all performance initiatives on increasing student academic achievement.

Dyer (1973) cautioned that teacher accountability is a variable which depends on a

number of conditions that determine the scope of teaching. He reported that the teaching–learning process could never be an absolute guarantee that any given set of actions by a teacher will produce any specific kind or amount of learning. Many factors are a part of the teaching–learning process. It is the responsibility of the teacher in cooperation with the parent, administration, and school division to provide the best possible learning conditions for students.

In the area of teacher effectiveness, both career and non-career teachers reported that an effective measure was needed to assess teacher effectiveness. An effective teacher evaluation instrument is needed to assess teacher effectiveness. Moreover, the teachers cited a need to reward good teaching in the classroom rather than extracurricular activities, which do not reflect classroom instruction.

Current research literature such as Sanders and Horn (1998), found that teacher effectiveness was the major determinant of student academic progress. Socioeconomic level, class size, ethnicity, and classroom heterogeneity were found to be poor predictors of student growth. Sanders and Horn used a multivariate longitudinal analysis to determine teacher effects on student achievement were both additive and cumulative. They recommended linking teacher effectiveness to an effective evaluation system. Career and non-career teachers also reported the need to use an effective system to assess teacher effectiveness and to reward good teaching.

If the evaluation of performance can be improved, then, incentive pay based on performance may prove successful. Improvements in evaluation might follow the recommendations of Allen (as cited in Gleason, 2000), a policy analyst from the

Education Commission of the States. He reported five requirements of an effective teacher evaluation system which could be used to assess teacher effectiveness: (1) a vehicle to measure student learning; (2) a method to collect and analyze data that can generate a “value – added” correlation between individual teachers and student learning gains over time; (3) an appropriate appraisal of the data which emphasizes patterns of performance by teachers; (4) an initial corrective approach to deal with teachers whose students show a pattern of poor teaching; and (5) a buy-in from teachers and parents.

State legislators and governors are showing an increased interest in incentive programs for teachers across the country. Nine states have enacted laws authorizing the use of merit or performance-based pay for educators and six states will provide financial incentives for teachers who achieve certification by the National Board for Professional Teaching Standards. For example, Idaho will offer annual bonuses for master teachers. Oklahoma and Mississippi will offer new incentives for educators who seek advanced degrees and professional development. Florida created a system of incentive pay to recognize and encourage teaching excellence at the district level (Gleason, 2000).

Incentive pay programs for teachers must be more performance based. This study focused on a Southeastern school division which had implemented a career teacher supplement for certain teacher activities. However, this supplement has not proved to positively affect student achievement. The school division focused on the following areas to provide an incentive: (1) continuing contract status, (2) good evaluations, (3) ten years of teaching experience, and (4) six requirements pertaining to professional involvement. Professional involvement consists of areas from initial graduate study in the teaching

field to serving in a leadership capacity in planning and conducting in-service programs. Teachers who served as a cooperating teacher and serving as a sponsor of a student club, organization, or athletic activity also were included in those activities which qualified the teacher for a career teacher supplement.

In this study, career teachers were older than non-career teachers. Sixty-eight percent of the teachers in the career category were 40 years old or older whereas only 37% of the non-career teachers were 40 years old or older. Non-career teachers reported that the career teacher supplement should come at an earlier time in their career. In order to retain good teachers, incentives must be provided earlier in teachers' careers. With the shortage of teachers, methods of attracting and retaining effective teachers must be established, and performance-based incentive programs may be useful.

Career and non-career teachers did not demonstrate a significant difference in intrinsic and extrinsic motivation. Teachers who received career pay were not more extrinsically motivated. There was no significant difference in motivational levels of career and non-career teachers. The incentive pay may not have been motivational because it was based on duties that were not central to the work of the teacher.

Extra pay for extra work won't contribute to the motivation of teachers to do better within classrooms. If the incentive pay program is based on the essential work of the teacher, that pay may be motivational.

#### Limitations

Limitations of this study included the number of teachers involved; this was determined by the number of fourth grade teachers who received career pay where there

was a matched teacher in the building who did not receive career pay, but who was entitled to receive the pay. Nineteen schools participated in this study. The fourth grade level was chosen to participate in this study because of the additional testing conducted at this grade level. In a future study of incentive pay, more teachers could be included.

A second limitation of this study is the age of the testing and survey data. The testing and survey data were obtained in 1989. Several factors contributed to the delay of the research report: a serious, life threatening illness of the researcher, and job promotions from an assistant principal to a principal, and from a principal to an assistant superintendent.

Although the data were collected in 1989, the career pay program has remained the same. Survey data are still relevant to the current career pay system that presently exists in this Southeastern school division.

### Recommendations for Practice

Recommendations for school systems to develop effective incentive pay plans include using: (1) the study findings, (2) research on incentive pay, (3) research on teacher motivation, and (4) research on student achievement. The school division in this study should assess the effectiveness of awarding incentive pay. Goals or outcomes need to be established to ensure that the school division is obtaining desired outcomes for the incentive pay investment. Pay-for-performance or performance-by-objectives plans, in which teachers and supervisors jointly set objectives, may be an effective method of enhancing student achievement.

Teachers identified the need to establish criteria that are linked to their classroom performance as measures of effectiveness, and they recommended that the criteria should not be tied to extracurricular activities, but to teacher effectiveness. The incentive pay in this school division could be based on student achievement. However, this study demonstrated that teachers who received career pay did not have higher student achievement than teachers who did not. Moreover, both career and non-career teachers identified the need to link incentive pay to both teacher effectiveness and student performance. Teachers did not object to incentive pay that measured teacher effectiveness; however, they objected to receipt of incentive pay that was not based on classroom performance. Classroom effectiveness has proved difficult to assess. In Robinson's 1983 study of merit pay or incentive pay plans, forty percent of the districts reported administrative problems as one of the reasons they abandoned their merit or incentive plans for teachers. The next reason for the failure of incentive or merit pay plans was personnel problems. Collective bargaining and lack of adequate funding were also problems encountered by school division incentive and merit pay plans.

The amount of incentive pay also was identified as an area in need of improvement. The current amount of the career teacher supplement in this Southeastern school division is small at \$850.

It will be difficult to remove this incentive pay from the teacher benefits program. It is possible to allow teachers currently in the system to complete their career pay supplement program, and to allow teachers to become part of an incentive pay system that rewards effective teaching and student achievement gains. Michael Allen, policy analyst

from the Education Commission of the States, (as cited in Gleason, 1999) recommended a method to reasonably measure student gains against state education standards as an important component of a pay-for-performance system. He also recommended a method to collect and analyze data that generates a “value-added” correlation between individual teachers and student learning gains over time.

Incentive, merit pay, and pay-for-performance pay literature indicated that building-level incentive pay also is important. School divisions should explore methods of rewarding entire staffs for improved student achievement. Often it is difficult to reward the teaching performance of specialists in art, music, and physical education. These specialists can, and, in some cases do, add to the academic achievement of students. To reward their efforts is difficult. Using a building approach to incentive pay would allow all staff members in the building to share in the reward for improved student achievement. This approach would allow staff members to be less competitive and to share strategies for student success. The trend in the private sector is to give group rewards as opposed to individual rewards. Teachers may view this method of rewarding the entire staff as providing compensation to staff members regardless of the efforts expended to increase student achievement. Teachers, according to Johnson (1984) are not entrepreneurial or achievement-oriented in a financial sense. Entrepreneurial, achievement-oriented individuals seem to be attracted to organizations in which rewards are based on competency and performance. Therefore, individual rewards may not be as effective with teachers as group rewards.

The notion of teachers' choice to participate in an incentive pay program

needs to be examined very carefully. It will be a privilege to receive additional pay, and teachers should have the option to indicate if they wish to be a part of the incentive pay program.

The Standards of Learning (SOL) tests have become the benchmark of public schools accreditation standards in Virginia. Future incentive pay programs should use student SOL achievement as one indicator of student achievement. Standardized test scores could also be an indicator of student achievement. This study used a pretest and posttest gain scores model. A similar model could be used to measure student achievement. Gain scores measure learning over time with the same group of students. SOL test scores measure learning with different sets of students. Learner or curriculum differences with different groups of students may account for the progress or lack of progress with SOL test scores when comparisons are made from one year to the next year.

Teacher performance standards as they relate to effective teaching practices should also be considered in establishing criteria for incentive pay. Covino and Iwanicki (1996) identified direct instructional variables that consistently related to student achievement. Traina (1999) identified the characteristics of a good teacher. Teacher effectiveness research should be a part of identifying the criteria by which incentive pay is administered.

Meier (1998) suggested that other people in the school community could assist the building principal with observations. In determining incentive pay based on teacher observations, it may be helpful to use a team approach to teacher observations. Retired teachers could fulfill the role of evaluator for observations leading to incentive pay.

In any future incentive pay program, confidentiality of the recipients of the incentive pay is essential. This information may include classroom observations and evaluations. Teachers should have the assurance that this information will remain confidential. The literature on incentive pay clearly indicated that once the community was aware of the teachers who received incentive pay, they requested to have their children in the classes where the teacher had been identified as a teacher who received incentive pay.

Another recommendation for school divisions is to continually assess incentive pay programs to ensure the system is achieving the goals of the program. Feedback from participants in the incentive pay program is essential.

#### Recommendations for Future Research

The relationships among the awarding of incentive pay, teacher motivation, and student achievement were assessed in this study which is a follow-up to the study of the relationship between career ladder or merit pay and teacher motivation and added the student achievement component to assess the effect of incentive pay on intrinsic and extrinsic teacher motivation and on student achievement. Further studies are needed to assess the relationship of incentive pay to student achievement. A direct correlation needs to be established between the receipt of incentive pay and improved student achievement. Future studies are also needed of the awarding of incentive pay to entire staffs for improved student achievement. This study identified states that are enacting legislation for implementation of incentive, merit pay plans. Future studies should focus on increased academic performance by students, and how this variable was affected by

financial incentives as rewards for teachers.

In future studies, researchers should consider using randomized class lists of students as opposed to systematic sampling. The demographics of the sample should be compared against the demographics of the population. This is important because ethnic groups with names typically at the end of the alphabet would not have the same opportunity to be included in the groups. Randomization of the names would afford all students the opportunity to be part of the group.

Borg and Gall (1983) reported some of the difficulties of using gain scores to reflect achievement, or that some independent variable was responsible for the outcome of the dependent variable, which may be test scores. They cited the concept of the ceiling effect where the difficulty of the test items is limited. Regression toward the mean is another concept that must be kept in mind when using gain scores. This concept refers to a situation when students who earn a high score on the pretest will earn a somewhat lower score on the posttest, and students who score a low pretest score will earn a somewhat higher score on the posttest. These concepts must be considered when using gain scores in future studies.

Intrinsic and extrinsic motivational levels should be studied further in order to determine whether teachers who receive incentive pay are more intrinsically or extrinsically motivated. Such information would assist in the development of appropriate incentives which would help retain the best and brightest teachers as well as develop the most effective incentive plans.

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## APPENDIX A

### RELIABILITY OF THE ORIGINAL TEACHER MOTIVATION QUESTIONNAIRE

A reliability coefficient of +.80 was established for the original questionnaire. The questionnaire was administered to a group of 20 administrators in March of 1986 and again three months later. The Spearman Rank Order Correlation formula was used to establish reliability. A high positive correlation reliability coefficient of +.80 was established for the original questionnaire (McNeil, 1987).

APPENDIX B

SPEARMAN RANK ORDER RELIABILITY

Subject	Test	Rank	Re-test	Rank	D	d2
1	203	1	206	1	0	0
2	203	1	191	5	4	16
3	201	2	204	2	0	0
4	192	3	190	6	3	9
5	189	4	199	3	1	1
6	187	5	173	17	12	144
7	186	6	181	11	5	25
8	183	7	167	22	15	225
9	181	8	191	5	3	9
10	178	9	185	9	0	0
11	176	10	190	6	4	16
12	175	11	177	15	4	16
13	175	11	169	20	8	64
14	175	11	172	18	7	49
15	174	12	162	25	13	169
16	174	12	166	23	11	121
17	171	13	188	7	6	36
18	170	14	174	16	2	4
19	170	14	183	10	4	16
20	170	14	169	20	6	36
21	169	15	180	12	3	9

22	168	16	168	21	5	25
23	168	16	187	8	8	64
24	167	17	179	13	4	16
25	166	18	173	17	1	1
26	165	19	163	24	5	25
27	164	19	165	23	4	16
28	163	20	178	14	6	36
29	161	21	157	26	5	25
30	161	21	171	19	2	4
31	160	22	172	18	4	16
32	183	7	198	4	3	9
33	138	24	145	27	3	9
34	184	25	174	16	9	81

Reliability Coefficient  $\alpha = .86$

## APPENDIX C

### TEACHER MOTIVATION QUESTIONNAIRE

#### Part I

Directions: Place a check ( ) on the blank line by the one response which best describes your teaching position at this time.

1. Present teaching assignment:

- a. K
- b. 1<sup>st</sup>
- c. 2<sup>nd</sup>
- d. 3<sup>rd</sup>
- e. 4<sup>th</sup>
- f. 5<sup>th</sup>
- g. 6<sup>th</sup>

2. Enrollment in your school:

- a. 200-400
- b. 400-600
- c. 601-800
- d. 801-1,000
- e. 1,001-1,500
- f. More than 1,500

3. Total number of years employed as a teacher in this system

- a. Less and 10
- b. 10-20
- c. More than 20

4. Total number of years employed as a teacher outside of this system:

- a. None
- b. Less than 5
- c. 5-10
- d. More than 10

5. Highest degree earned:
- a. Bachelor
  - b. Master
  - c. Specialist
  - d. Doctorate
6. Membership in a professional organization for teachers:
- a. Yes If yes, how many? \_\_\_\_\_
  - b. No
7. Gender:
- a. Male
  - b. Female
8. Age:
- a. Less than 30
  - b. 30-39
  - c. 40-49
  - d. More than 50
9. Participant of career teacher program:
- a. Yes
  - b. No
10. Amount of career supplement:
- a. No supplement
  - b. \$0 - \$350
  - c. \$351 - \$500
  - d. \$501 - \$700
  - e. \$701 - \$1,000
  - f. \$1,001 - \$1,500
  - g. More than \$1,500

11. Do you attend graduate education courses on a regular basis?

- a. Yes
- b. No

12. Verbal ability score on the GRE: \_\_\_\_\_

13. Verbal ability score on the SAT: \_\_\_\_\_

## Part II

Directions: Listed below are a number of items that describe how a teacher might feel about or react to various aspects of his/her job. Please use the scale to the right of each item to indicate the extent to which you agree or disagree with each item. Circle one response for each item that best describes your reactions.

- |     |  |    |   |   |   |    |
|-----|--|----|---|---|---|----|
| 14. | The principals for whom I have taught appreciated the effort I invested in teaching.   | SD | D | U | A | SA |
| 15. | I can reasonably expect to be dismissed if my performance is not adequate  | SD | D | U | A | SA |
| 16. | I set goals for myself and achieve them.   | SD | D | U | A | SA |
| 17. | I like my principal to recognize my accomplishments.   | SD | D | U | A | SA |
| 18. | I spend some of my free time on a regular basis for self-improvement for teaching by reading professional articles, attending workshops and meetings, etc. | SD | D | U | A | SA |
| 19. | I have the support of the entire staff in doing my work.   | SD | D | U | A | SA |
| 20. | I invest more hours per day in my job than do other people whose jobs are not related to education.  | SD | D | U | A | SA |
| 21. | I can stay in teaching as long as I want.  | SD | D | U | A | SA |
| 22. | My student load is reasonable.   | SD | D | U | A | SA |
| 23. | I think teachers should be paid on experience.   | SD | D | U | A | SA |

24.	One of the best things about teaching is seeing the students learn.	SD	D	U	A	SA
25.	I like my principal to ask me to do special jobs to help my school.	SD	D	U	A	SA
26.	My salary is reasonable for the amount of work I do.	SD	D	U	A	SA
27.	I set tougher standards for myself than my principal sets for me.	SD	D	U	A	SA
28.	My co-workers think I am a good teacher.	SD	D	U	A	SA
29.	Participating in opportunities for professional growth are important to me.	SD	D	U	A	SA
30.	My peers cooperate in sharing materials.	SD	D	U	A	SA
31.	My job as a teacher requires too much of my time after the close of the regular school day.	SD	D	U	A	SA
32.	Teaching is a secure profession.	SD	D	U	A	SA
33.	Supervising extracurricular activities is a reasonable expectation of teachers.	SD	D	U	A	SA
34.	My attitude toward work is to work only as hard as I have to.	SD	D	U	A	SA
35.	Teaching is usually challenging.	SD	D	U	A	SA
36.	I can be depended upon to do a good job teaching.	SD	D	U	A	SA
37.	I would like my students to learn more.	SD	D	U	A	SA
38.	My students think I am a good teacher.	SD	D	U	A	SA
39.	The policies of my school system allow me to do my job effectively.	SD	D	U	A	SA

40.	My peers respect my work.	SD	D	U	A	SA
41.	Being a teacher brings me respect in my community.	SD	D	U	A	SA
42.	Teachers have good working conditions.	SD	D	U	A	SA
43.	I am satisfied with my salary.	SD	D	U	A	SA
44.	Wasting time at work makes me feel uncomfortable.	SD	D	U	A	SA
45.	I like to supervise extracurricular activities.	SD	D	U	A	SA
46.	I plan to stay in teaching.	SD	D	U	A	SA
47.	My students' parents think I am a good teacher.	SD	D	U	A	SA
48.	A career teacher schedule is the best way to provide career advancement opportunities for teachers.	SD	D	U	A	SA
49.	My peers and I have open channels of communication.	SD	D	U	A	SA
50.	I want my principal to tell me when I need to improve my performance.	SD	D	U	A	SA
51.	I like to spend a lot of energy to make my classes interesting.	SD	D	U	A	SA
52.	My principal and I have open channels of communication.	SD	D	U	A	SA
53.	Teaching is an important job.	SD	D	U	A	SA
54.	It is important to me to have others recognize the good job I do.	SD	D	U	A	SA

- |     |   |    |   |   |   |    |
|-----|---|----|---|---|---|----|
| 55. | I am personally responsible for part of the education of every student I teach. | SD | D | U | A | SA |
| 56. | The principals I have worked for dealt fairly with teachers.                    | SD | D | U | A | SA |
| 57. | Positive aspects about teaching outweigh the negative aspects.                  | SD | D | U | A | SA |
| 58. | My principal values my educational opinion.                                     | SD | D | U | A | SA |

59. What are the advantages of being on the career teacher scale?

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60. What are the disadvantages of being on the career teacher scale?

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61. How can the career teacher program be improved?

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APPENDIX D

APPLICATION FOR CAREER TEACHER SUPPLEMENT

**APPLICATION FOR CAREER TEACHER SUPPLEMENT**

Date \_\_\_\_\_

Name \_\_\_\_\_

Social Security No. \_\_\_\_\_

School \_\_\_\_\_

Assignment \_\_\_\_\_

Mailing Address \_\_\_\_\_  
Street City Zip

Telephone Telephone  
(home) \_\_\_\_\_ (Summer) \_\_\_\_\_

Please keep a copy of the application for your records. Include all information within the application. Attach a copy of your most recent evaluation when returning your completed application; *no additional sheets should be attached*. It is recommended that you list more than the required six (6) Professional Involvement Requirements.

I. Contract Status, Certificate, Experience, and Evaluation Requirements

Information on file in the Department of Human Resources will be used as the basis for determining whether these requirements have been met.

- A. Continuing Contract status and C.P. Certificate achieved
- B. Evaluation
- C. 10 years of experience
- D. Highest degree completed: \_\_\_ BS \_\_\_ MS \_\_\_ MS + 30/CAS

I. Involvement Requirements

Meeting the six (6) requirements pertaining to professional involvement will be determined on the basis of information given within the application. You must

complete six (6) with a maximum of two (2) achievements in each area; we recommend more than six (6). With the exception of Item 7, initial applicants must list professional involvement activities for previous years.

<p>1. Successfully completed additional graduate study <u>in the teaching field</u> (<u>minimum of three semester hours</u>). Do not list workshops.</p> <p>Year/Date/Semester ____/____/____ Accredited College _____ (1<sup>st</sup> or 2<sup>nd</sup>)</p> <p>Name of Course _____ Number of College Credits _____</p>	<p>1. ____</p>
<p>2. Successfully completed a professional development activity sponsored by the school division through the Office of Professional Development.</p> <p>Year/Date/Semester ____/____/____ College or School division _____ (1<sup>st</sup> or 2<sup>nd</sup>)</p> <p>Name of Course or Activity _____ Number of Professional Development Courses _____</p> <p>Sponsor _____</p>	<p>2. ____</p>
<p>3. Served as a member of a systemwide or curriculum committee.</p> <p>Committee _____</p> <p>Year(s), date, and length of time served _____</p>	<p>3. ____</p>
<p>4. Served as a member of a curriculum development workshop coordinated by the Office of Instructional Services.</p> <p>Committee _____</p> <p>Year, date, and length of workshop _____</p>	<p>4. ____</p>

5. Served in a leadership capacity in planning and/or conducting two (2) or more in-service programs. You must list two (2)

Program \_\_\_\_\_

Planned \_\_\_\_\_ Conducted \_\_\_\_\_ Year/Date/Semester \_\_\_\_/\_\_\_\_/\_\_\_\_

Program \_\_\_\_\_

Planned \_\_\_\_\_ Conducted \_\_\_\_\_ Year/Date/Semester \_\_\_\_/\_\_\_\_/\_\_\_\_

5. \_\_\_\_\_

6. Served in a leadership capacity in a professional organization directly related to the teacher's assignment (for example, an English teacher holding a leadership role in the District, State, or National Council of Teachers of English would meet this service requirement).

Office (e.g., President, Secretary) \_\_\_\_\_

Year/Date/Length of Office Held \_\_\_\_\_

6. \_\_\_\_\_

7. Served as a member of the school accreditation steering committee or as a chairperson of one of its subcommittees during the school's most recent self-study. A member who is not on the steering committee or who was not a chairperson will not be approved.

Year/Date/Semester \_\_\_\_/\_\_\_\_/\_\_\_\_ Position \_\_\_\_\_

Check One: \_\_\_\_\_ Member of the Steering Committee  
                  \_\_\_\_\_ Chairperson of a Subcommittee

7. \_\_\_\_\_

8. Attended an instructional conference approved by the school or school division.

Year/Date/Semester \_\_\_\_/\_\_\_\_/\_\_\_\_ Length of Conference \_\_\_\_\_ Where \_\_\_\_\_  
(1<sup>st</sup> or 2<sup>nd</sup>)

Name of Conference \_\_\_\_\_

8. \_\_\_\_\_

<p>9. Planned and/or conducted an approved pilot study, mini-grant, or project at the request of the school or school division, or initiated by the teacher and approved by the school system.</p> <p>Year/Date/Semester ____/____/____ Approved by Whom _____            (1<sup>st</sup> or 2<sup>nd</sup>)            Pilot Study/Description _____</p>	<p>9. ____</p>
<p>10. Served as a cooperating teacher for a study teacher. Do not list observers or interns.</p> <p>Year/Date/Semester ____/____/____ College _____            (1<sup>st</sup> or 2<sup>nd</sup>)            Name of student Teacher _____</p>	<p>10. ____</p>
<p>11. Served as a sponsor of a student club, organization, forensic, or athletic activity. You must have been the lead sponsor for a full season, not an assistant.</p> <p>Name of Club/Activity _____</p> <p>Year/Date _____</p>	<p>11. ____</p>
<p>12. Regularly assisted with planning and/or conducting school or systemwide student activities and programs. List at least two (2) and include dates.</p> <p>_____</p> <p>_____</p>	<p>12. ____</p>
<p>13. Served as a leadership capacity in school, city, district, or state PTA activities. You must have served as an officer, a committee chairperson, or a sponsor of a major activity.</p> <p>Position _____ Year _____</p>	<p>13. ____</p>
<p>14. Served as department, curriculum, grade-level chairperson, or grade level team leader.</p> <p>Position _____ Year _____</p>	<p>14. ____</p>

<p>15. Prepared and had published an article of an academic nature in a professional journal.</p> <p>Year/Date/Semester _____ Journal _____  (1<sup>st</sup> or 2<sup>nd</sup>)  Name of Article _____</p>	<p>15. ____</p>
<p>16. Served as a member of a school planning committee (e.g., Faculty Council).</p> <p>Year/Date/Semester ____/____/____ Committee _____  (1<sup>st</sup> or 2<sup>nd</sup>)  Length of time committee was in effect _____</p>	<p>16. ____</p>
<p>17. Served as chairperson of a subcommittee involved with the Staff Improvement Plan or the Comprehensive Educational Growth Plan.</p> <p>Year/Date/Semester ____/____/____ Length of time committee was in effect _____  (1<sup>st</sup> or 2<sup>nd</sup>)</p>	<p>17. ____</p>
<p>18. Recognized as an <u>individual school's</u> Teacher of the Year. This does not include a subject area Teacher of the Year.</p> <p>Year _____ School _____</p>	<p>18. ____</p>
<p>19. Other professional involvement activities during previous year may be listed for initial application; renewal applicants may list activities for previous year. Dates must be listed for each activity.</p>	<p>19. ____</p>

## VITAE

Pamela A. McKinney was born in Los Angeles, California, and moved to Carson, California, where she attended high school in Gardena, California. She attended Los Angeles Harbor College, UCLA, University of Hawaii, Connecticut College, Old Dominion University, and Virginia Tech. She attended executive training at May Company Department Stores and was promoted to an assistant buyer at age nineteen. In Honolulu, Hawaii, she also served as an assistant buyer. Teaching was always a goal of Pamela A. McKinney. After a successful career in merchandising, she was finally able to realize her dream and become a teacher. She taught in California, New York, and Virginia.

After teaching for four years in Virginia Beach City Public Schools, she was promoted to assistant principal. She was a principal for eight and half years, and was promoted to assistant superintendent of elementary schools in Virginia Beach City Public Schools.

Helping children to learn has always been Pamela's goal in life. Education played such an important part in her life and provided a means for her to better herself, that she wants to help other boys and girls to also have a better life.