

TEACHERS' PERCEPTIONS ABOUT HOW AN ALTERNATIVE METHOD
OF COMPENSATION AFFECTED THEIR TEACHING PRACTICE

A Dissertation Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
Of the Requirements for the Degree

Doctor of Education

By

Juan Pablo Barrio

November, 2012

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Abstract

Teachers have historically been paid using a single salary schedule. However, since the publication of *A Nation at Risk* (1983), calls for implementing reforms have led to alternative pay for teachers becoming increasingly common among districts across the nation. Such implementations have seldom been accompanied by input from teachers about how such methods affect their profession. Since teacher's voice seems to remain almost absent in research about these implementations, with a few exceptions noted in the literature review, their input about how such methods of alternative compensation impact their work as educators emerge as a necessity. Research-based knowledge must fill this need.

The purpose of the study was to measure teachers' perceptions about how an alternative method of compensation has affected their teaching practice, motivation, and collaboration. The study sought to describe patterns of relationships between the perceptions of teachers about the impact on teaching practice, motivation, and collaboration

of the incentive pay plan implemented under the Districts Awards for Teacher Excellence (DATE) and an array of independent variables related to the exercise of their profession in their campus. These variables include money awarded by the program, subject and grade taught, and teacher characteristics (experience, certification, demographic data, etc.).

A survey research design was used in the study. The instrument was administered to teachers in elementary and middle schools campuses in the Fort Bend Independent School District, in the metro area of Houston, Texas, where alternative compensation funded by the District Awards for Teacher Excellence (DATE) was implemented. Data collection occurred during May 2010, and the online survey was accessed by 241 teachers. One potential participant did not accept to take part in the study and 22 participants did not answer any instrument's item, thus leaving the total number of actual respondents to 219.

Factorization techniques were used to confirm the validity and reliability of the instrument. Data analysis was conducted using simultaneous multiple linear regression statistical techniques.

The results of the study showed that the scales developed to measure the perceived impact of compensation

on teaching practice, motivation, and collaboration are adequate scientific measurement tools. The results also indicated that the findings concluded from the scales developed should be analyzed with caution. The regression models processed to find the degree of association between predictor variables and the perceived effect of alternative compensation did not show statistical significance in two of the three perception scales measured: teaching practice and collaboration. The regression model processed to find the degree of association between predictor variables and the perceived effect of alternative compensation on motivation showed overall statistical significance. Two independent variables in the model showed a statistically significant degree of relationship with the dependable variable: one positive (Asian teachers compare to White teachers) and one negative (Age). Therefore, it seems reasonable to suggest that the DATE incentive program did not affect in any significant way teachers' teaching practice, motivation, and collaboration in the exercise of their profession, as perceived by the teachers themselves.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Need for the Study.....	1
Statement of the Problem.....	5
Purpose of the Study.....	6
Research Questions.....	6
Definition of Terms.....	7
II. REVIEW OF LITERATURE.....	10
Alternative Pay for Teachers.....	10
Districts Awards for Teacher Excellence.....	16
Variety of Alternative Pay for Teachers' Systems...	20
Teaching Practice.....	27
Teachers' Perceptions and Teaching Practice.....	30
Impact of Teachers' Perceptions on Teaching Practice and Teachers' Compensation.....	34
Importance and Justification of this Topic of Research.....	36
III. METHODOLOGY.....	41
Purpose of the Study and General Characteristics...	41
Research Design.....	42
Participants and Sampling Procedures.....	43
Instrumentation.....	48
Data Collection Procedures.....	51
Data Analysis Procedures.....	52
Limitations of the study.....	55
IV. RESULTS.....	58
Results Obtained for Research Question 1.....	59
Results Obtained for Research Question 2.....	73
V. DISCUSSION AND CONCLUSION.....	80
Discussion about Research Question 1.....	80
Discussion about Research Question 2.....	83
REFERENCES.....	96
APPENDIX A - DISTRICT APPROVAL TO CONDUCT RESEARCH	104

APPENDIX B - PILOTED INSTRUMENT'S COLLABORATION ITEMS MODIFIED FOR THE STUDY.....	105
APPENDIX C - LETTER OF INVITATION TO PARTICIPATE IN RESEARCH.....	106
APPENDIX D - RECRUITMENT SCRIPT.....	108
APPENDIX E - RESEARCH PARTICIPANT'S RIGHTS AND LETTER OF CONSENT.....	109
APPENDIX F - INSTRUMENT.....	111
APPENDIX G - KEY FOR INSTRUMENT'S ITEMS.....	114
APPENDIX H - DESCRIPTION OF REGRESSION MODELS' VARIABLES INPUT.....	116

LIST OF TABLES

Table	Page
1 Campuses in Fort Bend ISD under DATE program	44
2 Teachers' Years of Teaching Experience	48
3 Teaching Practice, Motivation, and Collaboration: Determinant, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), and Bartlett's Test of Sphericity .	60
4 Communalities for each variable in Teaching Practice scale	61
5 Loading Factors for Teaching Practice items	62
6 Communalities for each variable in Motivation scale	64
7 Loading Factors for Motivation items	64
8 Communalities for each variable in 5-item Collaboration scale	66
9 Loading Factors for 5-item Collaboration	66
10 Communalities for each variable in 4-item Collaboration scale	68
11 Loading Factors for 4-item Collaboration	68
12 Communalities for each variable in 3-item Collaboration scale	69
13 Loading Factors for 3-item Collaboration	70
14 Reliability value for Teaching Practice, Motivation, and Collaboration and Factor Loadings across items	72

15	Test for Normality and Descriptives for scales	
	Teaching Practice, Motivation, and Collaboration ..	73
16	Summary of Simultaneous Regression Analysis for	
	Variables Predicting Motivation	78

LIST OF FIGURES

Figure	Page
1 Classroom Teacher's Perception about how the Independent Variables affect Motivation, Collaboration, and Teaching Practice	4
2 Number of Teachers Respondents Grouped by Age	46
3 Proportion of Teachers Participants by Ethnicity...	47
4 Normal P-P Plot of Regression Standardized Residual for Teaching Practice	74
5 Normal P-P Plot of Regression Standardized Residual for Motivation	75
6 Normal P-P Plot of Regression Standardized Residual for Collaboration	75
7 Motivator and Hygiene factors depicted as belonging to two different psychological continuums according to Herzberg's Motivation-Hygiene Theory	91

CHAPTER ONE

INTRODUCTION

This study examined teachers' perceptions about how the implementation of a performance-based alternative method of compensation in the Fort Bend Independent School District (FBISD) affected elementary and middle school teachers' teaching practice, motivation, and collaboration. Teaching practice as a construct is broadly considered for this study to encompass the complexities of the multilayered process in which teachers and students engage in the context where teaching and learning occur. Teaching practice then, is not equivalent to the actual delivery of instruction that occurs generally inside a classroom. Within this framework, discussed in the literature review section, the study focused on the teachers' perceived effects of the incentive pay program on their teaching practice, motivation, and collaboration.

Need for the Study

Even though teachers have historically been paid using a single salary schedule, a document used by school districts to pay teachers based exclusively on credentials and years of teaching experience, other methods of

compensation have been implemented during the 1980s, 1990s and 2000s. These alternative methods, called incentive programs or performance-based programs, which received a push by the No Child Left Behind Act of 2001 (NCLB), are becoming more popular in school districts around the nation within a context of outcomes-based education. With the announcement of President Obama's Race to the Top (as part of American Recovery and Reinvestment Act (ARRA) of 2009), and its allocation of 4.35 billion dollars to states on a competitive basis to implement educational reform initiatives, such as pay for performance, it is foreseeable that there will be an increase of implementation of these methodologies in school districts around the country¹. In Texas, the District Awards for Teacher Excellence (DATE) is a state funded program which incentivizes performance pay plans for teachers with allocation of funds totaling \$247 million for the school year 2008-2009 and \$197 million for the school year 2009-2010, exclusively for the development of performance pay plans under the umbrella of DATE (Springer, M. G, Lewis, J. L., Podgursky, M. J., Ehlert, M. W., Taylor, L. L., Lopez, O. S. et al., 2009). For the

¹ Contingent to the appropriation of funds sanctioned by Congress in the federal budget.

school years 2009-2010 and 2010-2011, the total allocation of funds reached \$520,842,117 (TEA, 2011a).

One of the tenets of enacting these new methods is to pursue improvement in teaching quality and, thus, increase student achievement as measured by test scores. Teachers' input should be integral part of a successful implementation of such policies since their involvement is directly tied to their willingness and propensity to change (Seashore, Febey, & Schroeder, 2005). However, few studies have been published about the teachers' perceptions on how such new methods of compensation have impacted the exercise of their profession. This study researched teachers' perceptions of the impact that an incentive compensation program implemented under the umbrella of DATE had on their teaching practice, motivation, and collaboration. In doing this, the study is bringing to the forefront teachers' voice about how they perceive the extent to which these methods affect their trade.

Figure 1 shows synoptically the logic followed by the study.

Independent Variables

- Money awarded by performance based program in the current year
- Money awarded by performance based program in the previous year
- Age
- Ethnicity
- Grade / Subject taught
- Type of Teaching Certification
- Path to Teaching Certification
- Teaching Experience
- Experience at Current Campus

Dependent Variables

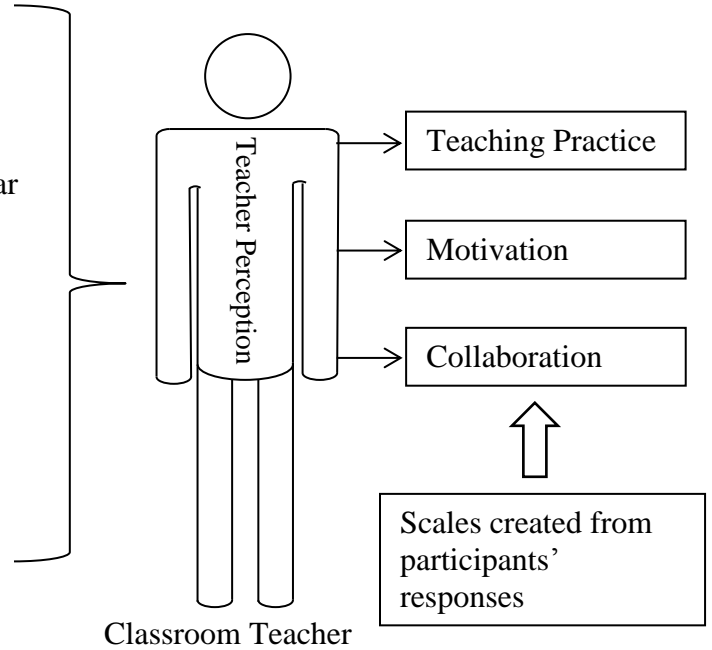


Figure 1

Classroom Teacher's Perception about how the Independent Variables affect Motivation, Collaboration, and Teaching Practice

The development of such scientific knowledge may inform policy makers in the future implementation of methods of compensating teachers as well as help teachers discern more precisely how a specific contextual variable may affect the practice of their profession.

Statement of the Problem

Teachers represent a funnel in the educational system. They are those in direct contact with learners and almost all applications of educational policy aimed at educating children are directly or indirectly channeled through teachers. Because teachers' perceptions affect teaching practice, investigating any policy component that may affect how teachers exercise their profession from a perspective of teachers' perceptions becomes relevant.

Since alternative methods of compensation are one policy component application advocated by the current school reform movement, understanding how such alternative compensation programs affect teaching practice is a current research problem as reflected by an emerging body of scientific literature in this topic.

These programs' implementations aim at improving student outcomes. The theory of action behind these programs is that they would motivate educators to change their practice to improve student achievement. The theory of action also hypothesizes that earning money will enhance collaboration and increase morale, leading to better student achievement. In addition to the motivational effect they may have, rewarding differentiated awards would also provide incentives for change (Marsh et al., 2011). These

programs then seek to boost teachers' motivation, enhance professional collaboration, and promote change of practices to improve student achievement.

More information is needed about the extent of the impact that these performance-based incentive programs have on motivation, collaboration, and teaching practice as perceived by the teachers themselves.

Purpose of the Study

The purpose of the study was to describe teachers' perceptions about the impact of a method of alternative compensation implemented in a large urban school district on their motivation, collaboration, and teaching practice.

Research Questions

The purpose of the study was to address the following research questions:

- 1) "Do the hypothesized conceptual dimensions (teaching practice, motivation, and collaboration) correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study?"

- 2) "To what extent do each of a series of variables (the amount of money awarded to teachers by the program, years of teaching experience, years of teaching at current campus, age, ethnicity, type of teaching certification, path for teacher certification, and school level/subject taught) relate to the perceived effects of alternative compensation on teaching practice, motivation, and collaboration, if at all?"

Definition of Terms

Teaching Practice. The Teaching Practice construct was broadly considered for the purpose of the study; this construct encompasses the complexities of a multilayered process in which the teaching-learning process occurs in a school setting. Teaching practice includes the delivery of instruction typical of a classroom practice but exceeds it. For example, it embodies: decisions to work together with other teachers; feeling responsible to help others teachers do their best; helping anywhere, anytime, even though is not part of the teacher official assignment; analyzing students' work to find curriculum standards still to be met; following an instructional calendar or pacing plan; aligning lessons to a specific standard; having students help other students to learn standards; focusing

instruction to standardized tests; administering benchmarks; reviewing students' test results with other teachers; seeking help informally from other teachers; decisions to allocate time spend by students in assignments in school and at home; providing opportunities to students to spend more or less time in inquiry based learning; etc. (Items measuring Teaching Practice in the TEEG Cycle 2 Teacher survey Spring 2008, Springer et al., 2009). In another study, items measuring this construct also include: increasing instructional time by lengthening the day, the year, or shortening recess; providing before or after school instruction or programs; organizing inquiry teams of teachers and administrators to address the needs of students; providing additional instruction to low-achieving students; increasing the use of student's achievement data to inform instruction; teaching test-taking strategies; etc. (Survey items measuring teaching practice in Marsh et al., 2011).

Motivation. Based on Bandura's expectancy theory, "teacher motivation to perform is a function of the perceived probability that working hard will lead to high student achievement, the perceived probability that high student achievement will lead to certain outcomes (including a performance bonus) occurring, and the

desirability of each of these outcomes to the teacher”
(Heneman III, 1998, p. 44).

Collaboration. Collaboration occurs when participants engage in meaningful activities working together with peers to co-construct knowledge about teaching and learning (Musanti & Pence, 2010).

Single Salary Schedule. Single Salary Schedule is a document used by school districts to pay teachers based exclusively on credentials and years of teaching experience.

CHAPTER TWO

REVIEW OF LITERATURE

The purpose of the study was to describe teachers' perceptions of the impact that one alternative method of compensating teachers implemented in Fort Bend Independent School District had on their teaching practice. This chapter first addresses alternative pay for teachers followed by a description of the District Awards for Teacher Excellence (DATE) grant, under which Fort Bend ISD implemented its alternative compensation program. Then the literature on teaching practice and how teachers' perceptions affect teaching practice is reviewed followed by the literature on teachers' perceptions and compensation to establish the theoretical link between alternative methods of compensation and teachers' perceptions effect on teaching practice.

Alternative Pay for Teachers

Although nearly 100% of public school teachers are paid using salary schedules (Podgursky & Springer, 2007), single schedule pay for teachers appears to be problematic for some because it encourages accommodation of the mediocre teacher in the classroom (Jupp, 2005). By not

promoting differentiation between those teachers who produce high student performance and those who do not, it would, on one hand, diminish the attractiveness of the teaching profession in the labor market, and on the other, push out of the profession those who perceive their skills as being better rewarded in other professions (Podgursky & Springer, 2007; Podgursky, 2009). Consequently hiring and retaining good teachers is hindered by the single schedule pay for teachers (Jupp, 2005; Podgursky, 2009).

This notion has been especially debated as part of the frenzy surrounding the publication of *A Nation at Risk* (1983). During the 1990s, a shift in federal administration and education policy put reliance on outcomes as measures of organizational effectiveness in education (Kelley, Conley, & Kimball, 2000; Heneman, 1998). The No Child Left Behind Act (NCLB) galvanized this shift. Thus as part of the so-called "comprehensive" reform proposals in education, alternative ways of paying teachers, also called merit pay, have been implemented with increased zeal, and have most recently been to some extent analyzed and evaluated.

Advocacy for new ways of providing incentives to improve teachers' performance, as a measurement of quality of teaching, has taken the form of alternative incentive

pay programs that incorporate extra monetary rewards for teachers based on their students' performances. NCLB has been a stimulus to experimenting with performance-based salary schedules (Podgursky & Springer, 2007).

The variety of alternative methods of teachers' compensation being experimented with across the United States is corresponded by a wide range of perspectives on alternative ways of paying teachers in the academic community. These perspectives can be grouped in two schools of thought; their essential differences come down to whether or not performance pay programs for teachers are a viable system to implement in education.

On one hand, there are proponents of these systems, usually referred to as *merit pay systems*, in which either a numerical formulaic statistical approach or an economicist approach is considered. The alternative method of compensating teachers becomes the visible aspect of the assumption that schools must follow the *formal rationality* advocated by American businesses (Cuban, 1983; Giroux, 1983; Goodman, 1979; Shannon, 1982 cited by Shannon, 1986). One of the beliefs of these models pledges that merit pay systems are good descriptors of teachers' effects on students. It is assumed that merit pay systems have positive academic consequences in the school. Authors in

this approach assert that districts can explicitly state their expectations of teachers' performances, and from there, teachers who fit in to the district expectations will more likely remain as school teachers while those who don't will leave teaching for other professions that better suit their demands from a professional job (Podgursky & Springer, 2007; Koppich, 2005). Further, these authors predict that merit pay systems are more likely to occur in environments where there is more performance information available, implicitly encouraging a quantitative approach to measuring the results of educating children (Goldhaber, D., DeArmond, M., Player, D., & Choi, H., 2008). Children, as demonstrated by student outcomes, would benefit from this type of pay system by the improvement of the quality of instruction they receive from teachers whose salaries have been linked to compensation and career advancement more closely (Hanushek & Rivkin, 2007; Lavy, 2007). But the supporters of such types of incentive pay for teachers have extended beyond economists and statisticians, to include political leaders, opinion makers and teachers (Jupp, 2005; Koppich, 2005).

While the proponents of these systems announce the positive effects of merit pay on teacher retention and the quality of education as shown by better student

achievement, some studies contradict such conclusions. As cited by Hanushek, Kain, and Rivkin (2004) studies found that teacher mobility is related to characteristics of the students, particularly race and students' achievement, while salary exerts a modest impact in turn over.

Furthermore, other authors bluntly declare that merit pay is not well-suited for education, finding explanations in the inherited nature of the educational process. They seem to focus more on the complexity of the process of educating children, since "education involves multiple stakeholders, disparate and conflicting goals, complex and multitask jobs, team production, uncertain inputs, and idiosyncratic elements contingent to the attributes of individual students, efforts and attitudes of fellow teachers, and classroom environments" (Eberts, Hollenbeck, & Stone, 2002, p. 914).

In a very short and poignant article, Donlevy (2008) made the case for merit pay in education analogous to the financial institutions' incentive pay systems' role in the credit meltdown of 2008 that affected the entire planet. The author affirms that this system is part of the capitalist culture and that, as a result, "there is a tremendous incentive for meeting or exceeding targets at any cost" (p. 246). The argument is based on the

assumption, neglected by the economist and statistical approaches for merit pay, that the aims of education are incompatible with systems that promote putting aside from education essential components of educating children. Some main components of educating children, such as political and democratic values, values of beauty, harmony, aesthetics, and solidarity, attitudes towards the environment and the well-being of others, or values toward to what purposes knowledge is developed and used, are not quantifiable through performance tests.

Grinesky (2005a, 2005b) in a back-and-forth controversy via peer reviewed publications with the Teaching Commission of New York² critiques the underlying assumptions and assertions about schooling, teacher education, and qualifications supported by incentive pay plans for teachers based on student achievement. The author maintains that it distorts the purpose of public schooling and does not consider powerful effects of contextual variables on achievement and all aspects of life, like poverty³.

² The Teacher Commission of New York is represented by Grenman, J.

³ A good example based on extensive research about how poverty affects language development, IQ tests performance and achievement in standardized tests can be found in Hart, B., & Risley, T. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H. Brooks. Berliner (2005) further argues

Districts Awards for Teacher Excellence

The Texas Educator Excellence Grant (TEEG), the Governor's Educator Excellence Grant (GEEG), and the District Awards for Teacher Excellence (DATE) are three distinct state-funded grant programs designed to support performance pay proposals for teachers in Texas, which became one program under the umbrella of DATE when the program began. GEEG was funded with state and federal funds and completed its operations in August 2009 when the TEEG program last cycle ended and the DATE program became implemented. Together, they were the largest statewide performance pay for teachers in the United States K-12 school system (Springer et al., 2009).

Since the creation of DATE in 2006, Texas has spent nearly \$550 million to allow districts to design their own strategic compensation programs. For the 2010-2011 school year, over 300 districts implemented the program. The districts represent over half of Texas' student and teacher populations (District Awards for Teacher Excellence (DATE) Technical Assistance Center, 2011).

Beginning in the 2008-9 school year, all school districts in the state of Texas were eligible to

that poverty places several limits on what can be accomplished through school reform efforts.

participate in the DATE program for at least two years. Schools qualified to participate in these programs based on two criteria. First, they had to be in the top third of Texas public schools in terms of percentage of students economically disadvantaged, stratified by school levels (elementary, middle, and high school). Second, schools were also qualified by the Texas Education Agency (TEA) as high performing (schools that attained Exemplary or Recognized status) or high improving (as determined by value-added calculation measures). Schools who met the economically disadvantage students percentage criterion and were qualified by TEA as either high performing or high improving, qualify for DATE grant funds (Springer et al., 2009). Districts which wanted to participate had to commit to match 15% of the funds and they would spend a minimum of 60% of the money in performance pay for classroom teachers (Part I funds) based on measures of student achievement and the amount of bonus must be equal or greater than \$3,000 (Springer et al., 2009). The rest of the funds (Part II funds) could be spent among other expenditures (such as professional development, mentoring, instructional materials, etc.) including paying teachers extra compensation. The districts participating in the DATE grant

locally developed their own performance pay plan following the aforementioned broad guidelines.

Fort Bend ISD was one of the local Houston area school districts which implemented its performance-based compensation program under the umbrella of DATE. The project purpose was to reward teachers for positively impacting student achievement with focus on most-in-need campuses to improving quality of teaching, and improve instruction (FBISD, 2011a). One of the guiding principles of the implementation is that teacher collaboration is a critical component of school improvement, suggesting collaboration among teachers should not be obstructed by the implementation of the program.

The FBISD performance-based compensation program was implemented in 23 elementary and middle school campuses (FBISD, 2011a), whose TEA report cards show a total of 17,269 students and 973 teachers (TEA, 2011b).

Even though there were no explicitly stated reasons why these campuses were elected for the grant, the District's Program Goals were 2: Increasing the percentage of students meeting state standards, and Increasing achievement by all students as measured by TAKS scale scores (FBISD, 2011a).

Four Guiding Principles were established for the implementation of the program:

- 1) The classroom teacher is the school employee who most impacts student achievement.
- 2) Students vary in their preparation and inclination towards learning when they enter a teacher's classroom, so awards should be based on improvement whenever possible.
- 3) Teacher collaboration is a critical component of school improvement. Alignment of curriculum and instructional strategies within and between grade levels and subjects is essential for raising the achievement of all students.
- 4) All staff impact student achievement even if their impact is not directly measured by TAKS or other tests (FBSID, 2011a).

The final evaluation report on the DATE program for the state of Texas as a whole indicated that there was no difference in student achievement between DATE schools and schools across the state that did not participate in DATE (Springer et al., 2010). In addition, teachers indicated that DATE had no effect in improving schools. The study found that the more years schools were under the DATE program, the more competitive the environment became.

Further, teachers were less likely to report changes in teaching practice, and they indicated motivation remain the same, except on those campuses where the performance pay was based on the individual teacher performance (Springer et al., 2010).

Variety of Alternative Pay for Teachers' Systems

Many of the systems utilized to calculate extra compensation for teachers are rooted in methodologies that reflect teachers' performances based on student achievement, as expressed by results in standardized tests. But these are not the only systems implemented in the United States since pay for performance plans come in many different formats. The array of alternative methods of compensating teachers includes systems that can reward individual teachers based on students' achievement; reward groups or schools for attaining certain standards of achievement; rewards based on classroom observations or the development of annual portfolios and conferences between teacher and supervisor; alternative methods of compensating teachers can also include bonuses for assistance, or the

combination of any of the forms mentioned above, among others⁴.

Regardless of the criteria used to calculate bonuses for teachers, a theory of action supporting the alternative compensation programs emerges. These programs are implemented to promote change in practice, boost motivation, and enhance collaboration (Marsh et al., 2011).

Three methodologies of determining extra pay for teachers are further discussed to summarize the main findings in relation to change in teaching practice, and the effects of the incentive programs on motivation and collaboration as perceived by teachers.

When it comes to current implemented performance based incentive pay for teachers, one of the systems that seems to be gaining controversial popularity across the United States (see Sanders, 2004) is based on value-added measurements of students' outcomes. Value added analysis is a statistical methodology in which the developers affirm teachers' effects on student achievement are measured by statistically controlling other effects on students'

⁴ Examples of alternative teacher compensation plans are: ProComp (Denver, CO), E-Comp (State wide Florida), Q-Comp (Minnesota), ASPIRE (Houston Independent School District), Cooperative Performance Incentive (CPI) Plans (Raham, 2000), a ladder system developed by non-profit organization Teacher Advancement Program, or the Vaughn Next Century Learning Center (Los Angeles Unified School District).

performances. One of such systems, EVAAS⁵, is used to evaluate, identify, and judge campuses and teachers performances based on students' growth in comparison to gain averages within groups of campuses and groups of students. Thus teacher effectiveness is measured using the students' "value-added" achievement scores derived from EVAAS. A recent study called for the stop of using this methodology as basis for high stake decision in teachers' accountability due to the lack of reliability as an indicator of how effective a teacher is in the classroom (Baker et al., 2010).

However, incentive pay systems are not restricted to merit founded incentive pay systems based on statistical measurements, such as value added approaches. Other systems are in place where teacher evaluation and performance pay are based on standards. The degree to which these standards are met are assessed in interviews between a teacher and an evaluator, conferences, feedback and professional development. These assessments are the basis for incentive pay. Extensive research has been conducted in some of these systems such as the one implemented in the Vaughn Next

⁵ Education Value Added Assessment System (EVAAS) is a proprietary method created by Dr. William L. Sanders to calculate student achievement gains in comparison to mean gains within homogeneous groups of students.

Century Learning Center in Los Angeles, California (Kellor, 2005; Gallagher, 2004).

The main finding about motivation is that teachers "would work just as hard to achieve the school-wide outcome goals even without the possibility of getting a bonus" (Kellor, 2005, p. 12). This finding suggests that extra pay based on performance does not affect the motivation to increase efforts to achieve school outcomes. Conversely, when it comes to how the alternative pay affected teaching practice, teachers declared that after the third year of implementation "they made real changes to their teaching practice to receive the additional pay" (Kellor, 2005, p. 15). Thus it seems that extra pay did have effects on teaching practice by accommodating their teaching to increase outcomes that will lead to receive the extra compensation. In regards to collaboration the perception of teachers was "that it reduced the sense of community among teachers" (Kellor, 2005, p. 16), suggesting a negative effect on collaboration was produced by the implementation of the alternative pay program.

Another type of pay program implemented in the United States is Cooperative Performance Incentive (CPI). CPI programs award funds to teachers and other school staff based on achievement of school-wide educational objectives

(Raham, 2000). The author avers that "the premise of CPI plans is that when an entire school community works together to raise student performance over its own previous benchmarks, there are more positive results than with plans that merely reward individual efforts" (Raham, 2000, p. 143). On the contrary, systems based on the performance on individuals to disburse funds to teachers "may have a demoralizing effect on the workplace, corroding teacher collegiality by introducing competition" (Goldhaber et al., 2008, p. 263). Pudgursky and Springer (2006) describe the negative effects of merit pay on collaboration as they portrait some of the critiques to performance pay by what it has become known as "the nature of teaching hypothesis". The authors synthesize the supporters of this notion reporting that "introducing performance-related rewards at the individual teacher level might reduce incentives for teachers to cooperate" (p. 18).

Raham (2000) notes that in Texas and North Carolina, where CPI plans have been implemented, schools appear to be changing their teaching practice in a way that increases student achievement. However, this conclusion is referred to as based on anecdotal evidence suggesting more data should be gathered and analyzed to arrive at any conclusive substantiation. A more recent study about grants from the

Texas governor's office to allocate funds to schools based on students' performance data concluded that 75% of teachers perceived the money allocated by the grant did not affect their teaching practices (Springer et al., 2009).

In addition, Raham (2000) summarizes studies on CPI implementation in several US states, in some particular school districts, and in other nations (Britain, Switzerland, and Canada) concluding that teachers increased their commitment to achieving school wide goals, thus considering the monies awarded had a positive effect on teacher motivation. However this is not a definitive conclusion, since in Kentucky and North Carolina teachers varied in how much the possibility of earning extra money motivated them to improve student achievement. Similarly, the three year grant to schools from the Texas governor's office study showed a negligibly increase in agreement among teachers that the bonus was not large enough to spur motivation. Same results were shown in a study conducted in the Charlotte-Mecklenburg School District where the author concluded that funds awarded to teachers were viewed as appropriate and an appreciated form of recognition, but of too small an amount; conversely helping students learn and seeing them meet achievement goals were reported to be more potent motivators than the bonus per se (Heneman III,

1998). Therefore the few studies about the impact of extra pay by alternative methods of compensation on motivation as perceived by teachers are inconclusive.

CPI programs implementation seem to have the support of teachers. Springer et al. (2009) reported that "the greatest support was expressed for rewarding teachers based on performance measured at the school-wide level" (p. 40). This suggests that programs with no competition component at individual level have the support of teachers. Raham (2000) noted that schools that achieved their goals were characterized by "meaningful collaboration among teachers" (p. 155). Collaboration, as the co-construction of knowledge and skills necessary for the exercise of the teaching profession, has received much of the attention of recent research (Gilles, Wilson, & Elias, 2010; Killian, & Wilkins, 2009; Levine, 2010; Musanti, & Pence, 2010) and extensive professional development has been aimed at developing such a capacity (see Bradburn, 2007; Cozza, 2010; Sang, 2009).

After three years of GEEG's implementation there was "an increase over time in the percent of respondents reporting that teachers seem more competitive (27% to 36%), and an increase in the percent reporting a lack of trust among the teachers (20% to 26%)" (Springer et al., 2009,

p.64). Johnson (1999) suggests that the answer to accountability, when it comes to teaching within the current school reform environment, is found in collaboration. He suggests that there is a need to establish an emotional bond through trust to make sure success and learning has occurred for all participants in the learning process. Bradburn (2007) reinforces this idea stating that collaboration is an essential component to the success of educational reform through sustained collaborative planning.

Yet, in spite of its importance, research about how the implementation of alternative methods of compensation affect collaboration necessary to co-construct knowledge and skills that will lead to increases in teacher quality and student's learning remains insufficient, and its findings inconclusive.

Teaching Practice

Notwithstanding the numerous studies conducted regarding teaching practice, the principal investigator was not able to find a definition of the construct *teaching practice*. Close to an encompassing definition of the construct, Wong and Mac Whinney (2009) relate the concept

of teaching practice as the way a subject is taught. Emphasis is put on *how* a subject matter is delivered. Similarly, Chikunda (2008) explains a model of attachment teaching practice as a philosophical base and its delivery, focusing though in the delivery aspects of teaching.

So even though teaching practice appears as a dependent variable in innumerable studies, the concept is simply taken for granted. In studies about alternative methods of compensation, teaching practice is considered as any aspect of the teaching-learning process related directly or indirectly to the delivery of the subject taught and the learning environment. As shown by the items surveyed by the TEEG Cycle 2 Teacher survey of Spring, 2008 (Springer et al., 2008), the variety of events considered to assess teaching practice is wide in scope. These items include among others: decisions to work together with other teachers; to feel responsible to help other teachers do their best; to help anywhere, anytime, even though is not part of the teacher official assignment; analyzing students' work to find curriculum standards still to be met; following an instructional calendar or pacing plan; to align lessons to a specific standard; to have students help other students to learn standards; focusing instruction to standardized tests; to administer benchmarks; reviewing

students' test results with other teachers; seeking help informally from other teachers; the decision to allocate time spend by students in assignments in school and at home; providing opportunities to students to spend more or less time in inquiry based learning; etc. Similar events were surveyed by the items found in the Spring 2009, School Personnel Survey, as part of the DATE evaluation final report study (Springer, et al., 2010). In a more recent study, teaching practice items include: increasing instructional time by lengthening the day, the year, or shortening recess; providing before or after school instruction or programs; organizing inquiry teams of teachers and administrators to address the needs of students; providing additional instruction to low-achieving students; increasing the use of student's achievement data to inform instruction; teaching test-taking strategies; etc. (Marsh et al., 2011).

Hence, drawing from the most recent research about performance-based compensation, the teaching practice construct was broadly considered for the purpose of the study; this construct encompasses the complexities of a multilayered process in which the teaching-learning process occurs in a school setting, as distinct from restricting it to the delivery of instruction inside a classroom.

Teachers' Perceptions and Teaching Practice

A vast literature exists on teachers' perceptions in relation to many aspects of schooling, such as curriculum and perception, perception of students' competence, perception and effectiveness of curriculum programs, and perception of self-efficacy, among others. This variety occurs not only in terms of the themes reached by the studies but also geographically, since teachers' perceptions is a topic of research around the globe. Despite how diverse the scope of topic is and the location of the conducted investigations, there is a commonality among all the studies: they conclude teachers' perceptions affect teaching practice. This is a robust motive to include teachers' voice in research about performance based compensation programs.

Teachers' perceptions and teaching practice and curriculum

The relationship among teaching practice, the area of curriculum, and teachers' perceptions has been extensively studied. For example Hoang (2008) found how lead teachers' perceptions of subject matter in elementary level both shaped and were shaped by their teaching strategies. Lead teachers' strategies for improving instruction diverged according to whether they were working in math or literacy. So how they perceived subject matter directly influenced

the strategy chosen for improving instruction. In Australia, a study of Physical Education (PE) and curriculum found how pre-service and in-service teachers' perceptions of PE determined their curriculum preferences (Morgan, 2008). The author concurs with previous research in which teacher perceptions impact their teaching and the effects become evident in their behaviors (Tabachnick & Zeichner, 1984 cited by Morgan, 2008). This becomes so predominantly manifest that a study conducted in Scotland by Burke, Williams, and Skinner (2007) concluded that teachers' perceptions impacted what thinking skills are encouraged by teaching the mandated curriculum.

Teachers' perceptions of students' competence and teaching practice

Other area of research about teachers' perceptions relates to how it affects teaching practices by affecting judgments of students' competence. An article that describes an investigation of the relationship between the perception of teachers about Latino students' social and academic competence and language proficiency and ethnicity (Edl, Jones, & Estell, 2008) found that teachers' perceptions have a profound effect on how competent students are rated by their teachers. This study shows how teachers' perceptions affect their behavior in a teaching-learning process within a

classroom environment. In line with other studies that focus on how teachers' perceptions may affect their teaching by rating their students' competence, Auwarter and Aruguete (2008) examined how gender and socioeconomic status affected teachers' perceptions and this, in turn, had an effect on their attitude toward students. Another study centered its attention to teachers' perceptions of academic, social and behavioral competence of children with Speech Sound Disorders (Overby, Carrell, & Bernthal, 2007). The study found that teachers' academic, social, and behavioral expectations for children with speech disorders were significantly lower and qualitatively different than their expectations for typical second-grade speech sound production. By affecting ideas formation of children's competence, perception would have a great impact on students' expectations and teaching practice (Overby, Carrell, & Bernthal, 2007).

Teachers' perceptions of effectiveness of curriculum programs and teaching practice

Teachers' perceptions studies have also been conducted to understand the effectiveness of curriculum programs. Teaching practice becomes the catalyzer of how successful a curriculum program can be because a program that does not take into consideration teachers' expectations, interests, and perceptions runs the risk of setting the stage for

failure (Lee, Ajayi, & Richards, 2007). "Given that the teacher's theories, beliefs, educational knowledge, skills, and practical classroom experience typically serve as the basis for judgments and decisions about a program's workability and relevance" (Lee, Ajayi, & Richards, 2007, p. 22), teachers' role becomes critical to the success of a program. As expressed by an African scholar, "since perception is the foundation of all conception formation and learning, its importance should be realized in all teaching and learning activities" (Mukerjee, 1978 cited by Okecha, 2008, p. 562).

Teachers' perceptions of self-efficacy and teaching practice

The perception of teachers about their self-efficacy has been reported to affect teaching practice. Albion (1999) affirms that research suggests that teachers' self-efficacy beliefs about using technology for teaching are directly related to their practice. A self-efficacy perception study in Sweden found that how teachers perceive their self-efficacy in relation to their teaching of inclusive classes with mental retardation and dyslexia students affect their teaching practice (Roll-Peterson, 2008).

In summary, the impact of teachers' perceptions on different aspects of schooling has been studied and published. The studies reported that how teachers perceive these aspects of schooling affect their teaching practice, hence the importance of researching the degree of association between how teachers perceive an educational component (for example, alternative compensation for teachers) affect them, and the variables involved in that same educational component (money awarded, teachers characteristics, etc.).

Impact of Teachers' perceptions on Teaching Practice and Teachers' Compensation

Even though teachers' perceptions are found to affect teachers' practice of their profession, there have not been many studies conducted in recent years on how the teachers' perceptions about alternative methods of compensating them affect their teaching practice. Furthermore, this breach occurs in an educational environment where the implementation of alternative methods of compensation is becoming commonplace. Instead studies, mostly conducted during the 1990s, generally focused on whether or not teachers were against merit pay (Ballou & Podgursky, 1993). Ballou and Podgursky, more in tune with the formal

rationality school of thought, challenged the idea that teachers oppose merit pay and affirmed that teachers were not demoralized by it. In addition, they averred that teachers working with disadvantaged and low-performing students were generally supportive of merit pay. However these authors cite in their literature review that teachers' perceptions about fairness have been correct. Merit pay programs have been unfair, divisive and short-lived (Ballou & Podgursky, 1993). They are also unpopular among teachers and they have not worked in the past mainly because merit pay is not a motivator since it does not intrinsically enrich teachers' tasks but pays more to do the same job better (Firestone, 1991).

The bulk of studies about teachers' perceptions on merit pay are more than a decade old. Moreover, they are regularly focused on whether or not teachers supported them, or on how successful they have been in terms of surviving certain time-span. However, these studies did not seek to analyze or identify the impact performance based alternative compensation had in schooling children. As portrayed in the literature review section dedicated to alternative pay for teachers, there are a few more recent studies about this issue, but they are scarce and their findings about how these programs affect motivation,

collaboration, and teaching practice are inconclusive. The most recent studies on performance-based compensation programs that have placed a more significant part of their attention on teachers' perceptions about the impact of the programs on motivation, collaboration, and teaching practice, have shown no positive effect of these programs on teaching and teachers, as it was described in the literature review section on Alternative Methods of Compensation.

Importance and Justification of this Topic of Research

As suggested by the previous sections, there is enough evidence to assert that teachers' perceptions affect how teachers exercise their trade. Proponents of implementing alternative methods of compensating teachers, which seem to be part of the array of mechanisms being tried out with the aim of attaining a comprehensive school reform, argued about the positive effects of those methods. To this end, compensating teachers differently than the single schedule pay would attract better qualified professionals and will help with retention efforts of good teachers. By extension, they conclude better teachers will provide better education to students. But not much input from teachers appears to be

part of this effort to introducing new mechanisms for school reform, as it is alternative pay for teachers. As stated by a former teacher and union representative, and advisor to the Denver School District Superintendent, "with the exception of Public's Agenda Report⁶, *Stand by Me*, I have found little research on teachers' perceptions of alternative compensation" (Jupp, 2005, p. 10) in spite of teachers being a major stakeholder in the implementation of such programs. Teachers' voice needs to be included in research about how these methods of compensation affect them and their practice.

Still, there is not much research about the perception of stakeholders about the implementation of alternative pay programs for teachers and their impact on teachers' exercise of their profession.

Studies conducted in regard to merit pay or pay for performance are mainly focused on the impact they have had on aggregated data studies of student achievement based on standardized tests (Kelley, Conley, & Kimball, 2000; Rivkin, Hanushek, & Kain, 2005). But not even these studies are conclusive without controversy since there is little empirical evidence on their impact on student achievement

⁶ This Public's Agenda Report "Stand by Me" refers to Farkas, S., Johnson, J., and Duffett, A. (2003).

(Eberts, Hollenbeck, & Stone, 2002). The latest studies in the US show no positive effect on student outcomes (Gratz, 2011), even though an international comparison across countries from the Organization for Economic Cooperation and Development (OECD) study showed evidence of the association between performance-related teacher pay and student achievement (Woessmann, 2011).

Interestingly enough, teachers' perceptions have remained unstudied within this topic of research until most recently. Previous studies have their conclusions about alternative pay programs' implementations be drawn from students' tests results almost exclusively, implying apparently that the reason to implement such programs is to increase students' scores in standardized tests rather than improving education. Studies on student achievement based on value-added data have shown that teacher effects in school districts and within schools are unrelated to teacher's characteristics such as type of certification, teacher's level of education, licensing exam scores, and years of experience beyond 2 years of teaching (Podgursky & Springer, 2006, 2007). However, the principal investigator found no studies in regard to how teachers' characteristics relate to teachers' perceptions about the impact of alternative pay on teaching practice.

Grineski (2005a) suggests that families, principals and teachers should be included as interested parties in the design and implementation of school reform programs. But this did not seem to be the case about alternative compensation for teachers. However "After all, teachers are the ones doing the doing. Their views should be taken very seriously" (Farkas, S., Johnson, J., & Duffett, A., 2003, p. 9).

A main reason to include teachers' voice in studies regarding these programs is that no much improvement of educating children has resulted from research in this topic. Says Grineski (2005a): including the ideologically charged *A Nation at Risk*, "the educational landscape is littered with misguided and de-contextualized reform plans that have had little success in improving schooling" (p. 110).

Another reason to incorporate teachers' perspective on alternative methods of compensation in education is that "when teachers (...) are confronted with a new policy, their interpretations of it will determine whether they engage in significant change, incremental change, or resistance" (Seashore, Febey, & Schroeder, 2005, p. 178). So the inclusion of teachers' perceptions may have major

implications in the longitudinal implementation of educational policy.

Therefore it is relevant to examine the relation between key variables of the education system (such as compensating teachers) and how the teachers' perceptions of those variables may affect their teaching practice. The study conducted was an investigation that sought to identify how teachers' perceptions about the impact of an alternative compensation program on collaboration among teachers, teachers' motivation, and teaching practice were associated to some key independent variables, such as money received from the program as alternative pay and teachers' characteristics (age, ethnicity, certification, etc.).

CHAPTER THREE

METHODOLOGY

This chapter describes the methodology used for the study. The first section summarizes the purpose, general characteristics, and research questions of the study. The next section depicts the research design. It is followed by a section describing the participants and sampling procedures, followed by a section on instrumentation. Then procedures to collect the data and the data analysis are addressed and the chapter ends with a section describing limitations of the study.

Purpose of the Study and General Characteristics

The purpose of the study was to describe teachers' perceptions of the impact that one alternative method of compensating teachers implemented in a large urban school district has had on their collaboration, motivation, and teaching practice. Teachers' perceptions data were collected by an original instrument developed by the principal investigator intended to provide scaled scores of perception of the impact of the compensation program on collaboration, motivation, and teaching practice.

The study addressed the following research questions:

- 1) "Do the hypothesized conceptual dimensions, collaboration, motivation, and teaching practice, correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study?"
- 2) "To what extent do each of a series of variables (the amount of money awarded to teachers by the program, years of teaching experience, years of teaching at current campus, age, ethnicity, type of teaching certification, path for teacher certification, and school level/subject taught) relate to the perceived effects of alternative compensation on teaching practice, motivation, and collaboration, if at all?"

Research Design

A survey research design was used for the study because its purpose was to examine perceptions of a large group of people about a particular issue. In this study, the large group of people was a group of teachers employed by a single school district and the issue was the perception of how a performance pay plan affected their motivation, collaboration, and teaching practice. Therefore, a survey research design suited the aims of the

research's object of study since the major purpose of a survey is to gather data from a sample to describe the characteristics of a population (Fraenkel & Wallen, 2008). In order to answer the research questions, a cross-sectional survey was used. A cross-sectional survey is a methodology utilized to collect information from a sample that has been drawn from a specific population and the information is collected at just one point in time (Fraenkel & Wallen, 2008).

Participants and Sampling Procedures

Participants for the study were drawn from the population of teachers of Fort Bend Independent School District, in the Houston (Texas) metropolitan area.

With over 9,200 employees, including more than 4,000 teachers and more than 69,000 students Fort Bend ISD is the 7th largest school district in Texas (Fort Bend Independent School District, 2011). It can be considered a major urban school district. This district was selected because schools in FBISD have implemented performance pay plans for teachers under the umbrella of District Awards for Teacher Excellence (DATE). Twenty-three elementary and middle school campuses participated in the DATE performance-based

compensation program. As shown in Table 1, these campuses service 17,269 students where 973 teachers are employed (TEA, 2011b).

Table 1

Campuses in Fort Bend ISD under DATE program

Level	Schools	Enrollment	Teachers
Elementary	19	13,661	727
Middle	4	3,608	246
Total	23	17,269	973

Note. Data from Fort Bend Independent School District (2011a) and Texas Education Agency (2011b).

Permission to conduct research in this district was given in a form of an email from the Department of Accountability and Program Evaluation of Fort Bend ISD (see Appendix A for approval email).

The principal investigator did not have access to contact potential participants directly. The Department of Accountability and Program Evaluation, following guidelines set by the inclusion and the exclusion criteria established

below, forwarded all documentation for the study to campuses' principals. Then principals forwarded the documentation to teachers.

The population of potential participants recruited for the study was all certified teachers in charge of instructing children in a DATE funded campus. The employees excluded were administrators, support staff (nurses, instructional coordinators, reading coaches, etc.), substitute teachers, teacher assistants, teacher aides, and any Fort Bend ISD employee who was not an acting teacher currently in charge of instructing students in a school setting which had implemented alternative compensation funded by the DATE grant.

Principal investigator received confirmation from the Department of Accountability and Program Evaluation that the study documentation was sent to all DATE campuses. However, the principal investigator had no way to confirm whether or not all teachers received the documentation, creating a difficulty in reporting an accurate rate of response.

The instrument was posted online at [surveymonkey.com](https://www.surveymonkey.com), and 241 total teachers responded. From these, 1 potential participant opted to answer not to give consent. In addition, other 21 potential participants gave their

consent but did not answer any item of the instrument. All those 22 potential participants were removed from the data file, leaving the total number of respondents at 219.

The distribution of teacher participants grouped by age, as shown in Figure 2, included 36 teachers (17.2%) 30 years old and younger, 66 teachers (31.6%) in the age group 31-40 years old and younger, 56 teachers (26.8%) in the age group 41-50 years old, 41 teachers (19.6%) in the age group 51-60 years old, and 10 teachers (4.8%) 61 years old and older, constituting a total of 209 respondents.

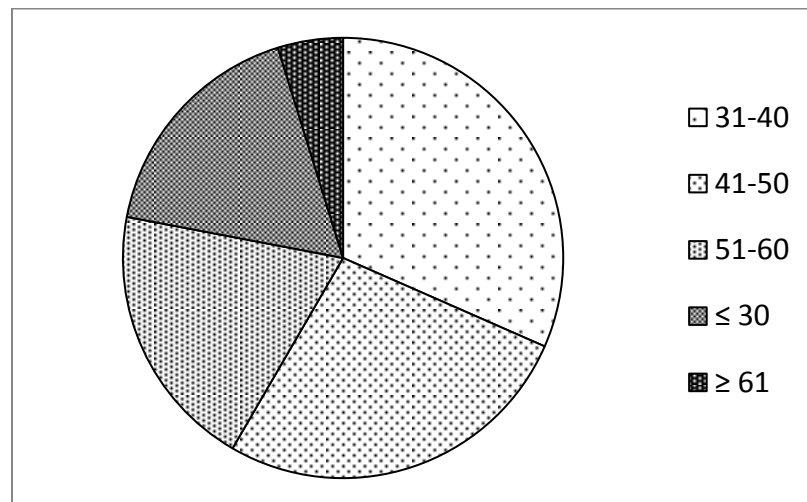


Figure 2

Number of Teachers Respondents Grouped by Age

Participants consisted of 87 African-American teachers (40.3%), 81 Caucasian teachers (37.5%), 30 Hispanic teachers (13.9%), 12 Asian teachers (5.6%), and 6 teachers

reported other ethnicities (2.7%), including Native American or multiracial. Figure 3 shows teacher participants ethnicity as percentage of 216 total respondents.

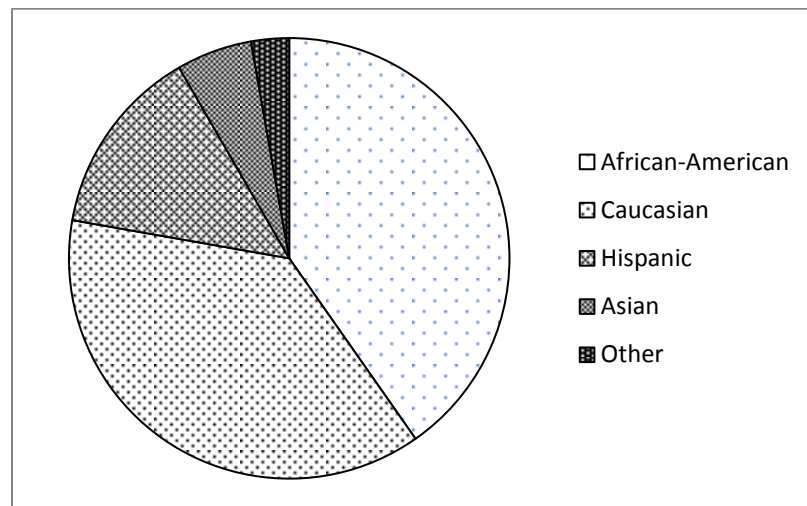


Figure 3

Proportion of Teachers Participants by Ethnicity

With a minimum of 1 year of experience and a maximum of 30 years of experience, Table 2 shows descriptive statistics for the respondents with averages above 11 years of teaching experience and more than 6 years of experience at the current campus.

Table 2

Teachers' Years of Teaching Experience

	N	Mean	Median	Mode	SD
Years of Teaching Experience	214	11.63	10	5	7.82
Years in Current Campus	213	6.75	5	3	5.88

Instrumentation

The study utilized a researcher-designed Likert scale response survey. The survey allowed participants to state varying degrees of their perception on how the performance pay plan has affected their teaching practice, motivation, and collaboration. Participants answered to what extent they agreed or disagreed with each item in a continuum of 5 response-options with statements that reflected the underlying variables to be measured by the instrument: the perceived effects of alternative pay on teaching practice, motivation, and collaboration. Attitudinal responses are most appropriately measured with Likert-scale items (Fitzpatrick, Sanders, & Worthen, 2004). Hence, a Likert-

scale response-format corresponded with the purpose of the study.

Piloting of the Instrument before the study

The instrument was first administered to a convenient sample of 61 elementary school teachers employed by a Houston metropolitan area school district. The response rate was 100%. It was administered on paper during a faculty meeting where participants responded to the instrument and turn it in right afterwards during the faculty meeting.

The face and content validities of the original instrument were confirmed during the development of the scales by teacher-colleagues and a methodology professor from the Doctoral Program in Education at the University of Houston (Houston, Texas) in quality of experts. In addition, latent variables addressed by the scales were derived from the literature, increasing the construct validity. Collaboration, motivation and teaching practice are factors measured in studies published in peer-reviewed journals about how teachers perceived performance pay affected their work. This is shown by the emerging literature reporting teachers' perceptions about the impact of performance-based pay on collaboration, motivation, and teaching practice cited in the literature review section.

The instrument was built with 5 items per factor. Three items per factor were written following a positive statement format and two were written in a negative format. The order of the items was randomly assigned in the instrument.

The participants' responses were manually entered in Excel and SPSS was used to process the factorization techniques.

The original piloted instrument showed internal consistency (Cronbach's Alpha) at $\alpha=.774$ for *teaching practice* and $\alpha=.756$ for *motivation* when it was administered for the first time, prior to data collection for the study. While teaching practice and motivation showed somewhat strong reliability values, collaboration showed a reliability coefficient (Cronbach's Alpha) at $\alpha=.381$. Two items within the collaboration scale were modified (see Appendix B for modifications of items). The new reliability coefficient after administering the revised survey for the present study showed $\alpha=.631$ and $\alpha=.646$ on standardized items, as described in more details in the results sections.

Data Collection Procedures

Teachers working on campuses which have implemented performance pay funded by the DATE grant were the potential participants for the study.

All documentation, approved by the University of Houston Institutional Review Board, was sent to the Department of Accountability and Program Evaluation of Fort Bend ISD via email. First, a letter inviting teachers to voluntarily participate in a study by answering a survey (see Appendix C for Letter of invitation to participate in research) was sent via email. After confirmation from the Department of Accountability and Program Evaluation that the letter of invitation had been sent, a recruitment script was sent (see Appendix D for Recruitment Script). The recruitment script offered potential participants to request Research participants' rights and a letter of consent from the principal investigator (See Appendix E for Research participants' rights and letter of consent). The link to the survey (surveymonkey.com) was included in the recruitment script (see Appendix F for Instrument). The window to answer the survey opened on a Monday and it was extended to the Friday of the third week, for a total of 19 days. Two reminders were sent out via email on the eighth and on the seventeenth day respectively. The participants'

responses were downloaded directly from surveymonkey.com in to an Excel file to be used in SPSS and process the pertinent statistical techniques.

Data Analysis Procedures

The data analysis plan utilized to analyze the data collected was twofold:

(1) Factorization techniques were processed to confirm the instrument's underlying constructs and the reliability of the scales.

These techniques were used to answer research question 1: "Do the hypothesized conceptual dimensions, teaching practice, motivation, and collaboration, correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study?"

(2) Multiple linear regression models were processed to describe the extent of the association between the amounts of money awarded to teachers by the performance pay program and the perceived effects of alternative compensation on collaboration, motivation, and teaching practice.

These models were used to answer research question 2: "To what extent do each of a series of variables (the amount of money awarded to teachers by the program, years of teaching experience, years of teaching at current campus, age, ethnicity, type of teaching certification, path for teacher certification, and school level/subject taught) relate to the perceived effects of alternative compensation on teaching practice, motivation, and collaboration, if at all?"

The dependent variables in the regression models were the perceived impact of the Performance Pay Plan on teaching practice, the perceived impact of the Performance Pay Plan on motivation, and the perceived impact of the Performance Pay Plan on collaboration as measured by the summated scales created from the teachers' responses to the instrument.

The independent variables' measures were self-reported by participants during the data collection via the survey instrument. Five Likert scale response options were configured in the instrument: Strongly disagree, Disagree, Neither agree nor disagree, Agree, and Strongly agree. The Likert scale response options were considered to be equidistant. The summated scales were developed assigning

responses values from 1 point to Strongly Disagree to 5 points to Strongly Agree.

The regression models used follow:

$$y_1 = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \xi$$

$$y_2 = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \xi$$

$$y_3 = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \xi$$

Where:

y_1 is the estimated teaching practice value

y_2 is the estimated motivation value

y_3 is the estimated collaboration value

α is constant (intercept)

$\beta_1 x_1$ is the estimated money awarded by the Performance Pay Plan in the current year

$\beta_2 x_2$ is the estimated money awarded by the Performance Pay Plan in the previous year

$\beta_3 x_3$ is the estimated years of teaching experience

$\beta_4 x_4$ is the estimated years of experience in current campus

$\beta_5 x_5$ is the estimated measured age

$\beta_6 x_6$ is the estimated measured teacher certification

$\beta_7 x_7$ is the estimated measured teacher certification

$\beta_8 x_8$ is the estimated measured grade taught

$\beta_9 x_9$ is the estimated measured age

ξ is the estimated error

The ninety-five confidence level ($p < .05$) was used as the criterion to determine statistical significance.

An Exploratory Data Analysis to check that the data set followed a Gaussian normal distribution curve was conducted. Descriptive Statistics in SPSS *Normality plot with tests* was processed to check the data set was unimodal and symmetric. Because the results were not conclusive, Normal P-P Plots of Regression Standardized Residuals for the 3 scales were processed.

Missing data were assumed to be at random. Missing data were treated using *pairwise* option in SPSS in the regression models. Listwise deletion based on all variables was used for Reliability Case Processing in all factorization techniques.

Limitations of the study

Validity of the study may be threatened due to the nature of not selecting a random sample from the study population. There is no assumption of generalizability of the results beyond the population from where the sample was

drawn. The predictable value of the findings relates solely to DATE campuses in the district where the data were collected. In addition, the conclusions from this study are limited by the associative nature of the study and its use of multiple linear regression models in the data analysis.

As with any survey design research, the data for the scales were self-reported, so there is no guarantee that the actual responses reflect what the participants truly perceive as to the way the money affected their teaching practice, motivation, and collaboration, and this may threaten the validity of the study.

Other extraneous variables not considered in the regression models of this study may have effects on the dependent variables. Environmental, social, and personal factors not considered in the study may contribute to determine teachers' perceptions about how performance pay affects their teaching practice, motivation, and collaboration.

The principal investigator did not have direct access to participants. So even though there was the confirmation from the Fort Bend ISD Evaluation and Accountability department about delivering all documentation related to the study to all campuses' principals, there is no guarantee that all teachers received it.

After the factorization techniques were processed, the Collaboration scale ended up being formed by 3 items and its coefficient of reliability Alpha did not meet the value threshold of .65. This limitation to the study is further examined in the Discussion section of Chapter Five.

CHAPTER FOUR

RESULTS

The purpose of this study was to describe teachers' perceptions of the impact that one alternative method of compensating teachers implemented in a large urban school district has had on their collaboration, motivation, and teaching practice. In order to achieve this purpose, the study addressed two research questions.

- (1) "Do the hypothesized conceptual dimensions -teaching practice, motivation, and collaboration- correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study?"
- (2) "To what extent do each of a series of variables (the amount of money awarded to teachers by the program, years of teaching experience, years of teaching at current campus, age, ethnicity, type of teaching certification, path for teacher certification, and school level/subject taught) relate to the perceived effects of alternative compensation on teaching practice, motivation, and collaboration, if at all?"

In order to answer the first research question, factorization techniques were processed to confirm that the hypothesized conceptual dimensions -teaching practice, motivation, and collaboration- correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study.

In order to answer the second research question, simultaneous multiple linear regression models were processed to describe the extent of the association between the amounts of money awarded to teachers by the performance pay program and the perceived effects of alternative compensation on teaching practice, motivation, and collaboration.

This chapter presents the results obtained when the above statistical techniques were processed.

Results Obtained for Research Question 1

Table 3 shows that all 3 scales passed the threshold for Determinant and Measure of Sampling Adequacy (KMO). A determinant other than 0 (zero) indicates there is no problem with the data used to compute the scales. A number close to 0 (zero) may indicate there is a redundancy of data. Teaching Practice Determinant at .307, Motivation

Determinant at .178, and Collaboration Determinant at .502 show there is no redundancy, and therefore, enough variance exists in the data used to develop the scales.⁷

Bartlett's Test of Sphericity is a test statistic to check the hypothesis that the variables' correlation matrix differs from an identity matrix. The matrices for the 3 5-item scales are different from an identity matrix as revealed by the statistically significant differences shown in Table 3.

Table 3
*Teaching Practice, Motivation, and Collaboration:
Determinant, Kaiser-Meyer-Olkin Measure of Sampling
Adequacy (KMO), and Bartlett's Test of Sphericity*

	Teaching Practice	Motivation	Collaboration
Determinant	.307	.178	.502
KMO	.739	.801	.579

Bartlett's Test
of Sphericity

Approx. Chi-Square	247.783	358.461	143.610
df	10	10	10
Sig.	<.01	<.01	<.01

Note: Principal Component Analysis with a fixed 3 unrotated factors extraction.

⁷ Teaching Practice, Motivation, and Collaboration items are named TP1 through TP5, M1 through M5, and C1 through C5 respectively. See Appendix G for Instrument Items' Key.

Communalities represent the extent to which each item shares variance with the other items. Table 4 shows that the communalities for each variable in the Teaching Practice scale are substantially explained for by all the factors in conjunction.

Table 4

Communalities for each variable in Teaching Practice scale

Variable	Communality	
	Initial	Extraction
TP1	1.000	.852
TP2	1.000	.725
TP3	1.000	.743
TP4	1.000	.750
TP5	1.000	.997

Five items make up the summated scale Teaching Practice: TP1, TP2, TP3, TP4, and TP5. The results showed the scale passed the threshold for Determinant, with value of .307, and the Measure of Sampling Adequacy (KMO) with value of .739, and a statistically significant Bartlett's Test of Sphericity value: $\chi^2(10, N = 219) = 247.78, p < .01$.

Table 5

Loading Factors for Teaching Practice items

Component Matrix			
	Component		
	1	2	3
TP1	.584	.612	-.369
TP2	.609	-.584	.118
TP3	.810	-.242	-.167
TP4	.846	-.029	-.180
TP5	.616	.355	.701

Table 5 shows Teaching Practice items TP2, TP3, TP4, and TP5 have a high correlation (above .60), or loading factors, on factor 1 while item TP1 has a correlation of .584 on this factor.

Reliability Case Processing Summary for all Teaching Practice's 5 items showed 213 valid cases, Cronbach's Alpha .730 and Cronbach's Alpha Based on Standardized items .733. Listwise deletion based on all variables in the procedure was used.

DeVellis (2003) suggests a factor loading .5 and Alpha value minimal threshold of .65 as acceptable for developing a scale. The five items in Teaching Practice passed the

factor loading minimal values, and the scale showed a reliability Alpha value $\alpha = .730$.

These results indicate that the summated scale Teaching Practice is an adequate instrument to measure teachers' perceptions about how a performance pay bonus impacted their teaching practice. However, some items showed complex structure, or cross loading across factors, suggesting these items may explain other latent variables. This constitutes a limitation on the scale's explanatory power, which will be addressed in the next chapter.

Five items make up the summated scale Motivation: M1, M2, M3, M4, and M5. The results shown on Table 3 indicate the scale passed the threshold for Determinant, with value of .178, and the Measure of Sampling Adequacy (KMO) with value of .801, and Bartlett's Test of Sphericity statistically significant: $\chi^2(10, N = 219) = 358.46, p < .01$.

Table 6 shows the Communalities for the Motivation scale.

Table 6

Communalities for each variable in Motivation scale

Variable	Communality	
	Initial	Extraction
M1	1.000	.983
M2	1.000	.981
M3	1.000	.800
M4	1.000	.740
M5	1.000	.804

Table 6 shows that a substantial proportion of the variance of each variable in the Motivation scale, is explained for by all the factors in conjunction.

Table 7

Loading Factors for Motivation items
Component Matrix

	Component		
	1	2	3
M1	.480	.867	-.028
M2	.708	-.043	.691
M3	.852	-.143	-.233
M4	.808	-.032	-.038
M5	.847	.355	-.292

Table 7 shows Motivation items M2, M3, M4, and M5 have a high correlation (above .70) on factor 1. However, item M1 shows a loading factor on factor 1 slightly below the .5 mark suggested by DeVellis (2003).

Reliability Case Processing Summary for all Motivation's 5 items showed 211 valid cases, Cronbach's Alpha .790 and Cronbach's Alpha Based on Standardized items .797. Listwise deletion based on all variables in the procedure was used.

These results indicate that the summated scale Motivation is an adequate instrument to measure teachers' perceptions about how a performance pay bonus impacted their motivation. However, some items showed complex structure suggesting these items may explain other latent variables. This feature of the scale constitutes a limitation on the scale's explanatory power, which will be addressed in the next chapter. Still, although item M1 loading factor value was slightly below the suggested value of .5, the reliability coefficient $\alpha = .790$ suggests that the summated scale including item M1 remains adequate as a measurement instrument for the latent variable Motivation.

Table 8 shows Communalities for the Collaboration scale.

Table 8
Communalities for each variable in 5-item Collaboration scale

Variable	Communality	
	Initial	Extraction
C1	1.000	.726
C2	1.000	.956
C3	1.000	.742
C4	1.000	.723
C5	1.000	.811

Table 8 shows the considerable extent to which each item shares variance with the other items.

Table 9
Loading Factors for 5-item Collaboration
Component Matrix

	Component		
	1	2	3
C1	.341	.747	.228
C2	.619	-.303	.693
C3	-.017	.850	.015
C4	.836	.001	-.210
C5	.796	-.067	-.417

Table 9 shows Collaboration items C2, C4, and C5 have a correlation above .60 on factor 1. While Item C1 shows a loading factor of .341 on factor 1, item C3 shows a correlation of $-.017$ with factor 1.

Reliability Case Processing Summary for all 5 items in Collaboration showed 212 valid cases, Cronbach's Alpha .495 and Cronbach's Alpha Based on Standardized items .499. Listwise deletion based on all variables in the procedure was used.

Item C3 was removed from the scale due to a low correlation with factor 1 while showing a strong positive correlation with factor 2. After deletion of item C3, a new round of factorization techniques for the new 4-item scale was processed.

The 4-item scale showed Determinant value equal to .606, and Measure of Sampling Adequacy (KMO) of .622, and Bartlett's Test of Sphericity $\chi^2(6, N = 214) = 105.654, p < .01$.

Table 10 shows the Communalities for items C1, C2, C4, and C5.

Table 10

Communalities for each variable in 4-item Collaboration scale

Variable	Communality	
	Initial	Extraction
C1	1.000	.999
C2	1.000	.990
C4	1.000	.745
C5	1.000	.808

Table 11 shows the Loading Factors for items C1, C2, C4, and C5.

Table 11

Loading Factors for 4-item Collaboration

	Component Matrix		
	Component		
	1	2	3
C1	.352	.896	.268
C2	.836	-.394	.677
C4	.794	-.053	-.210
C5	.613	-.038	-.421

The Case Processing Summary showed a Cronbach's Alpha value at .558 and a Cronbach's Alpha Based on Standardized items at .572 with 214 cases. Listwise deletion based on all variables in the procedure was used.

Item C1 was removed from the 4-item scale due to a low correlation with factor 1 while showing a strong correlation with factor 2. After processing a new round of factorization techniques, the scale showed Determinant .628, Measure of Sampling Adequacy (KMO) of .602, and a Bartlett's Test of Sphericity $\chi^2(3, N = 214) = 98.794, p < .01$.

Table 12 shows the Communalities for items C2, C4, and C5.

Table 12

Communalities for each variable in 3-item Collaboration scale

Variable	Communality	
	Initial	Extraction
C2	1.000	1.000
C4	1.000	1.000
C5	1.000	1.000

Table 12 shows that the solution for this factor resulted in communalities equal to 1. This may mean that there is a problem with the quantity of data or the numbers of factors extracted. This solution adds a limitation to the interpretability of the scale as a measure of the latent variable.

Table 13 shows the Loading Factors for items C2, C4, and C5.

Table 13

Loading Factors for 3-item Collaboration

Component Matrix			
	Component		
	1	2	3
C2	.841	.758	.098
C4	.803	-.203	-.501
C5	.645	-.396	.446

The Case Processing Summary showed a Cronbach's Alpha value at .631 and a Cronbach's Alpha Based on Standardized items value at .646 with 215 cases.

The factorization techniques results for the scale Collaboration produced two items (C1 and C3) to be

discarded from the original scale's pool of items. Three items remained in the summated scale: C2, C4, and C5. The results showed the 3-item scale passed the threshold for Determinant, with value of .502, and the Measure of Sampling Adequacy (KMO) with value of .579, and a statistically significant Bartlett's Test of Sphericity: $\chi^2(10, N = 214) = 143.601, p < .01$.

The 3 items passed the factor loading minimal values and the scale showed a reliability Alpha value $\alpha = .631$.

These results indicate that the findings concluded from the summated scale Collaboration should be analyzed with caution. Even though the scale passed most of the thresholds set for an adequate instrument, the scale is formed by 3 items and its reliability coefficient was slightly below .65. Further, the 3-item scale communalities extracted resulted in values equal to one, which could indicate a problem with the quantity of data or the number of factors processed. This cautionary conclusion will be addressed in more detail in the discussions of the next chapter.

Table 14 shows the reliability value for each item in the summated scales Teaching Practice, Motivation, and Collaboration, and the overall Alpha value for each scale.

Table 14

Reliability value for Teaching Practice, Motivation, and
Collaboration and Factor Loadings across items

		Factor	
Scale	Item	Loading	α
Teaching Practice			.739
	TP1	.584	
	TP2	.609	
	TP3	.810	
	TP4	.846	
	TP5	.616	
Motivation			.834
	M1	.480	
	M2	.708	
	M3	.852	
	M4	.808	
	M5	.847	
Collaboration			.631
	C2	.841	
	C4	.803	
	C5	.645	

Results Obtained for Research Question 2

Test for Normality Kolmogorov-Smirnov suggested the scales' data sets were not normally distributed with a significance level $p < .01$. However, an exploratory analysis with descriptive statistics and plots in SPSS showed the data for each of the three scales did have enough features to be treated as normal distributions. As shown in Table 15 Skewness and Kurtosis for the 3 scales show the data are within the range of below 1 Skewness, and Kurtosis of absolute value below .7.

Table 15

Test for Normality and Descriptives for scales Teaching Practice, Motivation, and Collaboration

Test of Normality and Descriptives				
Kolmogorov-Smirnov			Descriptives	
	Statistic	Sig.	Skewness	Kurtosis
TP	.103	<.01	.380	-.570
M	.097	<.01	.502	-.330
C	.110	<.01	-.495	.281

Due to the ambiguous results of the normality tests, Normal P-P Plot of Regression Standardized Residual for the 3 scales was processed. Normal P-P Plot is a technique to graphically assess whether or not a data set is

approximately normally distributed. The data set is graphed over a theoretical line of a normally distributed data. The data set being assessed should form an approximate straight line along the theoretical line, drawn by SPSS at a 45 degree angle on a plot graph.

The results showed normal distribution for Teaching Practice, normal distribution for Motivation, and normal distribution for Collaboration. As shown in Figure 4, Figure 5, and Figure 6, the points of the three scales' plots form a nearly linear pattern. This is a good indication that the normal distribution is a good model for the data sets.

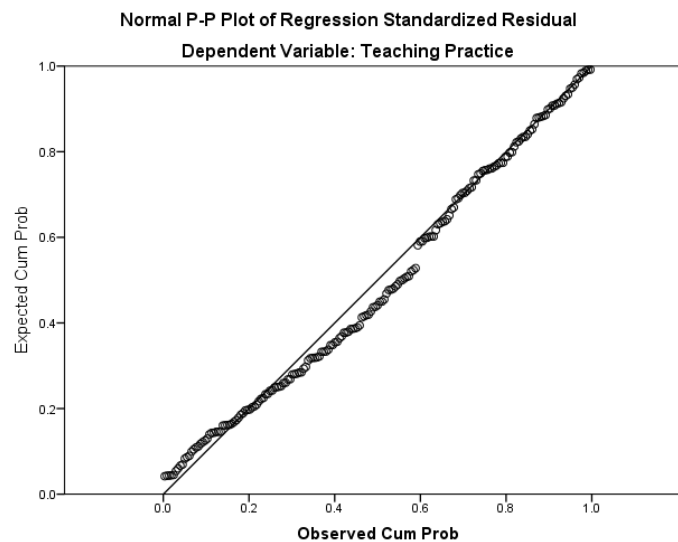


Figure 4
Normal P-P Plot of Regression Standardized Residual for
Teaching Practice

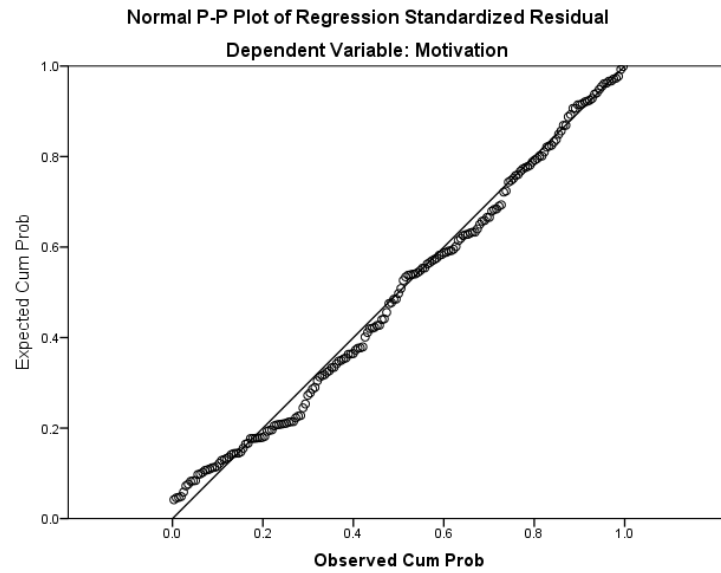


Figure 5
Normal P-P Plot of Regression Standardized Residual for
Motivation

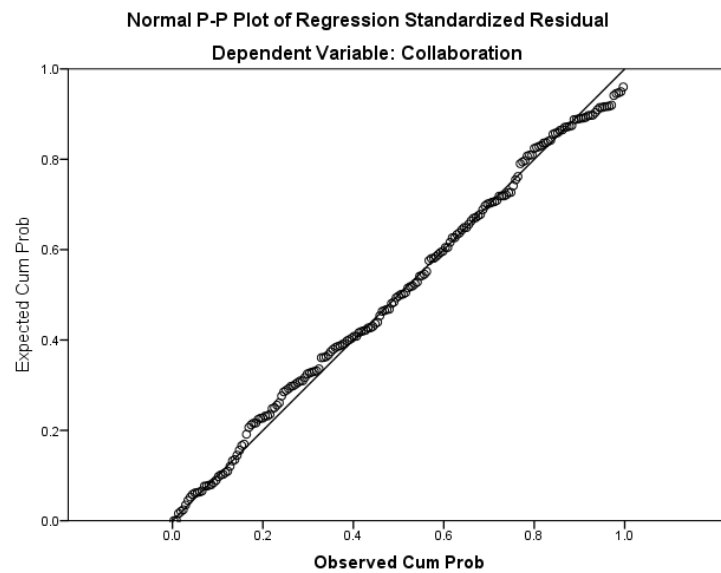


Figure 6
Normal P-P Plot of Regression Standardized Residual for
Collaboration

The regression model for variables predicting Teaching Practice showed $R = .38$, $R^2 = .15$, adjusted $R^2 = .03$ and a Standard Error of the Estimate equal to 3.29. The ANOVA for the regression model showed $F(23, 173) = 1.29$, $p > .05$.

These results indicate that the relationship between the criterion variable and the predictors is not statistically significant. Therefore, no statistically significant linear relationship of teachers' perceptions of the impact that the alternative method of compensation had on their teaching practice and the independent variables was found.

The regression model for variables predicting Motivation showed $R = .42$, $R^2 = .18$, adjusted $R^2 = .07$ and a Standard Error of the Estimate equal to 3.75. The ANOVA for the regression model showed $F(23, 171) = 1.58$, $p = .05$.

These results indicate that the relationship between the dependent variable Motivation and the predictors is statistically significant at 95% confidence level. Therefore, the model showed a statistically significant linear relationship of teachers' perceptions of the impact that the alternative method of compensation had on their motivation and the independent variables.

Table 16 shows the summary of the regression model for the variables predicting Motivation, where only two

predictors influenced significantly how teachers perceive the impact of alternative compensation on their motivation. These variables are: Ethnicity Asian and Age.

Ethnicity Asian independent variable showed $B = 3.08$ and $\beta = .18$ at significance level $p < .05$. Because Ethnicity was a dummy coded variable using White as the reference, the results show how Asian teachers compare to White teachers in terms of the impact that the program's monies have on their motivation. These results suggest that Asian teachers feel on average that the monies from the program increase their motivation 18% more than White teachers. The recent literature does not address how money from performance pay programs impact teachers differently based on their ethnicity.

Age independent variable showed $B = -0.14$ and $\beta = -.40$ at significance level $p < .01$. The results indicate that for every year of increment in age, the perception of the impact of bonus money on motivation decrease by 0.14 units, all other variables remaining constant. The recent literature does not address specifically how money from performance pay programs impact differently teachers based on their age. Marsh et al. (2011) mentioned that recent research indicates that educators' experience and age affect attitudes towards performance-based financial

rewards. They cite Springer et. al. (2009) to exemplify the differences between inexperienced and experienced teachers about how much educators support rewards programs. However, the authors offer no citation related to how age does.

Table 16
Summary of Simultaneous Regression Analysis for Variables Predicting Motivation

Variable	B	SE	β
Teach 3 rd to 5 th Grade	-0.42	0.73	-.05
Teach 6-8 Across Subjects	0.21	1.25	.01
Teach 6-8 Language Arts	1.23	1.75	.06
Teach 6-8 Mathematics	0.78	1.56	.04
Teach 6-8 Science	2.45	2.05	.10
Teach 6-8 Social Studies	-0.11	2.47	-.00
Teach other	0.66	0.90	.07
Ethnicity Asian	3.08	1.27	.18 *
Ethnicity African-Am	0.29	0.67	.04
Ethnicity Latino	0.09	1.16	.01
Ethnicity other	1.40	1.41	.08
Cert Bilingual	0.29	1.53	.02
Cert Second Core Subject	-2.40	1.63	-.16
Cert Multiple Certification	-0.36	0.71	-.04
Cert other	-1.03	1.02	-.09
Through ACP	0.51	0.70	.06
Through Deficiency Plan	1.49	1.92	.06
Through Other	0.83	1.70	.04
Teaching Experience	0.04	0.06	.07
Tech. Exp. at campus	0.04	0.06	.06
Age	-0.14	0.04	-.40 **
Received Bonus Current Year	0.00	0.00	.10
Received Bonus Previous Year	0.00	0.00	-.09

Note: *p < .05. **p < .01

The regression model for variables predicting Collaboration showed $R = .37$, $R^2 = .14$, adjusted $R^2 = .02$

and a Standard Error of the Estimate equal to 2.36. The Analysis of Variance statistics for the regression model showed $F(23, 173) = 1.18, p > .05$.

These results indicate that the relationship between the criterion variable and the predictors is not statistically significant. Therefore, no statistically significant linear relationship of teachers' perceptions of the impact that the alternative method of compensation had on their collaboration and the independent variables was found.

These results go against the theory of action proposed by the implementation of these programs which seek to enhance collaboration, among other benefits (Marsh et al. 2011). The model did not show any positive influence of money from the incentive program over teachers' collaboration as perceived by the teachers themselves.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

The purpose of this study was to describe teachers' perceptions of the impact that one alternative method of compensating teachers implemented in a large urban school district has had on their collaboration, motivation, and teaching practice. In order to achieve this purpose, the study addressed two Research Questions: the first question is related to the underline structure of the data, and the second question is related to the degree of association between the teachers' perceptions measured by the summated scales and the independent variables. The results involving Research Question 1 and Research Question 2 are discussed next.

Discussion about Research Question 1

The first Research Question addressed by the study was, "Do the hypothesized conceptual dimensions, teaching practice, motivation, and collaboration correspond with the dimensions (factors) derived from the data collected with the original survey administered for the study?"

The main objective sought by answering this question was to find the underline structure of the data in order to assess the reliability of the survey instrument.

The results of the study showed that the scales developed from the survey's items are adequate to be used in studies intended to measure the latent constructs, namely the teachers' perceptions of the impact of extra compensation money on Teaching Practice, Motivation, and Collaboration. These scales could be a good pathway to develop more detailed and specific instruments to measure such constructs in more concrete and complex terms, such as how money from alternative compensation programs affect specific tasks teachers perform as seeing by the teachers themselves. For example, Teaching Practice could be measured in more specific subcategories by developing scales measuring teacher's perceptions of the impact of money on Planning, Delivery of instruction, Materials used for instruction, and Evaluation of students' performance. Such efforts have already begun, as shown in Marsh et al. (2011) and Springer et al (2008, 2009, 2010), even though these last 3 studies are program evaluations of TEEG, GEEG, and DATE respectively rather than research properly speaking.

One of the conclusions about the scales was that the Collaboration scale ended up being constructed by 3 items and with a reliability coefficient of .631. The cautionary concluding statements about this scale should be

contextualized on one of the most recent studies conducted. In Marsh et al. (2011), Teaching Practice (named Instructional Practices) is measured on several sets of subscales. For example, Student-Directed Instruction is formed by 4 items and its reliability coefficient is .66, while Standards-Aligned Instruction is formed by 2 items and its coefficient of reliability is .54 (see Marsh et al., 2011, Table 8.2 SPBP Teacher Survey Scale Description: Instructional Practices, p. 235). Further, Collaboration (also named Collaboration in Marsh et al., 2011), is measured by 3 subscales. One of these subscales, Collaboration with Whole Staff is comprised of 2 items with a reliability coefficient of .49 (see Marsh et al., 2011, Table 8.4 SPBP Teacher Survey Scale Description: Collaboration, p. 237).

Some of the limitations made about findings using the Collaboration scale in this study, must be relativized within the context of current rigorous research, such as Marsh et al. (2011). So when it comes to the number of items in each scale and their coefficient of reliability, the scales developed for this study then seem to be adequate scientific measurement tools that can be used to inform the public in general, and the learning community in

particular, about how teachers perceive these new methods of compensation are affecting teaching and teachers.

Specific items within the scales showed factor's complex structure, meaning the item showed loading from more than one factor. This may indicate that the item is measuring more than one latent variable, adding limitations to the interpretability of the findings from the processing of the multiple linear regressions in which the scales were entered as dependent variables.

The solution for communalities for the 3-item Collaboration scale showed communalities equal to one. This may mean that there is a problem with the quantity of data or the numbers of factors extracted. This solution adds a limitation to the interpretability of the scale as a measure of the latent variable. However, the step-by-step deletion of items within Collaboration described in detail in Chapter 4 showed that there were no data quantity problems to run the solution, so the limitation added to the usefulness of the scale should be minimized.

Discussion about Research Question 2

The second Research Question addressed by the study was, "To what extent do each of a series of variables (the amount of money awarded to teachers by the program, years

of teaching experience, years of teaching at current campus, age, ethnicity, type of teaching certification, path for teacher certification, and school level/subject taught) relate to the perceived effects of alternative compensation on teaching practice, motivation, and collaboration, if at all?"

In addressing Research Question 2, the study posited three non-directional hypotheses: each hypothesis sought to find a significant relationship between the teachers' perceptions on how the alternative compensation affected their (1) Teaching Practice, (2) Motivation, and (3) Collaboration, and a set of independent variables discuss in more detail next.

Teaching Practice

The first research non-directional hypothesis was: there is a statistically significant relationship between the teachers' perceptions of the impact that the alternative method of compensation had on their teaching practice and the following predictors: Grade level/Subject taught, Ethnicity, Type of teaching certification held, Path followed to obtain teacher certification, Years of teaching experience, Years of teaching experience at the current campus, Age, Amount of bonus money received during

the current year, and Amount of bonus money received during the previous year.

The Multiple Linear Regression Model for variables predicting Teaching Practice showed $R = .38$, $R^2 = .15$, adjusted $R^2 = .03$ and a Standard Error of the Estimate equal to 3.29. The ANOVA for the regression model showed $F(23, 173) = 1.29$, $p > .05$. These results indicate that the relationship between the criterion variable and the predictors is not statistically significant. The null hypothesis is not rejected and, therefore, no statistically significant linear relationship of teachers' perceptions of the impact that the alternative method of compensation had on their teaching practice and the predictor variables was found.

These findings concur with Marsh et al. (2011). In their research, the authors observed no statistically significant differences between the group receiving alternative pay and the control group in terms of changes in teaching practice. Springer et al. (2009, 2010) also arrived at the same conclusion when evaluating the effects of TEEG and DATE monies on Teaching Practice in the state of Texas.

Conversely, Kellor (2005) concluded that teachers made real changes in teaching practice by accommodating their

teaching to increase outcomes that will lead to receive the extra compensation. Raham (2000) somewhat concurs with Kellor noting the conclusions of studies conducted in North Carolina and Texas, highlighting, however, that much of the evidence was anecdotal. The results in the study did not agree with these authors' findings.

So even though positive effects of incentive programs on teaching practice are not being detected in most recent research studies, the implementation of alternative compensation has been intensely supported by States and the Federal Government around the nation. It opens a line of questioning not currently addressed by research, which is, what is the actual source for the impetus behind all the effort, dedication, and monetary support to implement these programs, if research does not find positive effects of them on schooling? One possible answer to this question, from the scientific investigation point of view, could be to move from alternative compensation programs evaluations to policy analysis and the reasons behind the application of certain education policies.

Motivation

The second research non-directional hypothesis was: there is a statistically significant relationship between the teachers' perceptions of the impact that the

alternative method of compensation had on their motivation and the following predictors: Grade level/Subject taught, Ethnicity, Type of teaching certification held, Path followed to obtain teacher certification, Years of teaching experience, Years of teaching experience at the current campus, Age, Amount of bonus money received during the current year, and Amount of bonus money received during the previous year.

The Multiple Linear Regression Model for variables predicting Motivation showed $R = .42$, $R^2 = .18$, adjusted $R^2 = .07$ and a Standard Error of the Estimate equal to 3.75. The ANOVA for the regression model showed $F(23, 171) = 1.58$, $p = .05$.

These results indicate that the relationship between the criterion variable and the predictors is statistically significant. The null hypothesis is rejected and, therefore, a statistically significant linear relationship of teachers' perceptions of the impact that the alternative method of compensation had on their motivation and the predictor variables was found.

The regression model indicates that Asian teachers perceive that the money received impacted their teaching practice more than White teachers, all other variables remaining constant.

These results suggest that Asian teachers feel on average that money from the incentive program motivates them more than White teachers. The recent literature does not address how money from performance pay programs impact teachers' motivation differently based on their ethnicity. The study could be indicating that cultural differences do matter. The question whether or not Asians living in the United States are more inclined to be motivated by money than Caucasian Americans require further examination. It could also mean that Asian teachers are more likely to perform specific tasks making them more bias toward money, although not because of their ethnicity but because of the kind of position they held. Further investigation should be conducted to determine whether Asian ethnic teachers, for example, occupy more Math and Science teaching positions than Language Arts, Social Studies or any other subject. Once that relationship was established, further research should attempt to clarify if there is a statistically significant difference between different ethnicities holding those specific teaching positions. For example, do White Science teachers have the same perception as Asian Science teachers in regards of how money affects their profession?

The regression model also indicates that Age and the perception on how money affects motivation have a significant inverse relationship. The results indicate that for every year of increment in age, the perception of the impact of bonus money on motivation decreases. These findings suggest that teacher become less likely to be motivated by money as they become older.

It may be that older teachers have their financial lives more settled, and the reasons why they entered and remained in education are not related to monetary incentives. On the other hand, young teachers coming out of college may have a plethora of reasons why to pursue more financial gains and any program that would allow them to get that, becomes a motivator. In addition, some generational differences could play a part. As Coggs, Ott, Behrstock, and Lasagna (2009) reported, *Gen Y* teachers - those born between 1977 and 1995 - tend to believe their successes should be rewarded with money, and are more likely to support performance-based bonuses and programs than older teachers do.

The regression model found there is an overall statistically significant association between the predictor variables and how teachers perceive money affected their motivation. But, as discussed, only two independent

variables showed a statistically significant degree of relationship with the dependable variable, one being negative, and the other one negligible. This concurs with recent investigations about the perceived effects of performance-based alternate compensation on motivation. Heneman (1998), for instance, reported that teachers were not motivated by the monetary bonus but rather for helping students learn and see them achieve their goals. These teachers reported being motivated by succeeding at doing their job. This is in line with Herzberg's motivation-hygiene theory (Herzberg, 1968 and 1987), which suggests that factors involved in producing motivation or satisfaction are intrinsic to the job at hand and belong to a different psychological continuum than those that lead to job dissatisfaction. Thus the opposite of job satisfaction is not dissatisfaction but no job satisfaction, and the opposite of dissatisfaction is not satisfaction but no job dissatisfaction. Motivator factors are a source of satisfaction, thus not demanding external incentives to produce movement (behavior produced as a function of fear of punishment or failure to get extrinsic rewards). Factors characterizing events on the job that lead to satisfaction are: achievement, recognition, work itself, responsibility, advancement, and growth. Note that work itself is a source

The study showed that age is negatively associated with the perception of how money affected teachers' motivation. With the exception of Asian teachers in comparison to White teachers, the study did not find significant positive relations between the financial incentive and the teachers' perceptions on its impact on motivation. Not finding positive effects of money awards on motivation may be part of an emerging trend in results from educational research (Gallagher, 2004; Heneman III, 1998; Kellor, 2005; Marsh et al., 2011), in which the attempts to increase teachers' motivation at work by rewarding them with extra compensation have not been successful. The model seems to be inappropriate to develop explanations and understandings of this phenomenon that may inform decision-making about alternative compensation's policy implementation aiming at motivating teachers. This would suggest the need to change the approach used in conducting research about how monetary rewards motivate teachers. It would imply to move from the Bandura's Expectancy-Theory to Herzberg's Motivation-Hygiene Theory. Such a shift would move the theory from motivation as a function of the perceived probability that working hard will lead to certain desired outcomes, to motivation as a function of

growth that is attained from intrinsic rewards due to performing the job's tasks.

Collaboration

The third research non-directional hypothesis was: there is a statistically significant relationship between the teachers' perceptions of the impact that the alternative method of compensation had on their collaboration and the following predictors: Grade level/Subject taught, Ethnicity, Type of teaching certification held, Path followed to obtain teacher certification, Years of teaching experience, Years of teaching experience at the current campus, Age, Amount of bonus money received during the current year, and Amount of bonus money received during the previous year.

The Multiple Linear Regression Model for variables predicting Collaboration showed $R = .37$, $R^2 = .14$, adjusted $R^2 = .02$ and a Standard Error of the Estimate equal to 2.36. The Analysis of Variance statistics for the regression model showed $F(23, 173) = 1.18$, $p > .05$.

These results indicate that the relationship between the criterion variable and the predictors is not statistically significant. The null hypothesis is not rejected and, therefore, no statistically significant linear relationship of teachers' perceptions of the impact

that the alternative method of compensation had on their collaboration and the predictor variables was found.

Many authors (Eberts, R., Hollenbeck, K., & Stone, J., 2002; Donlevy, 2008; Grinesky, 2005a, 2005b; Kellor, 2005; Goldhaber et al., 2008) feared a negative impact of monetary rewards in collaboration. The present study did not detect that relationship. The model did not confirm specific negative effects suggested by some authors in regards to a perception of a reduction of sense of community among teachers (Kellor, 2005), nor the demoralizing effects suggested by Goldhaber et al. (2008). Because the results did not indicate a negative significant relationship between the criterion and dependent variable, the study did not show that incentive pay reduced the interest for teachers to cooperate, as some critics of performance-based incentives claimed. Therefore, research does not seem to suggest that performance-based compensation negatively affect collaboration.

The study did not find any positive relationship between the money awards and the teachers' perceptions of a positive impact on collaboration. The study concurs with Marsh et al. (2011) in regards to the lack of effects on collaboration by the incentive program. While 40% of teachers working in schools under the incentive program in

the New York study reported collaboration had changed for better, more teachers from the control group reported such a positive change, even though the difference was not statistically significant (Marsh et al., 2011).

This finding contradicts the theory of action defined by Marsh et al. (2011), which portrays the enhancement of collaboration as one of the tenets of implementing alternative compensation. Consequently, research does not seem to suggest either that performance-based compensation positively affect collaboration.

As suggested by Seashore, Febey, and Schroeder (2005), scientific knowledge regarding how money from incentive programs affects the exercise of teaching, may help discern whether stakeholders would engage in significant change, change, or resistance when confronted to the implementation of alternative compensation policy. This brings up a strong case in favor of continuing research about how performance based alternative compensation affects Teaching Practice, Motivation, and Collaboration as seeing by practitioners. By stepping up investigation in this area, more light should be shed to enlighten the inconclusiveness surrounding current state of the art in this matter.

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APPENDIX A – DISTRICT APPROVAL TO CONDUCT RESEARCH

fromAnselm, Yuping <Yuping.Anselm@fortbend.k12.tx.us>
 toJuan Pablo Barrio <juan.pablo.barrio@gmail.com>
 cc"Moore, Janice (Admin)" <janice.moore@fortbend.k12.tx.us>
 dateWed, Mar 23, 2011 at 9:07 AM
 subjectRe: Your Research Application
 mailed-byfortbend.k12.tx.us

Dear Mr. Barrio,

Your research application titled "Teachers' Perceptions about How an Alternative Method of Compensation Affected Teaching Practice" (Application No. 2011-6) has been approved by has been approved by Fort Bend ISD. You have the district approval to conduct your research with **all DATE campuses from March 28, 2011 to April 15, 2011.** Alternatively, since TAKS tests take place in April, we recommend that you collect your survey responses in **May, 2011.** Please note that our staff is under no obligation to participate in the study despite the district approval.

This email will serve as an approval letter. If you need an official letter with the Fort Bend ISD letterhead, please let us know and we can provide one as well.

When you complete your research, please submit the Data Collection Completion Notification Form (available on FBISD research website) and share with us your findings in a summary.

We wish you good luck in your research efforts. If you have any further question, please let us know.

Yuping Anselm, Ph.D.
 Coordinator of Research and Program Evaluation
 Department of Accountability and Program Evaluation
 Division of Academic and Instructional Services
 Fort Bend ISD
 Tel: 281-634-1296
 Fax: 281-634-1532

**APPENDIX B - PILOTED INSTRUMENT'S COLLABORATION ITEMS
MODIFIED FOR THE STUDY**

Item key	Piloted instrument's items description	Instrument's modified items administered for the study
C1	Collaboration on my campus towards helping students achieve mastery of their grade level content skyrocketed due to the Performance Pay Plan.	Collaboration on my campus towards helping children achieve student expectations improved due to the Performance Pay Plan.
C4	Payment programs like Performance Pay Plan go against quality teaching because they incorporate individualistic business-like logic into the classroom.	Payment programs like Performance Pay Plan go against quality teaching because they bring individualistic attitudes into the classroom.

**APPENDIX C – LETTER OF INVITATION TO PARTICIPATE IN
RESEARCH**

UNIVERSITY of HOUSTON

COLLEGE of EDUCATION

INVITATION TO PARTICIPATE IN RESEARCH

PROJECT TITLE: Teachers' perceptions about how an alternative method of compensation affected teaching practice.

Dear Fort Bend educator,

You are being invited to participate in a research project conducted by Mr. Juan Barrio from the College of Education, Curriculum and Instruction Department, at the University of Houston. This project is part of my doctoral dissertation, which is conducted under the supervision of Dr. Melissa Pierson, chair of the Dissertation Defense Committee.

The purpose of this study is to research teachers' perceptions about how an alternative method of compensation, such as the bonuses awarded by the D.A.T.E. grant, has affected their teaching practice. The number of expected participants is 400 teachers. You will be asked to answer a brief 15-items survey which could take approximately 10 to 15 minutes. You will have to explicitly grant your consent to participate in the study by flagging a consent field before answering the survey on-line.

Your participation in this project is anonymous. No data will be collected that can identify you. All research projects that are carried out by investigators at the University of Houston are governed by requirements of the University and the Federal Government. This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713-743-9204). All surveys' answers will be available only to the research team.

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations.

Your participation is voluntary, and you may withdraw at any time. Your decision to participate will have no effect on your employment standing. There is no foreseeable harm to you by participating in the study. Conversely, you will be contributing to increasing the understanding about how alternative methods of compensating teachers affect their teaching practice. This could result in benefits to research and policy implementation in the future.

If you have any questions, I encourage you to contact me at 832-226-9691 or via email at juan.pablo.barrio@gmail.com. You may also contact Dr. Pierson, faculty sponsor, at 713-743-4961.

You will be receiving shortly an email with a link to the survey. Please click on the link so you can answer the items on line. Thank you for your participation.

Sincerely,

Juan Pablo Barrio, Principal investigator

Any questions regarding your rights as a research subject may be addressed to the University of Houston Committee for the Protection of Human Subjects (713-743-9204).

APPENDIX D - RECRUITMENT SCRIPT

Dear Fort Bend educator,

You are invited to participate in a study called "Teachers' perceptions about how an alternative method of compensation affected teaching practice". This study has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713) 743-9204. To participate you must be a teacher in a DATE campus in the Fort Bend ISD and grant your consent before you answer a survey. You will be asked to mark if you Strongly disagree, Disagree, Neither agree nor disagree, Agree, or Strongly agree with statements about how the DATE bonuses affected your teaching practice. The content of an informed consent document reviewed by the University of Houston is on the first page of the survey. Please contact me if you are interested in receiving a separate informed consent document. If you agree to participate in the study please click [here](#) to answer the on-line survey. If you have any questions about this study you can contact me or Dr. Melissa Pierson, faculty sponsor. Our contact information is listed below.

Juan Pablo Barrio
Principal Investigator
832-226-9691
Juan.pablo.barrio@gmail.com

Dr. Melissa Pierson
Faculty sponsor
713-743-4979
mperson@uh.edu

**APPENDIX E - RESEARCH PARTICIPANT'S RIGHTS AND LETTER OF
CONSENT**

UNIVERSITY of HOUSTON

COLLEGE of EDUCATION

CONSENT TO PARTICIPATE IN RESEARCH

SUBJECT RIGHTS

1. I understand that informed consent is required of all persons participating in this project.
2. All procedures have been explained to me and all my questions have been answered to my satisfaction.
3. Any risks and/or discomforts have been explained to me.
4. Any benefits have been explained to me.
5. I understand that, if I have any questions, I may contact Juan Pablo Barrio at 832-226-9691. I may also contact Dr. Melissa Pierson, faculty sponsor, at 713-743-4961.
6. I have been told that I may refuse to participate or to stop my participation in this project at any time before or during the project. I may also refuse to answer any question.
7. ANY QUESTIONS REGARDING MY RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT THE UNIVERSITY OF HOUSTON ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT.
8. All information that is obtained in connection with this project and that can be identified with me will remain confidential as far as possible within legal limits. Information gained from this study that can be identified with me may be released to no one other than the principal investigator and Dr. Melissa Pierson, faculty advisor. The results may be published in scientific

journals, professional publications, or educational presentations without identifying me by name.

I HAVE READ (OR HAVE HAD READ TO ME) THE CONTENTS OF THIS CONSENT FORM AND HAVE BEEN ENCOURAGED TO ASK QUESTIONS. I HAVE RECEIVED ANSWERS TO MY QUESTIONS. I GIVE MY CONSENT TO PARTICIPATE IN THIS STUDY. I HAVE RECEIVED (OR WILL RECEIVE) A COPY OF THIS FORM FOR MY RECORDS AND FUTURE REFERENCE.

Study Subject (print name): _____

Signature of Study Subject: _____

Date: _____

I HAVE READ THIS FORM TO THE SUBJECT AND/OR THE SUBJECT HAS READ THIS FORM. AN EXPLANATION OF THE RESEARCH WAS GIVEN AND QUESTIONS FROM THE SUBJECT WERE SOLICITED AND ANSWERED TO THE SUBJECT'S SATISFACTION. IN MY JUDGMENT, THE SUBJECT HAS DEMONSTRATED COMPREHENSION OF THE INFORMATION.

Principal Investigator (print name and title): _____

Signature of Principal Investigator: _____

Date: _____

APPENDIX F - INSTRUMENT

Please mark each statement if you Strongly disagree , Disagree , Neither agree nor disagree , Agree , or Strongly agree . Place a clear X inside the box that corresponds to your answer.		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not applicable to me
1	The existence of the Performance Pay Plan bonus helps me concentrate on the best teaching strategies for my students.						
2	The Performance Pay Plan has no influence on the effort I put in fulfilling my teaching responsibilities.						
3	Collaboration on my campus towards helping children achieve student expectations improved due to the Performance Pay Plan.						
4	Teachers who receive bigger bonuses also receive a preferential treatment from administrators.						
5	I consider how much money I may receive from Performance Pay Plan to quantify the effort I put in my work as a teacher.						
6	Due to the Performance Pay Plan teachers on my campus stopped working collaboratively.						
7	I think at all times how Performance Pay Plan bonuses are calculated when planning my lessons.						
8	Performance Pay Plan money makes me a better teacher.						
9	Performance Pay Plan has not changed my motivation to facilitate students in becoming more effective learners.						

10	Since the school district implemented Performance Pay Plan our working place has shifted towards a less individualistic goal-oriented environment.						
11	The more money I receive from the Performance Pay Plan the more effort I put into my teaching responsibilities.						
12	The Performance Pay Plan increased my interest in helping students better demonstrate how well they know required content.						
13	The Performance Pay Plan increased my enthusiasm in guiding students to become better learners.						
14	Payment programs like Performance Pay Plan go against quality teaching because they bring individualistic attitudes into the classroom.						
15	The Performance Pay Plan has not changed my teaching practice in any significant way.						

Grade currently taught (Mark all that apply).	Teacher Certification (Mark all that apply).	Certified through (Mark all that apply).	Years of Teaching Experience (Write a number, for example if you have taught six years, write 06. Count full years including current school year as a full year).
<input type="checkbox"/> PK-2 <input type="checkbox"/> Grades 3-5 <input type="checkbox"/> Team teaching <input type="checkbox"/> Grades 6-8 <input type="checkbox"/> Grades 9-12 <input type="checkbox"/> Ancillary, Resource, other.	<input type="checkbox"/> Element. Certified Regular <input type="checkbox"/> Element. Bilingual <input type="checkbox"/> Probationary Certification <input type="checkbox"/> Secondary Core Content <input type="checkbox"/> Certified ESL <input type="checkbox"/> Other	<input type="checkbox"/> Undergraduate baccalaureate in education <input type="checkbox"/> Deficiency Plan <input type="checkbox"/> Certified through ACP <input type="checkbox"/> Other, please specify: _____	Years of Teaching Experience <input type="text"/> <input type="text"/> Years of Teaching Experience on current campus <input type="text"/> <input type="text"/> Age <input type="text"/> <input type="text"/>

Performance Pay Plan Bonus

I received money from Performance Pay Plan:

Last disbursement ☐ NO ☐ YES, amount received: _____

Year before last disbursement ☐ NO ☐ YES, amount received: _____

Ethnicity: I consider myself to be (Mark all that apply)

☐ Asian or Pacific Islander ☐ Black or African-American ☐ Hispanic or Latino

☐ White or Caucasian

☐ Other: _____

APPENDIX G – KEY FOR INSTRUMENT’S ITEMS

Key	Item
TP1	The existence of the Performance Pay Plan bonus helps me concentrate on the best teaching strategies for my students.
M1	The Performance Pay Plan has no influence on the effort I put in fulfilling my teaching responsibilities.
C5	Collaboration on my campus towards helping children achieve student expectations improved due to the Performance Pay Plan.
C1	Teachers who receive bigger bonuses also receive a preferential treatment from administrators.
M2	I consider how much money I may receive from Performance Pay Plan to quantify the effort I put in my work as a teacher.
C2	Due to the Performance Pay Plan teachers on my campus stopped working collaboratively.
TP2	I think at all times how Performance Pay Plan bonuses are calculated when planning my lessons.
TP3	Performance Pay Plan money makes me a better teacher.

- M3 Performance Pay Plan has not changed my motivation to facilitate students in becoming more effective learners.
- C3 Since the school district implemented Performance Pay Plan our working place has shifted towards a less individualistic goal-oriented environment.
- TP4 The more money I receive from the Performance Pay Plan the more effort I put into my teaching responsibilities.
- M4 The Performance Pay Plan increased my interest in helping students better demonstrate how well they know required content.
- M5 The Performance Pay Plan increased my enthusiasm in guiding students to become better learners.
- C4 Payment programs like Performance Pay Plan go against quality teaching because they bring individualistic attitudes into the classroom.
- TP5 The Performance Pay Plan has not changed my teaching practice in any significant way.

APPENDIX H – DESCRIPTION OF REGRESSION MODELS' VARIABLES**INPUT**

Variable	Description
Teach 3rd to 5 th Grade	Teacher who teaches 3 rd , 4 th , or 5 th grade Self-Contained or Team Teaching
Teach 6-8 Across Subjects	Teacher who teaches more than one subject in 6 th , 7 th , or 8 th grade
Teach 6-8 Language Arts	Teacher who teaches Language Arts, Reading, and Writing in 6 th , 7 th , or 8 th grade
Teach 6-8 Mathematics	Teacher who teaches Mathematics in 6 th , 7 th , or 8 th grade
Teach 6-8 Science	Teacher who teaches Science in 6 th , 7 th , or 8 th grade
Teach 6-8 Social Studies	Teacher who teaches Social Studies in 6 th , 7 th , or 8 th grade
Teach Other	Teacher who teaches any subject in any grade level other than the ones mentioned above. For example: Ancillary or Special Education. Some teachers reported "Other: Music", or "Other: Art", etc.
Ethnicity Asian	Teacher who reported being of Asian or Pacific Islander Ethnicity
Ethnicity African-Am	Teacher who reported being of African- American or Black Ethnicity

Ethnicity Latino	Teacher who reported being of Hispanic or Latino Ethnicity
Ethnicity Other	Teacher who reported being of Other Ethnicity or multiracial
Cert Bilingual	Teacher who holds a Bilingual Teaching Certificate
Cert Second Core Subject	Teacher who holds a Mathematics, Language Arts, Social Studies, or Science Secondary Teaching Certificate
Cert Other	Teacher who holds a Teaching Certificate other than described above. For example: Special Education, Arts, or Music
Cert Multiple Certification	Teacher who holds more than one Teaching Certificate
Through ACP	Teacher who obtain a Teaching Certificate through an Alternative Certification Program
Through Deficiency Plan	Teacher who obtain a Teaching Certificate through a Deficiency Plan
Through Other	Teacher who obtain a Teaching Certificate through other path other than ACP, Deficiency Plan, or Baccalaureate degree in Education
Teaching Experience	Years of teaching experience
Tech. Exp. At Campus	Years of teaching experience at the current campus
Age	Age of teacher
Received Bonus Current Year	Amount of money received from the Performance Pay Plan during the current school year

Received Bonus Previous Year	Amount of money received from the Performance Pay Plan during the previous school year
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