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Impact of Maine High School Reform on Student Engagement and Achievement

Beverly J. Coursey
Seton Hall University

IMPACT OF MAINE HIGH SCHOOL REFORM ON STUDENT ENGAGEMENT AND ACHIEVEMENT

BY

BEVERLY J. COURSEY

Dissertation Committee

Elaine Walker, Ph.D., Mentor
Daniel Gutmore, Ph.D.
Will Burrow, Ph.D.
Heath Brightman, Ed.D.

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Abstract

IMPACT OF MAINE HIGH SCHOOL REFORM

ON STUDENT ENGAGEMENT AND ACHIEVEMENT

The Promising Futures report, published in 1998, promoted high school reform in the State of Maine. This study examined the impact of Promising Futures practices on student achievement and engagement. Data sets from 56 Maine public high schools were examined: 28 have implemented Promising Futures programs and 28 have not, encompassing a total of 31,252 students. The data sets include scaled scores on the Maine Educational Assessment (MEA), drop-out rates, and average rates of student daily attendance. To examine these findings, the researcher used hierarchical linear regression to control for poverty, school size, past performance, and location. This study resulted in six major findings: 1. Schools that implement the practices promoted in Promising Futures tend to have on average higher scores on the MEA then those who do not; 2. The greatest percent of variance explained in the HLR modeling was 52% in the area of mathematics achievement; 3. School size and location were not significant predictors of

student achievement or engagement in this study; 4. Poverty had a significant impact on both student achievement and engagement, only second to past performance; 5. The HLR models did not demonstrate as great of predictions of student engagement; 6. By using HLR statistics, this study was able to explain 5% to 6% more of the variance in student achievement and dropout rates for Maine high schools that used Promising Futures practices.

Acknowledgements

I am grateful for the guidance of Dr. Elaine Walker, my mentor for this project, who helped the statistics leap off the page and dance around in my mind. I appreciate Dr. Gutmore, my second reader, who was always ready to lend a hand in direction, and also helped limit the scope of this study so it could be completed. Dr. Burrow helped push my thinking in explaining subject and method, thank you. Dr. Brightman, thank you for your time, advice, and support.

Reaching the end of a terminal degree would not have been possible without the expectations and encouragement of my parents, Frank and Kathleen Stevens. Thank you for teaching me that I can succeed.

I would like to finally thank Cohort IV; these 32 people are a dedicated group of students, educators, and leaders. I am honored to know each of you. I am indebted to you for your inspiration and friendship throughout our doctoral program.

Dedication

To the three most important people in my life: my fantastic husband, Mark, and our two amazing sons, Benjamin and Samuel. Mark's unselfish love and encouragement contributed to my successful and timely completion of this degree. Thank you for providing the time, support and understanding needed for this endeavor.

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Chapter I: Introduction

Maine has 126 public high schools, which serve approximately 62,000 students enrolled in grades 9-12 (Maine Education Department, 2005). In 2002, 86% of Maine's public high school students completed high school after four years. This number placed Maine highest among the U.S. states in overall graduation rates. However, recent research suggests that Maine's actual four-year high school completion rate for the class of 2002 was closer to 75%, a statistic that would place Maine near the middle of a national ranking of secondary-school graduation rates by state (Great Maine Schools Project, 2005). The national average of four-year graduation rates for 2001-02 was 72.6%, and the 2002-03 national rates were 73.9% (Seastrom, Hoffman, Chapman, & Stillwell, 2005). Orfield (2004) states that using the Cumulative Promotion Index method (counting how many ninth grade students graduate high school four years later), the national graduation rate in 2001 was 68%. Maine graduated 72% of its students according to the Cumulative Promotion Index.

No matter which numbers are accurate, 15% to 25% of Maine high school-aged students are not completing their

high school education. National research shows that the social and economic costs of dropouts are staggering (Ferradino & Tirozzi, 2006). The annual estimate of lost state and federal taxes due to lower wages for dropouts ages 20 to 67 is 50 billion dollars. Increasing the graduation rate for males by one percent would reduce the cost of crime by as much as 1.4 billion dollars nationally. Seventy-five percent of all prison inmates are dropouts. If all dropouts were able to graduate high school, the nation would save about nine billion dollars each year on Temporary Assistance for Needy Families, food stamps, and housing assistance (Ferradino & Tirozzi, 2006).

Fifty-one percent of Maine high school graduates went directly on to college, placing Maine just within the lowest quartile of national college attendance rates (National Information Center for Higher Education Policymaking and Analysis, 2002). Of all Maine graduating seniors, approximately 65% plan to go on to college, about 53% actually enroll, and only 30% will earn a college degree within six years (Great Maine Schools Project, 2005).

Maine is a large state geographically with a lower population density than most other states in the Northeast. It is roughly the same physical size as the remaining five

New England states combined. Maine has approximately 3,500 miles of coastline, including nearly 2,000 coastal islands. Because of Maine's size and topography, many residents live in isolated areas that have little connection to nearby communities (State of Maine, 2004).

Maine has a high percentage of its population living in federally designated rural areas. Maine has a higher percentage of its population living in a rural setting than Alaska (U.S. Census Bureau 2004). Sixty percent of Maine's population is currently defined as living in rural areas. This poses many challenges for Maine's school communities. Maine schools located in geographically isolated regions with low median household incomes encounter problems that are usually seen as urban difficulties including high dropout rates, low college enrollments, drug and alcohol abuse (Abbott, 2006). Most rural Maine schools are also dealing with dwindling enrollment. However, rural schools also have many advantages that urban schools do not: low student-to-teacher ratio and small class size (Great Maine Schools Project, 2005).

The National Association of Secondary School Principals (2004) outlines the need for high schools to change in order to ensure success for every student. They

promote the need for high schools to develop a program that ensures personalized learning. A personalized program that is developed with the help of a concerned adult allows students to see their learning as meaningful.

Maine began reforming its public secondary-school system in 1996, with the state's Learning Results legislation (Maine Department of Education, 1997). The Maine Learning Results initiative set standards for each grade span, including grades nine through twelve. For the 1998-1999 school year, the State of Maine revised the state educational assessment to align with the Maine Learning Results. The average results reported on the 1998-1999 Maine Education Assessment (MEA) for the 11th grade, the only grade assessed at the high school level, were: 51% of students met standards in reading, 31% met standards in writing, 21% of students met standards in math, and 8% of students met standards in science (Maine Department of Education, 1999).

The Maine Department of Education convened The Commission on Secondary Education in 1998. This Commission was charged with ascertaining what works in Maine's high schools, what does not, and what should change to expand the aspirations of Maine students. The Commission's

objective was to create a new vision for high schools that would tie higher academic standards to increased post-secondary aspirations (Maine Commission on Secondary Education, 1998).

The Commission's seminal report, *Promising Futures: A Call to Improve Learning for Maine's Secondary Students*, encompassed input from stakeholders across the state. (Please see Appendix A for short form of this document.) After gathering the best thinking from teachers, administrators, and research institutions from within Maine and the nation, the Commission members spoke directly with the students who experience first hand what Maine's schools have to offer. The Maine Department of Education held three student summits across the state, which involved approximately 800 students who told the Commission about their feelings and opinions of their high school education (Maine Commission on Secondary Education, 1998). In 1998, *Promising Futures* was published and distributed to every high school in the state. The State Department of Education continued to support this report with a series of conferences to allow educators to learn about and discuss the ideas in the report.

The *Promising Futures* report went on to gain national attention from educators and policy makers. States across

the nation were involved in educational reform. There has been more reform done at the level of state educational departments since 1985 than in the past 50 years (Fullan & Stiegelbauer, 1991). Maine was a national leader in state-level high school reform due to the way it created the set of practices in the *Promising Futures* report, with educator input, and the voluntary nature of the reform for high schools (Hamann, 2005).

A very condensed version of the practices endorsed in the *Promising Futures* document is listed here (Maine Commission on Secondary Education, 1998):

1. Every student is respected and valued.
2. Every teacher tailors the learning to the learner.
3. Every teacher challenges learners.
4. Every student learns in diverse collaborative groups.
5. Every student makes informed choices and takes responsibility for these choices.
6. Every student employs a personalized learning plan.
7. Every teacher makes their practices known to students and parents.
8. Every student who receives a diploma has demonstrated knowledge and skills sufficient to begin adult life.
9. Students and teachers belong to teams that provide each student continuous personal and academic attention.

10. Learning governs the allocation of resources.
11. Every teacher has sufficient time and resources.
12. Every staff member understands adolescent learning and developmental needs.
13. Every school has a comprehensive professional development system.
14. Staff, students, and parents are involved in significant decisions affecting student learning.
15. Leadership by administration involves the educational community to work toward the school's mission.

Each of these practices is important to the high school reform effort in Maine. But only practices one, two, three, six, seven, nine, eleven, twelve, and fourteen have a direct link to support students transitioning to high school.

The Maine Department of Education took two other steps to support the work of improving Maine high schools. First, the Department obtained a waiver from the Secretary of Education, then Richard Riley, to use federal Comprehensive School Reform Demonstration(CSRD) funds in support of Promising Futures (Comprehensive School Reform, 2005). The Center for Inquiry on Secondary Education, renamed the Center for Educational Transformation, was created to oversee and implement this grant program to 33

high schools across Maine (Center for Educational Transformation, 2005).

Bell (2006) describes how some high schools used Promising Futures practices and CSRD grants to improve their school. One school that implemented Promising Futures practices started a program they named Freshman Focus. This program introduced freshman students to the skills they need to be successful in high school. These skills include time management, organization, goal-setting, and decision-making. Students are brought through a thoughtful series of activities to help students gain these skills. This Freshman Focus program also provided an opportunity for students to learn about themselves in the area of learning styles and possible career paths that interest them.

Another school created a program called Freshman Academic Team (FAT). This program focused on at-risk freshmen. Once identified, students received an academic intervention plan that was created by a team, which includes the students' parents. Another high school used the grant to invest in expeditionary learning to emphasize high achievement for all students through active, authentic learning.

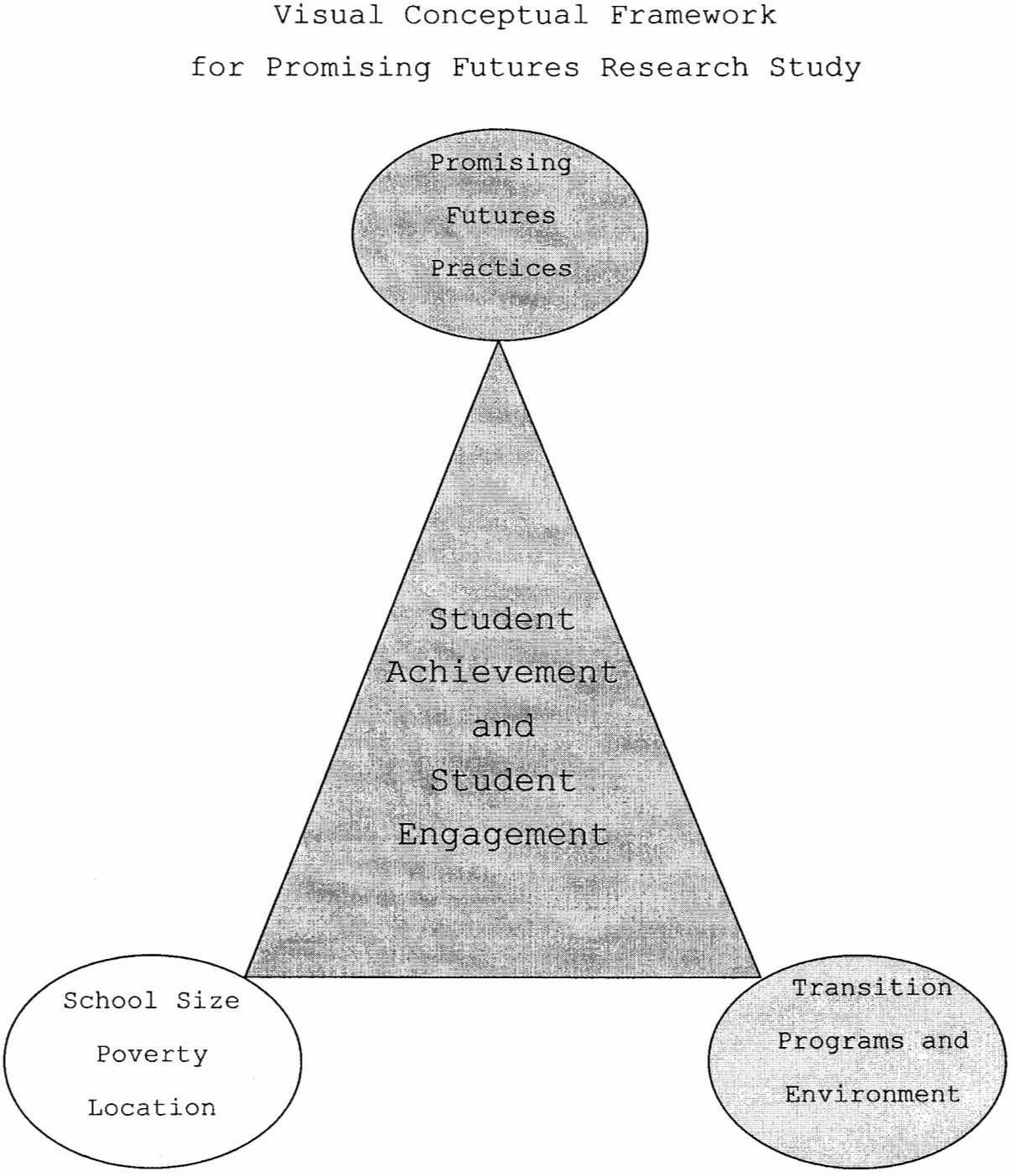
One of the non-rural schools used the grant and the framework of the Promising Futures practices to implement a program called Aspirations Lab. This program helped students who would be first in their families to attend college. These students started receiving extra support as freshmen with course selection, assistance with course work, step-by-step assistance to complete the college application process, and coordinating funds to help high school students take their first college course while still a senior in high school. This program also brought all students on "road trips" to visit colleges.

The key strategies that Promising Futures schools used to help ninth grade students transition to high school were: advisory groups, personal learning plans, student portfolios, teaming, and heterogeneous grouping (Lane & Hamann, 2002).

Conceptual Framework

This study is based on the conceptual framework that is pictured in Figure 1. This figure shows student achievement and engagement placed in the center. This is the core of what Promising Futures practices are attempting to impact. Therefore it is at the center of this study.

Figure 1 Visual Conceptual Framework



Research has shown that school size (Coleman, 1995; Lee & Burkham, 2003; Walsey et al. 2000), poverty (Swanson, 2004), and location (Lee et al., 1995; Raywid, 1999) of the school can be influential factors when examining student engagement and achievement. Therefore, these factors will be controlled for in this study.

Another aspect of this study is transition to high school. A statistically significant achievement loss was found to occur when students transitioned from school to school. Students show a loss in achievement when moving to high school. On average, this loss increases for ninth grade students who come from different feeder schools rather than one middle-level school (Alspaugh, 1998). Roderick and Camburn (1999) studied patterns in the risk of course failure and recovery of high school students in the Chicago School District. Results for 27,612 students show that few recover from failures in their first two years at high school.

Statement of the Problem

What is the impact, if any, of transitional student-centered programs on high school students in public secondary schools in Maine? Thirty-three high schools in

the State of Maine had won Comprehensive School Reform Demonstration grants since 1999. This meant that more than 25% of Maine public high schools created an extensive plan to improve their school.

This study will focus on student engagement and student achievement. The dependent variables in this study include dropout rates, attendance rates, and average scaled scores from the Maine Education Assessment (MEA).

Purpose of the Study

The *Promising Futures* report was published and promoted in the State of Maine in 1998. This document focused on high school reform. This document promoted a student-focused secondary environment. The Maine State Department of Education backed *Promising Futures* by holding professional development and offering grants to support the work in Maine High Schools. A research gap existed examining the impact of this work in the State of Maine. This study sought to examine the impact of Promising Futures practices on student engagement and student achievement in Maine high schools.

The schools who were awarded the CSRD Promising Futures Grant had to go through a lengthy planning process. The grant-writing process allowed the staff and school

community to fully understand the implementation of the Promising Futures practices. This plan needed to be comprehensively designed. The school was required to do a thorough needs-assessment that included student achievement data. The link between the comprehensive plan and the school's identified improvement needs was required to be strong. Schools had to specify realistic timelines for implementing the various goals and strategies.

The school's goals had to be part of a comprehensive design, which included student achievement, curriculum alignment, instruction, assessment, classroom management, school culture, organization, and technology integration. Student performance goals were to be ambitious yet realistic, and research based. The school had to articulate a clear, specific plan of how, when, and to whom professional development was provided during the grant time-line, which would be clearly aligned to the program's goals and strategies. An external support entity was a requirement of the grant. The schools choose school coaches to meet this requirement. The school coach helped the school implement their reform plans.

The school had to build a leadership team to oversee the implementation of the CSRD program. This team collected and analyzed the data to inform CSRD program

decisions. All major staff roles had to be included on the team. Adequate resources had to be included in the grant for the leadership chair to complete his or her function.

Within this Promising Futures CSRD grant parents were seen as partners and were to be actively involved in planning, decision-making, and implementing the grant. The school was required to include detailed explanations about collaboration strategies and connections with specific community services, organizations, and businesses in their plan.

Ninety percent or more of the faculty, administrators, and staff had to demonstrate support for the adoption of Promising Futures. The support of central office had to be clearly documented. The evaluation was to be written as a specific, practical plan to assess the comprehensive school reform program goals. This evaluation had to be shared with the school community. The school had to show the costs of full implementation, including the costs of technical assistance partners, professional learning, materials, school coach, and so on. The school had to create a plan to sustain these efforts after the federal funds were no longer available.

Significance of the Problem

The problem of ninth grade transition affects every high school in the State of Maine. Nationally, students who are disengaged, fail core subjects, are truant, or drop out squander many school and community resources (Child Trends, 2005). The State of Maine has spent a large amount of federal and state dollars in the past ten years to improve high schools. In this study, the researcher examined the knowledge base, state polices, and transitional practices at Maine high schools.

Research Questions

Central question. To what extent, if any, did Promising Futures practices have an impact on achievement and engagement of high school students when controlling for poverty, school size, location, and past performance?

Subsidiary questions. Subsidiary questions to be examined in this study include the following:

1. This study examines student achievement in mathematics, writing, reading, and science as measured on the MEA and controlling for poverty, school size, location, and past performance. Do schools that implement Promising Futures practices have higher

academic achievement then schools who do not participate?

2. This study examines student engagement as measured by student dropout rates and attendance rates. Do schools that implement Promising Futures practices have greater student engagement then schools who do not participate?

Definition of Terms

The following terms are used for the purpose of this study:

Achievement: For the purposes of this study, achievement will be measured by 11th grade Maine Educational Assessment (MEA) scaled scores.

Attendance: For the purpose of this study, it is the average rate of students present at school expressed as a percentage.

Dropout rate: The stated dropout rate represents the percentage of an age group that is not enrolled in school and has not earned a high school diploma (U.S. DOE, National Center for Education Statistics, 2005).

Engagement: Engagement refers to the behavioral intensity and emotional quality of a person's active involvement during a task (Reeve, Jung, Carrell, Jeon, & Barch, 2004).

For the purposes of this study, engagement will be judged by the dropout rate and attendance rates as reported by the Maine Department of Education.

Maine high schools: Any Maine school that housed students in grades nine through twelve. This includes the rural schools that serve grades 6-12 or K-12.

Delimitations

The following delimitations may have an affect on the study.

1. The study is limited to public high schools in Maine. This study does not focus on private or semi-private schools.
2. This study is limited to examining the effects of Promising Futures programs including transitioning students to high school. This study does not focus on many other factors of student achievement such as teacher effectiveness, cost per pupil, and so forth.

Limitations

The following limitations exist.

1. The design of this study is cross-sectional not longitudinal.

2. The design focuses on Maine schools, which are very race homogenous. This may limit the use of this study to be applied to places where racial diversity exists.
3. The design of this study is quantitative. This study will not consider stakeholder's feelings or interpretations of what is happening in their schools.

Researcher's Position

Biases and credibility of the researcher were addressed. The researcher wrote two CSRD grants in 1999 and 2000, while she was employed as a Curriculum Coordinator in a rural district. The first grant proposal was not accepted, but the second proposal was successful. The researcher is no longer employed by this school district, but now is a principal, in a K-8 school, who continues to be interested in transitions to high school. No further action, beyond this disclosure is necessary.

Organization of the Study

Chapter 1 consists of an introduction to the problem, sets Maine High Schools in the context of recent work done in the state around high schools, the conceptual framework used in the study, a statement of the problem, the purpose and significance of the study. The research questions are

introduced, and definitions of terms, a set of delimitations and addressing bias are presented.

Chapter 2 presents a review of literature in the areas of adolescent development, at-risk students, organizational structures, and transitions to high school.

Chapter 3 describes the design and methodology of the study, problem statement, reviews the research questions, population, and the data set collection and analysis.

Chapter 4 includes a summary description of the analysis of the data. Descriptive statistics and hierarchical linear regression (HLR) models are discussed.

Chapter 5 includes interpretations of the analysis and provides recommendations for future research, leadership practices, and polices.

Chapter II: Review of Related Literature and Research

Existing efforts to reform high schools and improve student achievement as well as any transition programs to high school can best be understood when viewed in a broader perspective. Chapter II presents a review of literature in the areas of:

1. Historical view of Maine high schools leading to this call for reform, Promising Futures
2. High school student achievement and engagement
3. Organizational structures that support student engagement and student achievement
4. Adolescent development: What is happening to students in high school adolescent development and the needs of at-risk students and how to help them graduate high school?
5. Transitions to high school and transition programs for high school students
6. Practices that support student achievement and engagement

Historical

Maine holds a special place in high school history. Portland High School was the third public high school to be established in the United States, and today remains as the second oldest high school in existence. Portland High School in the early days was called the English High School for Boys and was established in 1821. This was the same year as the oldest high school in the U.S., established by a vote at the Boston Town Meeting in Faneuil Hall, Boston's English Classic School. Portland established the High School for Girls in 1850 (Portland School Department, 2001).

Maine converted to its own state in 1820. At this time, much of the educational focus was spent on the common schools, while in the second half of the century, the State dealt with secondary schooling. In 1873, Maine passed their first legislation to fund secondary schools statewide, The Free High School Act (Donaldson, 2000). The curriculum laid out by the state superintendent included: fundamental subjects, bookkeeping, geometry and higher mathematics, history, modern and ancient languages, government, physiology, physics, morals, and manners (Chadbourne, 1936). By the 1880s high schools stood as a guiding light of learning especially in the Northeast.

These early high schools were created unequally, since each high school was a local initiative. Educators spread ideas across state lines about how to create and run these early high schools (Reese, 1995). No federal department of education yet existed.

In 1900, only ten percent of students who started school, finished high school nation wide. As late as the 1930s, scholars were calling for the end of the inefficient use of resources by of sending all students on to high school (Briggs, 1930). Educational achievement increased after World War I, but it was not until the 1950s that more than half of U.S. students graduated with a high school diploma. This was also the time that statewide examinations for graduation and grade-level promotion virtually disappeared (Perrone, 1989).

Maine has been able to increase the high school graduation rate steadily since the 1930s. In the 1940s, the graduation rate of students entering school was 35%. In the 1950s the rate rose to more than 50% and climbed each decade until the late 1990's when it reached 85% (Donaldson et al., 2004). From 1950 to 1990, Maine had increased spending per pupil, adjusted for inflation, by almost 300%. These funds were spent on increased numbers of teachers and higher teacher pay (Donaldson et al.,

2004). The greatest increase in the numbers and pay of teachers occurred in the 1960s and 1970s. The number of teachers was increased, but the class size was not greatly reduced. These extra personnel were hired as specialists (i.e., arts and physical education teachers) and special education teachers.

The National Education Association's Committee of Ten created a strict framework for a high school schedule in 1892. The principle "was to encourage every high school to center the work of each student upon five or six academic areas in each of the four high school years" (Gorman, 1971, p. 12). The creation of the "Carnegie Unit" over 100 years ago aided in regulating the length of each course. The Carnegie Foundation created a standard unit to measure student work based on a unit of time, 120 hours. Students who spent 120 hours in a subject earned one Carnegie unit, which standardized the way schools measured student achievement. The number of Carnegie units a student earned was the path to graduation, and therefore became a main objective for students (Boyer, 1983).

In the past few decades, Maine has passed legislation to secure the State Department of Education influence over the public schools. The Reform Act of 1984 focused on teacher certification and minimum pay, dropout prevention,

and school improvement plans (Donaldson, 2000). In 1998, a second reform act was passed by the legislature. This act focused on reform at the high school level where the graduation requirements were made more extensive in the basics and now included fine arts (Maine Department of Education, 1999).

In 1990, Maine's Common Core of Learning was released by the Department of Education. This document helped educators come together in a state wide conversation about school reform and accountability (Maine's Common Core, 1990). These conversations led to the formation of Maine's learning standards called Maine Learning Results, which were passed by the legislature in 1997 (Donaldson, 2000). This same year the Maine Commission on Secondary Education met for the first time. This commission studied the range of challenges that faced Maine high schools, which included: higher expectations from recent legislation of the Maine Learning Results, reduced State funding mechanisms, over 1,000 standards, and too many diverse expectations coming from all aspects of the school community. This Commission produced a document, *Promising Futures*, which called to improve learning for Maine high schools (Maine Commission on Secondary Education, 1998).

Organizational Structures of High School and the Impact on Student Transition

Schools are structured to be productive organizations that deliver skills and knowledge to students, who in turn become engaged citizens (Coleman, 1995). Many aspects factor into the organizational structure of today's high schools. High schools use a mostly lateral coordination for a supervisory structure. This allows schools to have a flexible structure for staff (Bolman & Deal, 2003).

Schedules at the high school are essential organizational structures. Administrators and staff work on master schedules for weeks each spring and summer. Sometimes, when put into effect for the school year, the schedule needs some adjustments. Students who are disrupted by these adjustments are likely to have lower grades at their first report card, and their end-of-year grades are also lower. If students experience multiple disruptions, their grades will be even lower (Weiss, 2001).

One trend for high school schedules in the last two decades has been block scheduling. The proponents of block scheduling state that it works for students because teachers work with fewer classes and are responsible for fewer students. Moreover, block scheduling allows for increased time on instructional activities, since this

organization of the schedule usually lengthens the class time to twice the traditional schedules. The more time in each class allows for more individualized instruction, increases instructional flexibility, and uninterrupted instruction teaching time (Gerking, 1995). But, educators also need to remember that block scheduling, like traditional schedules, are blank containers; how teachers fill this time is vital (Bowman, 1998). Rice, Croninger, and Roellke's (2002) study found that even as block scheduling is positively related to teachers' use of multiple teaching practices and individualized instruction during class, longer blocks of time had a negative effect on mathematics scores in the tenth grade.

Much has been written about school size for high schools. In 1959 James Conant, the president of Harvard, received a grant from the Carnegie Corporation to develop the idea of the comprehensive high school. He proposed eliminating small schools and tracking students into programs on the basis of their ability (Tucker, 1999). Large schools have increased incidences of violence (Walsey et al. 2000). Cotton (2001) states small school structures are not necessarily what improve student achievement, but size does have an indirect effect on student achievement. The size quoted in research for small high schools can vary

from 400 to 900 (Raywid, 1999). Corbett and Wilson's (2000) study on the Philadelphia high school change initiative noted the positive change in students due to the small schools structures with in a large school. They noted attendance and engagement increased significantly.

Lee and Burkham (2003) focused on school structure for their study of high school students' decision to stay in school. They found school size was a factor, but also a curriculum with a focus on academic classes compared to non-academic or remedial classes, and positive student/ teacher relationships also had a significant impact. Lee et al. (1995) also found a strong connection to social organization and student achievement. She states that social organization is a collective feeling of the teachers that they are all responsible for student learning.

A safe and orderly environment in relation to school climate has an impact on student achievement (Marzano, 2003). Grogger (1997) found the negative influence of schools with high levels of violence on math scores and graduation rates. School discipline is linked to school quality and student achievement (Mayer, Mullens, Moore, & Ralph, 2000).

Mayer and Mitchell (1993) showed that by wrapping services around students or "packaging" a dropout

prevention program, they reduced the number of dropouts. The program reduced the number of dropouts during a three-year program from an expected 70% to 90% to 33.5%. Student dropout rate is also reduced when high schools are structured to include younger students. Students are less likely to dropout when starting at a high school in grade seven. The most likely students to dropout started high school with grade ten (Alspaugh, 1999).

Weller (2000) found in his study that tenth grade has high attendance issues. Using Total Quality Management (TQM) with a high school's staff, he discovered that the profile of typical student that skipped school was a tenth grade student with an after-school job, repeating at least one course, came from a one-parent family, and had some legal issues. This study also found that one cause for downtime in classes is re-teaching to students who were absent.

Lee and Smith (1995) assessed the impact on 10th-grade students in schools that were involved in the restructuring movement by using data sets from the National Educational Longitudinal Study of 1988. The results indicated that students' achievement and engagement was significantly elevated in schools with restructuring practices and lower in schools who were not using these practices.

Adolescent Development and At-Risk Students

The adolescent has six needs as outlined by Clark and Frazer (2003): to belong, experience success, have and exercise choices, enjoy new-found freedom, and explore their imagination. This is exactly when these young adolescents transition to high school, and they exhibit many changes.

The student who is transitioning from middle school to high school is experiencing many physical changes: rapid increases in weight, strength, muscle mass, and height. At this age boys go through changes in their voice, and facial hair begins to grow. Oily skin may start teenage acne, and sexual maturation is also occurring (Rossi & Stokes, 1991). Hertzog and Morgan (1998) found that students starting ninth grade had a significant drop in self-worth, physical appeal, competence, and conduct. Hertzog and Morgan's research showed only one area of improvement for the ninth grade student: friendships.

High school students' feelings about their membership in high school are directly impacted by their feelings of their middle school membership. Students who experienced low feelings of belonging at middle school are more likely to experience the same at high school (Smerdon, 2002).

Students' responses to an academic course are influenced by three factors (Schneider, Csikszentmihalyi, & Knauth, 1995). The first is allowing teachers flexibility within the curriculum to respond to students' needs. The second is academic challenge, and the third is previous knowledge about the subject.

Students' perception of their own skills is reduced as they enter and go through high school (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). Jacobs et al. explored self-concept in three areas language arts, math, and sports skills. The highest self-rating of skills occurred in grade one, and on average declining self-scores through to 12th grade.

The greatest impact on a student's motivation is his or her academic ability and completion of courses (Anderson & Keith, 1997). Stress levels in English and mathematics classes have been found to be significantly related to academic achievement (Shanahan & Walberg, 2001).

New ninth grade students worry about their transition to high school. They must learn a new environment, how to manage increased academic rigor with more homework, and extra-curricular activities, while at the same time decoding social cues (Allen, 2001). High school is a place full of rituals, a sort of "secular church", which marks

the stages of development in an adolescent's life. One of the most important rites of passage that take place in our high schools is graduation (Sizer, 1984). Students who do not participate in graduation and do not receive a diploma are not seen as full citizens.

Davis, Lee, and Davis (2004) completed a report for the Maine State Department of Education on dropout prevention strategies in the state. The findings indicate the perceptions of staff in Maine schools were: The students at risk of dropping out had the following characteristics (in descending order of perceived influence): poor academic performance, excessive absences, lack of motivation, disciplinary problems, low self-esteem, and limited engagement in school related activities. This same study reported that school staff considered the following interventions to be the most effective to reduce the dropout rate: vocational programs, alternative education, personalized teacher efforts to establish relationships with students, and lastly special education programs.

If the rate of students dropping out of school continues to grow at the current pace, one in seven children born in the United States in the present day will not graduate from high school (Children's Defense Fund, 2004). Further, our society requires a high school diploma

to apply for a job; students who do not graduate are relegated to very low-level employment. The high school completion rate has not increased significantly since 1985(Kaufman, Alt, & Chapman, 2001).

Reschly and Christenson (2006) found the strongest predictors they used to determine dropouts were grade retention. Students who had not been retained had 73% lower odds of dropping out than those who were retained.

Silberglitt, Appleton, Burns, and Jimerson (2006) completed a longitudinal study, which examined the reading growth in grades one through eight. Using hierarchical linear regression (HLR), their results showed that students who were retained did not experience a benefit in their growth rate. These students reading growth was lower than their first year in that grade and lower than students who performed similarly but were promoted.

Day (2002) conducted a case study of eighth grade at-risk students' perceptions about learning in classroom using cooperative group work, authentic tasks and assessments, and appropriate use of technology. Day found that students were more motivated to learn, earned better grades, and accepted more responsibility for their learning when using the approaches mentioned above. DiCinto and Gee (1999) also discussed at-risk students having a lack of

motivation in basic level classes in high school. These classes are taught at a lower level of skill with the student having little control over the learning. When students perceive they are in control of learning decisions and have choices, they are more engaged in the learning.

Students' relationships with teachers has a large impact on students' willingness to persist to graduation. Relationships with adults at school have the largest impact on at-risk students (Croninger & Lee, 2001). Finn and Achilles (1999) state that this relationship is crucial for at-risk students to overcome impediments to graduation. Wehlage (1989) agrees with Achilles; he presents his own findings of increasing achievement of at-risk students. Wehlage states that at-risk students do not improve with remediation or higher standards, but with engagement, relationships with teachers, and a relevant curriculum.

Transition to High School

Alspaugh (1998) found a statistically significant achievement loss when students transitioned from elementary school to middle school, as compared with K-8 schools that did not have a school-to-school transition. His study used three groups of 16 schools, 48 in total. The transition loss in achievement was larger when students came from

different feeder elementary schools and were merged into a single middle school. The students from the middle schools and K-8 elementary schools experienced an achievement loss in the transition to high school at 9th grade. The achievement loss in the transition to high school was larger for middle school students than for K-8 elementary students. High school dropout rates were higher for districts with grade 6-8 middle schools than for districts with K-8 elementary schools. Barone, Aguirre-Deandreis, and Trickett (1991) agree with Alspaugh's findings. They state as young teens move to high school, many students encounter a deterioration in grades and attendance.

Dropout rates have drawn more attention from the media than student attendance or truancy. When a student drops out of school it is the ending of a long period of disengagement. Students who drop out have shown attendance problems throughout their educational career (Epstein & Sheldon, 2002).

Roby (2004) states that attendance rates do impact student achievement as shown on state tests. In fact, the greatest impact was shown at grade nine (r = .78). Other researchers do not agree that student attendance has that great of an effect on achievement. Although Lamdin (1996) does agree that there is a connection between attendance

and achievement, he does not see a strong significant relationship.

Catterall (1998) found in his study that on average, 70% of students attain grades in tenth grade English that are better or as good as eighth grade. Furthermore, 80% of tenth grade students feel positive about graduating high school. Catterall found that this school transition resiliency was not linked to student's poverty rate. Schools need to look at other relevant issues outside students of poverty when focusing on transition from school to school.

A challenging middle school experience helps students make the transition to high school. Mizelle (2005) explores how middle school students understand how teachers "cut them too much slack." Transition programs that start in the middle school years are more effective than transition programs that start in the ninth grade (Wallace, 2002). For some students, after receiving a failing grade during the first quarter, it is too late to change their understanding of how high schools work.

Advisory groups at the freshman level not only allow students to find an adult who cares and advocates for them, it also allows students to bond with other freshman students (MacLaury & Gratz, 2002). Chapman and Sawyer

(2001) recommend that such advisory groups do physical activities where the students must depend on one another, which promotes group cohesion. Ideally these activities, such as a ropes course, would be done early on, even during the summer preceding their freshman year.

Some students look at the transition to high school to reinvent themselves. Weiss and Bearman (2004) found that students who were on the margin socially were able to make over their identities their freshman year due to the new mix of students in high school.

Transition Programs

Mac Iver (1990) found that when grade eight students participate in a high school transition program, fewer students were retained in their middle school. When designing a transition program, school administrators and policy makers should pay attention to the varied needs of students. Akos and Galassi (2004) state that gender and race are factors that influence success with transition to high school. Differentiated programming may be effective for reaching the differing needs of students. School administrators should also include the adults in the transition plan. Smith (1997) discussed the improved achievement of schools whose middle schools had a full

transition plan, which included: middle and high school staff meetings, and eighth grade parents visiting the high school.

Kerr and Legters' (2004) study explored two transitions to ninth grade reforms, small learning communities, and interdisciplinary teaming of teachers and students. Kerr and Legters observed that schools using interdisciplinary teams with a high level of implementation cut their dropout rate by over 50%, with on average rates of 6.5% to 3.5%. Schools using small learning communities with a high level of implementation lowered their dropout rate from 12% to 5%. This study was conducted in Maryland with 138 schools participating. High poverty schools improved their dropout rates at the same level as low-poverty schools.

School systems that create working environments where teachers are expected to meet across grade levels regularly, and participate in vertical teaming, lead to more effective transitions for students. These teams include teachers from middle and high school to discuss what is expected of students in each course. Cooney and Bottoms (2003) found that school systems using this transition plan are able to enroll more ninth graders in college prep courses. McCabe (2001) agrees that coordination between the staff of the middle and high

schools leads to long-range plans for students. McCabe also states this practice fills the gap from outgoing expectation for middle school students to incoming expectations of high school students.

One popular transition program is advisor/advisee. At one school, Roosevelt Roads High School, all students have at least one adult who knows them, and all students belong to a small interactive group that meets with the adult. During the advisor/advisee time, the educators support students' individual social, emotional, and moral growth. Roosevelt Roads High School reduces their advisor-student ratio by having all professional staff members function as advisors (Manning & Saddlemire, 1998).

Student Achievement and Engagement

Transition programs allow teachers to develop supportive relationships with students. Students who perceive teachers as caring with high expectations are more apt to be engaged in class. High levels of engagement are linked with better attendance and test scores (Klem & Connell, 2004).

The No Child Left Behind Act mandates that schools collect data on student achievement. Petrides (2006) states that while these data have been more available to

schools, the mandates have not encouraged teachers to study the data to be self-reflective, which could change their practices. Raymond and Hanushek (2003) reported that states, who had implemented accountability systems in the 1990s, had a larger growth in student achievement as measured on the National Assessment of Educational Progress (NAEP).

Koutsoulis and Campbell (2001) found that aspects of families impacted student achievement in Cyprus, Greece. The SES of families had a positive correlation on student achievement (r = .2178). Supportive parents had a positive effect on student achievement (r = .1792), while parental pressure had the opposite effect (r = -.5098). The predictor variable with the highest correlation in this study was prior achievement with an r of .7659. Jacobs and Harvey (2005) had similar findings regarding the impact of parents in Australia. Schools with higher academic achievement had strong links to parents with academic expectations (with this model explaining 76% of the variance). The longer parents have had these expectations the stronger the link (adding this to the model explains 87% of the variance).

Teachers have a profound effect on student achievement. Rowan, Chiang, and Miller (1997) found several effects of

teachers on student achievement. Their work suggests that these effects can be categorized into three areas. The first was teacher ability, measured by the researchers with surveys, to understand teacher knowledge and teaching strategies. The second was teacher motivation, as measured by their efficacy and ideas about locus of control. The third was work environment, as measured by environmental aspects such as class size, flexibility of time, and supports from colleagues.

Guest and Schneider (2003) completed a study based on the Alfred P. Sloan Study of Youth and Social Development. They found that students who participate in non-sports after school activities were, on average, more likely to demonstrate higher academic achievement.

Zeng-yin and Kaplan (2003) found that academic failure in early adolescence, on average, reduced the rate of early adulthood education. These same students were more likely to show deviant behavior as well. Further, they found that failure in early adolescence had an influence on status attained in middle adulthood with a coeffient of -.15.

Hinsley (2007) reported about a small action research study done in a Maine high school, Sacopee Valley High School, regarding high ninth grade failure rates, showed that small policy changes had a large impact on student

achievement. Over a few years this high school made their curriculum more rigorous, instituted heterogeneous grouping and an advisory program, and integrated technology throughout the school. Despite these efforts, ninth grade students were still failing at high rates. The school then found a high correlation with absenteeism and failing one or more courses. The school administration adopted a new policy of not granting credit to students who were absent more than eight days per year. This minor change to the approach of education yielded great results. The number of failures in grade nine was reduced from 149 course failures to 23 the year after the attendance policy was changed.

Summary

Some of the practices outlined in the *Promising Futures* report had a great deal literature to back up their usage in Maine high schools. However, other practices did not. This report was created by commission with many learned people who drew from the research. This report also included input from secondary students, parents, and school staff. This second group of individuals did not draw from research, but from what they have seen, experienced, and from their own professional judgment. This does not mean their input was less valued, although is

does explain the variance in the literature support for the practices.

Chapter III: Design and Methodology

The methodology used and the researcher's design is the focus of this chapter. The problem statement and research questions will also be reviewed. This chapter also contains information regarding data collection and analysis, as well as the population examined.

This study focused on quantitative research methods. The major data points included scores on Maine Educational Assessment (MEA), drop out rates, and average rates of student daily attendance. Subsequent data points that aided in the matching of schools included poverty rates, school size, past performance, and a category of location stating rural or non-rural.

The quantitative method allows the researcher to analyze the data sets in context of using Promising Futures practices in Maine high schools (Leedy & Ormrod, 2005). The researcher used a cross-sectional ex post facto design, looking at two years of data sets, five years apart. The purpose of the study is to see if high schools using Promising Futures practices have higher achievement, higher attendance rates, and lower dropout rates for their students.

Purpose of Study

The purpose of the study, first, is to explore if Maine high schools that have implemented Promising Futures practices with the CSRD grants; produced better results, in student achievement and student engagement.

Instruments

MEA. The Maine Educational Assessment (MEA) was used to measure student achievement. The test was first implemented in 1985 for grades four, eight, and eleven. During the years of this study, the MEA measured reading, writing, science, and mathematics based on the Maine Learning Results Standards. This assessment is not high stakes; it does not have any bearing on a student's diploma. Questions on this assessment were multiple choice, short answer, and each subject included a longer essay type question. This study will focus on the 11th grade data sets prior to the implementations of Promising Futures in 1999 and again in 2004 after each cohort completed the three years of implementation plans included in their CSRD grant.

The MEA uses scaled scores to establish four performance levels:

1. Scores from 561 to 580 receive a performance level of exceeding the standard or "E".
2. Scores from 541 to 560 receive a performance level of meeting the standard or "M".
3. Scores from 521 to 540 receive a performance level of partially meeting standards or "P".
4. Scores from 501 to 520 receive a performance level of does not meet standards or "D".

Scaled scores are used in each analysis of the MEA scoring data sets for science, reading, writing, and math. The reliably and validity of the MEA has been measured. The MEA has been deemed reliable by using a variety of methods including: Cronbach's alpha coeffient, true scores, and Cohen's kappa (see coefficients table below) (State of Maine, 1999a).

Table 1

MEA Stratified Coefficients

Subject	*Coefficient*
Mathematics	.87
Reading	.90
Writing	.83
Science	.78

Content validity, external validity, and internal validity have been shown to be strong (State of Maine, 1999b). Mathematics showed the highest content validity with an average correlation of .73. The average correlation for science and reading were similar, .63 and .62 respectively. The internal validity showed the correlation between math and science to be .60, which was the highest. The correlations between reading and science, and reading and math were comparable at .53 and .51 respectively (State of Maine, 1999).

The external validity was expressed by the relationship between student responses on a survey and the test score. The questions students were asked to respond to were about the variables of mobility, courses taken, subject matter attitude, and self-image as a student. The

question on mobility asked, "What grade did you start coming to school in this school district?" The average of the responses point toward students who spent more time at the school they tested in who received on average higher test scores in reading and science. Students were asked to respond to a question about math course work, "What best describes the mathematics courses you will complete before you graduate?" The results indicated that the higher level mathematics classes are associated with on average higher math test scores. Students were asked to respond regarding their attitudes toward each subject with the question, "My knowledge of [subject] will be useful to me in my future work?" The results of this set of questions indicated the degree to which students agreed with the question positively related with their test score in every content area (State of Maine, 1999b).

Students were asked to rate their self-image as a student in each content area with the following question, "What best describes how you rate yourself as a student?" Results of this set of questions showed a positive relationship between students' self-image and their test scores (State of Maine, 1999b).

Daily Attendance and Dropout Rates. Student engagement will have two measures, student daily attendance, and dropout rate. The dropout rate is a direct measure of student disengagement: a student who drops out of school has reached the ultimate stage of disengagement. Finn (1989) states that students who drop out have a low rate of engagement, participation and identification with school. Students who are not engaged in school work are not likely to succeed (Rossi & Montgomery, 1994). Brewster and Fager (2000) report that higher levels of engagement are linked to reducing dropout rates.

Students who are at risk of dropping out of school can be tracked from their elementary years through academic achievement, behavior patterns, and attendance rates (Lehr, Sinclair, & Christenson, 2004). Scales, Roehlkepartian, Neal, Kielsmiser, and Benson (2006) used attendance rates as an independent variable in their study of the impact of service learning on student engagement. Ryan (2005) studied student engagement for higher education students. He states that student engagement has received higher levels of interest from institutions, the general public, and researchers lately.

Student daily attendance is measured by the average percent of attendance per school. This is a straight

percentage given to the State Department of Education by the schools each year. This number represents the average for the school by dividing the number of students present for school each day by the number of student days in the calendar. The average state wide attendance rate in 2004 for all students was 94.3%. The average for secondary students was 92.9%.

The second engagement indicator, dropout rate, is measured by the total number of students who enter their freshman year of high school but who do not graduate. These rates are also reported to the State Department of Education by the schools. The data sets are established by the number of students who leave school in each grade level, each year.

Both the daily attendance and dropout rates are reported by each school to the State Department of Education. There may be some errors in these data sets since this they were reported prior to the State Department of Education implementing a computerized database, where data is swept up directly from the schools' databases.

Problem Statement

What is the impact of Promising Futures practices on high school students in public secondary schools in Maine?

Research Questions

The central question is how much do Promising Futures transition programs have an impact on achievement and engagement of high school students when controlling for poverty, school size, past achievement, and location? Please see Table 2 below for subsidiary questions with sources for the data and the statistical analysis.

Central question. To what extent, if any, did Promising Futures practices have an impact on achievement and engagement of high school students when controlling for poverty, school size, location, and past performance?

Table 2

Statistical Analysis and Dependent Variable Data Sources

Question	Dependent variable data source	Analysis
1. This study examines student achievement in mathematics, writing, reading, and science as measured on the MEA and controlling for poverty, school size, location, and past performance. Do schools that implement Promising Futures practices have higher academic achievement then schools who do not participate?	1999 and 2004 school-wide MEA mean math, writing, reading, and science scaled score	HLRM
2. This study examines student engagement as measured by student dropout rates and attendance rates. Do schools that implement Promising Futures practices have greater student engagement then schools who do not participate?	1999 and 2004 dropout rate and attendance rates for each school in the study	HLRM

The independent variables remain the same for each of the above statistical analyses. The Table 3 below displays the data sources for each. The following data sources needed to be only one point. This researcher decided upon

Table 3

Independent Variable Data Sources

Independent variable	Data source
School size	2001 October student enrollment
Location	2000 Federal Census data as to whether the cities or towns sending student to a high school were rural or non-rural
Poverty	2001 percentage of students qualifying for the free and reduced national hot lunch program
Past achievement	1999 MEA scaled score from each school in the study. The same content area was used for each HLR
Promising Futures	Whether or not this was a school that implement the Promising Futures with the CSRD Grant

the year 2001, as it is in the middle of this study. More data on this topic is also located in the Data Collection section of this chapter.

Population

Data sets from 33 Maine public high schools that implemented Promising Futures were examined. Twenty-eight of these schools could be matched to schools who have not implemented Promising Futures. This study includes 56 schools in total, in which, at the time of the study, 31,252 students attended. The schools were matched in the following ways: school size, poverty rates, and if it was rural or non-rural. School size and poverty rates were found on the State Department of Education Website (Maine Education Department, 2005). The location criterion (United States Census Bureau, 2003) was determined by using the census data from the federal government website (U.S. Census Bureau, 2006). Schools were considered a match if the school met all three of the following criteria:

1. The schools matched by size measured by student enrollment within 200 students.
2. The schools matched poverty rates measured by free and reduced lunch within ten percentage points.

3. The schools matched for location by the fact that they were either rural or non-rural.

If more than one of the schools that did not implement Promising Futures matched a Promising Futures school, then the school that was a closer match was chosen for this study.

Race was not used as a factor in this project. The diversity in Maine, although rising, is not represented in enough numbers to be significant to this study. For the years focused upon in this study (1999-2004), the percentages for each race round to the following in Maine schools: White at 96%, Black at 1%, Asian at 1%, Native American at 1%, and Hispanic at 1% (State of Maine Department of Education, 2006).

The school names have been coded by the researcher. These codes and all research data sets are being kept confidential in a locked cabinet in the researcher's home for three years. Although these data sets are all public information, the way the data is brought together could be used to judge schools. This is not the purpose of the data collection, and therefore will be secured as described above.

The Promising Futures schools used in this project are not randomized. These schools chose to be in this program.

The schools formed a team of people to write the CSRD grant and be involved in the project. Ninety percent of the entire staff had to sign off on the programs selected to meet the Promising Futures' core practices (please see Appendix A for core practices). Therefore, the schools already demonstrated some agreement and cohesiveness around improving their high school.

Data Collection

The proposal for this dissertation research project did not go through the Seton Hall University Review Board (IRB), since human subjects were not involved in the research project. Student level data is not used in this study. All data sets were publicly available. This researcher was able to retrieve much of the information needed for this study on the State of Maine Website. Some information was missing but was retrieved with several phone calls to the Maine Department of Education. This data set was then quickly added to the Department's Website.

Some district factors were chosen based on the work of Swanson (2004); he used racial composition, free-/reduced-priced lunch, Limited English Proficient participation, special education, and location. Swanson used these

district characteristics in his research exploring graduation rates in relation to overall student populations. Reyes (1989) found that attendance impacted student engagement on his list of factors to study student engagement of at-risk students. Schools that have a higher poverty rate are less likely to have college preparatory classes, higher staff turnover, more teachers teaching outside their certification area, and poorer test scores (Ferguson & Mehta, 2004). Beauvais and Jenson (2003) found that low socioeconomic status (SES) is linked to many factors that result in low academic achievement.

Location, as measured in this study, means whether or not the school is located in a rural town. Generally, southern Maine is more urban and northern Maine more rural. During the first year of the first cohort of CSRD grantees, schools in southern Maine were generally further along in their initial implementation (Lane & Hamann, 2001).

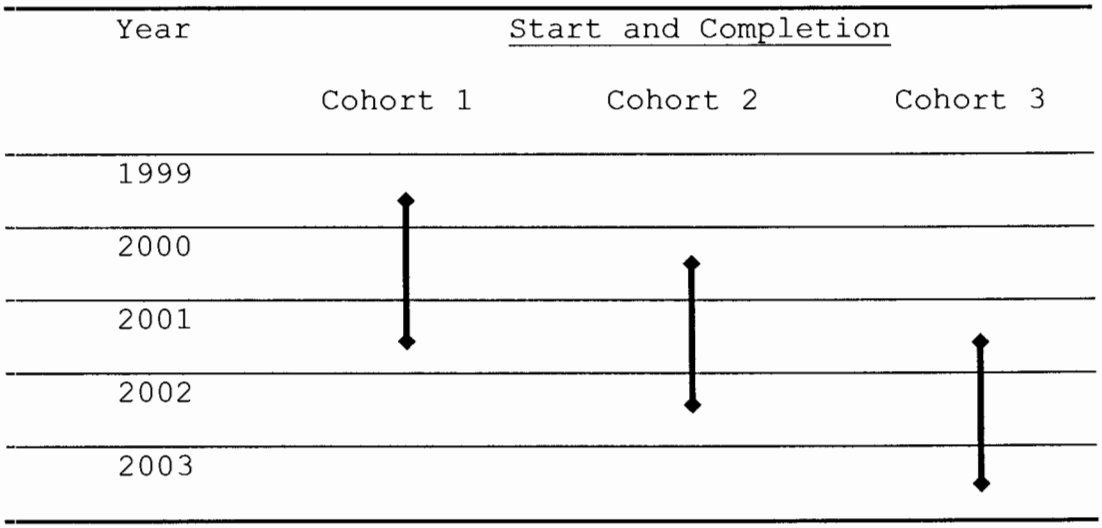
The location column contains information about the town where the high school is situated. The poverty rate is based on free and reduced hot lunch numbers provided to the State from the schools' cafeteria manager. There may be some under reporting of this number for the high school population, since this statistic is based on parents reporting their income to the school and it relies on high

school students bringing the form back to school. The school size column lists the total school size. The cohort number refers to the year the school received their CSRD grant. Dropout and attendance rates are included here.

The data sets were collected for the year prior to the start of any Promising Futures CSRD grants that were awarded and again one year after cohort three had completed the grant cycle. The first year chosen for data collection is 1999. The end of year data sets were reported; this is just prior to the cohort one schools learning of their award in July of 1999. All three cohorts had completed the three-year cycle by the close of the school year, June 2003. The second year's data sets being examined are from 2004 the year after the CSRD grant cycle closed. Please see Table 4 that visually represents the start and completion of each cohort.

Figure 2

Promising Futures Cohort Grant Cycles



Data Analysis

Several descriptive and inferential statistical analyses were used. The research detected the presence of any statistically significant differences in the students' engagement or achievement with high schools implementing Promising Futures practices. Descriptive analysis was used to recognize and demonstrate the differences in the schools in this study. Hierarchical linear regression modeling was used to determine the best predictor model, explaining the greatest percent of variance on student achievement. Each dependent variable was examined, while the other variables are controlled for with the model (Witte & Witte, 2004).

The hierarchical model involves multiple nesting units, which are useful in education research. This model is comprised of levels needed to demonstrate the more complex reality presented in a school (Siter, 2003). Schools are embedded in multiple contexts at once, each potentially having its own influence. This methodology visibly recognizes the groups of attributes within schools and allows for these factors to be considered within the same model (Lee & Bryk, 1989; Raudenbush & Bryk, 2002). One example of this HLR recognition of school factors in this study is the association between students' socioeconomic level and students' achievement. The HLR model permits a separation of within-school from between-school phenomena (Hinkle, Wiersma, & Jurs, 2003).

Table 4 shows the independent and dependent variables in the two hierarchical regression models. Education research is often challenged by the notion of change, organizational effects, and the impact of intervention programs on student achievement (Raudenbush & Bryk, 2002). Using this statistical analysis allowed the researcher to estimate the impact of the Promising Futures practices and control for other factors such as poverty, school size, or location. This researcher endeavored to find if these

variables continue to explain a statistically significant portion of variance with this unique population.

Table 4

Independent Variables for Hierarchical Regression Models

Variable	Measured by
Location	Dummy Coded 1= Rural 0= Non-rural
School size	Actual number of students in grades 9-12
Poverty	% of students in the federal free and reduced lunch program
Promising Futures Programs	Dummy Coded 0= non participation in Promising Futures 1= participation in Promising Futures

The three models for the hierarchical linear regression are shown in Tables 5 and 6.

Table 5

Hierarchical Linear Regression Model for Student Engagement

Model	Independent variables
Model 1	School size
	Location
	Poverty
Model 2	School size
	Location
	Poverty
	1999 engagement data
Model 3	School size
	Location
	Poverty
	Promising Futures programs

Table 6

Hierarchical Linear Regression Model for Student Achievement

Model	Independent variables
Model 1	School size
	Location
	Poverty
Model 2	School size
	Location
	Poverty
	1999 achievement data
Model 3	School size
	Location
	Poverty
	1999 achievement data
	Promising Futures programs

The internal validity of this research study, which allows the researcher to draw proper inferences about relationships within the data sets, relies on the unobtrusive measures used. Since this study is drawing from public data sets, no direct observation was made at

the schools; therefore, no Hawthorne effect was evidenced (Leedy & Ormrod, 2005).

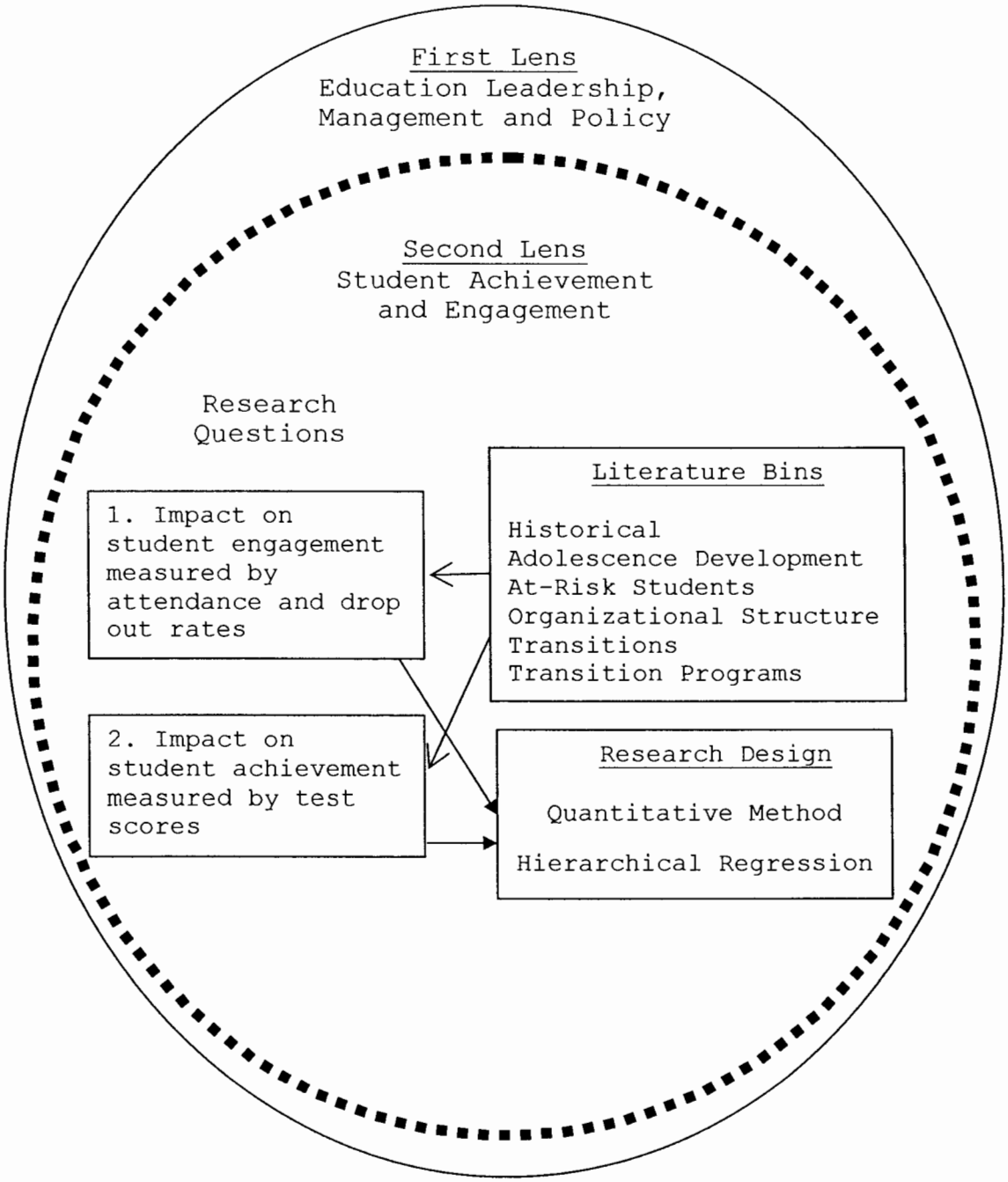
The external validity of the project, which is the extent to which the results of this study can be applied to others, is reasonably strong. The project examines real high schools in a large enough representative sample. This research project may be hard to replicate in many other states, due to the size and population of Maine, but it can be applicable to some other states such as Vermont, New Hampshire, North Dakota, and South Dakota.

All data sets were entered into the computer software program SPSS 14.0 for statistical computation. Each result was judged to be statistically significant if the alpha is equal to .05 or less.

Please see Figure 3 on the next page to view a visual representation of a design framework of this research study. Chapter 4 presents the analysis of this study's data sets using the methods and protocols explained in this chapter.

Figure 3 Research Design Framework

Research Design Framework
for a Study of the Impact of Promising Futures and CSRD Grants on High School Students in Maine



Chapter IV: Presentation and Analysis of the Data

The central research question of this study was to determine how much, if any, Promising Futures transition programs have an impact on achievement and engagement of high school students when controlling for poverty, school size, and location. This study attempts to determine the nature of any relationship that exists between Promising Futures practices and student engagement and achievement. The key strategies that Promising Futures schools used to help ninth grade students transition to high school were: advisory groups, personal learning plans, student portfolios, teaming, and heterogeneous grouping (Lane & Hamann, 2002).

Review of Research Questions

Two subsidiary research questions were asked to help answer the central research question.

Central question. To what extent, if any, did Promising Futures practices have an impact on achievement and engagement of high school students when controlling for poverty, school size, location, and past performance?

Subsidiary Questions

1. This study examines student achievement in mathematics, writing, reading, and science as measured on the 2004 MEA and controlled for poverty, school size, location, and past performance. Do schools that implement Promising Futures practices have higher academic achievement than schools who do not participate?
2. This study examines student engagement as measured by 2004 student dropout rates and attendance rates. Do schools that implement Promising Futures practices have greater student engagement then schools who do not participate?

Schools who won a CSRD Grant to implement the Promising Futures practices were matched with schools that did not as described in Chapter 3. Data sets were used from before the start of the first cohort winning a grant, 1999, to the year after the end of the third cohort's cycle of the grant, 2004.

Figure 4 contains a table showing the data sets from each of the Promising Futures schools and the school

Figure 4 *Statistical Information for Schools in Study*

School	Promising Futures *	School size	Poverty %	Location *	Dropout rate 1999	Dropout rate 2004	Attendance 1999	Attendance 2004	MEA 1999 Reading	MEA 1999 Writing	MEA 1999 Math	MEA 1999 Science	MEA 2004 Reading	MEA 2004 Writing	MEA 2004 Math	MEA 2004 Science
1	0	1286	21.2	0	6.17%	6.69%	91.33%	94.43%	542	540	528	527	542	542	530	528
1a	1	1279	21.3	0	5.05%	1.96%	90.15%	86.13%	541	535	527	525	538	537	528	525
2	0	1157	23.9	1	0.41%	2.60%	92.21%	91.48%	541	534	530	526	537	535	529	526
2a	1	1128	19	1	3.23%	2.51%	92.44%	94.19%	539	533	525	525	537	535	527	525
3	0	924	29.9	0	1.62%	5.92%	91.16%	95.10%	541	538	529	527	541	538	530	528
3a	1	1109	25.2	0	2.85%	5.42%	95.70%	93.07%	543	536	530	527	539	538	528	528
4	0	940	18.5	0	1.94%	2.80%	92.99%	94.21%	543	539	528	529	535	534	525	524
4a	1	1047	12.2	0	4.26%	3.75%	93.80%	92.69%	543	538	529	529	539	538	528	528
5	0	917	33.8	0	2.16%	3.19%	93.40%	93.68%	542	537	529	528	541	538	530	527
5a	1	879	30.2	0	5.94%	1.31%	88.90%	90.76%	540	535	527	526	539	536	528	527

School	Promising Futures *	School size	Poverty %	Location *	Dropout rate 1999	Dropout rate 2004	Attendance 1999	Attendance 2004	MEA 1999 Reading	MEA 1999 Writing	MEA 1999 Math	MEA 1999 Science	MEA 2004 Reading	MEA 2004 Writing	MEA 2004 Math	MEA 2004 Science
6	0	979	8.68	0	0.99%	0.32%	93.92%	94.19%	541	534	528	528	544	540	534	531
6a	1	875	9.04	0	2.28%	0.35%	94.13%	94.17%	542	537	530	526	541	539	531	527
7	0	774	38.8	1	2.86%	2.77%	90.72%	92.39%	538	534	523	527	537	534	525	524
7a	1	774	29.2	1	4.79%	1.58%	91.92%	93.82%	537	531	522	522	539	535	527	527
8	0	910	16	1	2.95%	0.53%	91.66%	89.96%	540	531	527	527	539	536	530	528
8a	1	752	11.1	1	0.54%	0.95%	91.88%	94.53%	540	532	527	527	536	535	527	525
9	0	749	15.4	1	1.26%	1.75%	92.51%	93.47%	545	539	533	528	540	539	533	526
9a	1	701	14.1	1	3.93%	3.67%	91.13%	99.41%	541	536	532	528	542	538	535	531
10	0	596	1.51	1	0.23%	1.00%	94.71%	95.73%	546	541	537	533	548	543	540	534
10a	1	696	1.87	1	1.15%	0.60%	93.20%	96.00%	549	539	537	534	545	542	538	535
11	0	630	40.4	0	3.18%	3.74%	90.55%	92.15%	541	536	527	527	536	533	523	526
11a	1	566	36.4	0	3.07%	1.34%	91.15%	93.83%	542	537	531	530	540	537	529	529

School	Promising Futures *	School size	Poverty %	Location *	Dropout rate 1999	Dropout rate 2004	Attendance 1999	Attendance 2004	MEA 1999 Reading	MEA 1999 Writing	MEA 1999 Math	MEA 1999 Science	MEA 2004 Reading	MEA 2004 Writing	MEA 2004 Math	MEA 2004 Science
12	0	552	16.3	1	1.52%	1.17%	95.51%	96.08	544	538	534	532	538	536	530	526
12a	1	522	18.8	1	5.54%	5.65%	91.91%	93.40%	542	535	529	529	536	535	530	526
13	0	607	40.4	0	1.21%	4.47%	91.89%	92.84%	539	534	528	526	538	536	530	527
13a	1	466	35.3	0	3.68%	1.62%	91.58%	92.11%	537	531	523	525	539	537	528	526
14	0	360	34.6	1	3.95%	6.43%	93.36%	96.85%	541	539	526	526	540	537	527	529
14a	1	406	38	1	1.82%	3.02%	91.61%	92.86%	537	531	524	525	535	533	526	523
15	0	341	31.9	1	6.46%	6.73%	93.47%	92.61%	542	533	526	526	534	531	521	524
15a	1	387	25.4	1	3.80%	2.74%	89.06%	90.17%	543	536	528	527	543	539	529	527
16	0	481	29.4	0	2.95%	0.74%	95.93%	94.11%	540	535	528	526	538	537	526	524
16a	1	386	22.3	0	1.11%	0.00%	91.34%	93.81%	540	533	531	529	538	535	527	526
17	0	516	52.8	1	2.69%	5.23%	92.22%	95.88%	543	534	529	528	536	534	524	525
17a	1	383	49.2	1	3.19%	6.78%	92.63%	92.81%	543	539	530	529	544	544	530	531

School	Promising Futures *	School size	Poverty %	Location *	Dropout rate 1999	Dropout rate 2004	Attendance 1999	Attendance 2004	MEA 1999 Reading	MEA 1999 Writing	MEA 1999 Math	MEA 1999 Science	MEA 2004 Reading	MEA 2004 Writing	MEA 2004 Math	MEA 2004 Science
18	0	278	50.3	0	0.00%	1.68%	94.72%	92.96%	543	536	531	528	538	536	527	529
18a	1	75	43.3	0	1.84%	1.39%	93.68%	93.17%	541	534	526	524	541	539	532	529
19	0	285	9.54	1	1.95%	0.66%	93.38%	94.23%	545	537	532	529	541	536	528	526
19a	1	343	14.5	1	4.62%	3.22%	92.10%	92.40%	538	533	526	523	539	539	530	527
20	0	316	30.3	1	0.33%	0.30%	90.29%	93.34%	538	535	527	529	535	535	524	524
20a	1	325	27.9	1	2.03%	2.18%	87.48%	92.71%	539	535	524	525	539	536	529	527
21	0	496	11.9	0	5.60%	1.93%	91.16%	93.22%	544	537	533	529	542	538	533	531
21a	1	321	21.7	0	5.52%	3.53%	90.76%	93.20%	540	538	527	527	540	536	528	527
22	0	234	53.1	1	0.79%	1.65%	94.02%	92.43%	540	532	528	524	534	534	525	524
22a	1	312	45.4	1	3.87%	1.29%	93.12%	95.58%	540	534	528	525	542	534	530	529
23	0	299	52.2	1	3.90%	3.93%	93.96%	94.97%	544	540	529	529	539	535	526	523
23a	1	307	50.8	1	3.43%	0.32%	92.88%	93.67%	539	538	527	529	542	538	528	532

School	Promising Futures *	School size	Poverty %	Location *	Dropout rate 1999	Dropout rate 2004	Attendance 1999	Attendance 2004	MEA 1999 Reading	MEA 1999 Writing	MEA 1999 Math	MEA 1999 Science	MEA 2004 Reading	MEA 2004 Writing	MEA 2004 Math	MEA 2004 Science
24	0	427	44.4	1	0.53%	1.70%	94.72%	95.10%	542	536	530	528	538	534	530	527
24a	1	295	51.2	1	2.61%	1.40%	94.41%	90.74%	536	535	519	522	536	537	522	523
25	0	255	40.4	1	3.36%	1.87%	92.12%	88.86%	539	535	523	525	536	538	523	525
25a	1	279	40.6	1	10.99%	4.56%	89.75%	94.15%	541	534	524	528	535	533	520	523
26	0	199	33	1	2.59%	7.76%	93.24%	91.69%	540	537	526	526	538	538	525	526
26a	1	213	37.4	1	0.00%	0.88%	94.91%	95.36%	536	531	524	525	537	536	526	527
27	0	134	45.3	1	0.78%	0.00%	93.26%	92.97%	537	536	522	526	533	530	524	523
27a	1	195	44.5	1	7.21%	3.20%	89.08%	85.99%	536	531	522	523	537	533	524	526
28	0	147	57.5	1	0.67%	3.33%	94.64%	90.41%	542	541	528	527	531	529	526	522
28a	1	142	52.8	1	1.78%	3.73%	92.11%	90.53%	538	529	521	524	537	537	529	527

Promising Futures: 1 = Participation in Promising Futures Grant

and 0 = Non-participation

Location: 1 = rural and 0 = non rural

selected as a match. These data sets were collected from the State of Maine data Website. The researcher created a master Excel sheet to display the data sets, since each piece of the data was displayed on different sections of the wide-ranging State of Maine Website.

Descriptive Statistics

Fifty-six Maine high schools were included in this study. These 56 high schools comprised 48.7% of all public high schools in Maine. Descriptions of the statistics of the schools included in this study are as follows.

Two-thirds of the schools were located in a rural area, while the rest were considered non-rural. The mean of location was .36 with a .483 standard deviation.

The range of school size was 134 students to 1,286 students: the mean population was 558 students with a 315.67 standard deviation. The schools that did implement Promising Futures practices were not significantly different in school size than the school chosen as a match by the researcher. The results of the independent *t* test shown below in Table 7 show the variable of school size were not skewed. This means that not only smaller or only larger schools choose to implement Promising Futures practices.

Table 7

Independent t test for School Size

Schools	Mean	SD	t
That implemented Promising Futures	552.25	311.44	.137
That did not implement these practices	563.89	319.60	.137
Significance between the Mean difference	.964 - Not significant		

Schools who did not implement Promising Futures practices were chosen as match for each of the treatment schools; Table 7 shows this match of school size was sufficient for the study.

The range of poverty was 1.51% and 57.46% with a mean poverty rate of 30.53% and a standard deviation of 14.79. Table 8 displays the difference in the means of poverty of the schools in this study. The schools that did implement Promising Futures practices were not significantly different in their poverty rates than the schools chosen as a match by the researcher. This *t* test also demonstrated

Table 8

Independent t test for Poverty

Schools	Mean	SD	t
That implemented Promising Futures	31.476	15.40	.474
That did not implement these practices	29.589	14.38	.474
Significance between the mean difference	.829 - not significant		

that schools that chose to implement Promising Futures were not mostly schools with high or low poverty rates. Schools who did not implement Promising Futures practices were chosen as match for each of the treatment schools; Table 8 shows this match of poverty was sufficient for the study.

The student engagement data, with respect to dropout and attendance from 1999, prior to the implementation of the Promising Futures practices, is described here. The school with the highest rate of students dropping out was at a rate of 10.99%. The school with the fewest dropouts in the study actually had zero students drop out. The

schools in this study had a mean dropout rate of 2.91% with a standard deviation of 2.11%. The attendance data also had a large range. The school with the lowest attendance rate was at 87.48%, and the highest attendance rate in the study was 95.93%. The mean attendance rate was 92.43% with 1.82% standard deviation. Table 9 below displays these descriptive statistics.

Table 9

Descriptive Statistics

	N	Minimum	Maximum	Mean	*SD*
Promising Futures	56	0	1	.50	.50
Enrollment	56	134	1286	558.07	315.67
Poverty	56	1.51	57.46	30.53	14.79
Location	56	0	1	.36	.483
Dropout 1999	56	0%	11.00%	2.91%	2.11%
Dropout 2004	56	0%	7.76%	2.68%	2.00%

	N	Minimum	Maximum	Mean	*SD*
Attendance 1999	56	87.48%	95.93%	92.43%	1.82%
Attendance 2004	56	85.99%	99.41%	93.15%	2.30%
Reading 1999	56	536	549	540.82	2.65
Writing 1999	56	529	541	535.43	2.83
Mathematics 1999	56	519	537	527.66	3.67
Science 1999	56	522	534	526.95	2.40
Reading 2004	56	531	548	538.64	3.15
Writing 2004	56	529	544	536.38	2.89
Mathematics 2004	56	520	540	528.07	3.76
Science 2004	56	522	535	526.76	2.74

The data from the all schools in the study for the year after the last Promising Futures cohort completed implementation, which occurred in 2004, are described here. In 2004, the lowest dropout rate reported in this study was

again 0%. The highest dropout rate was 7.76%. The mean dropout rate for the schools in this study for 2004 was 2.68, which was slightly reduced from 1999, with a 1.99% standard deviation. The highest attendance rate from 2004 reported was 99.41% compared to the lowest at 85.99%. The mean attendance rate for the schools in this study was 93.15% with a standard deviation of 2.3%.

The student achievement data for 1999 for this study are described here in average scaled scores for each school (range of 501 to 580). The lowest scaled reading score in this study was 536, and the school with the highest scaled score was at 549. The mean reading score was 541 with a 2.65 standard deviation. The lowest writing scaled score was 529, and the highest was 541. The mean writing scaled score was 535 with a 2.84 standard deviation. The lowest scaled mathematics score in this study was 519, and the highest was 537. The mean science score was 528 with a 3.67 standard deviation. The science scores were the lowest overall, with the lowest score at 522 and highest at 534. The mean scaled science scores were 527 with a 2.4 standard deviation.

The descriptive statistics for student achievement for 2004 were not exceedingly different from 1999. The range of reading scaled scores from this study in 2004 was from

531 to 548, with a mean of 539 with a standard deviation of 3.15. The range of the writing scores was from 529 to 544, with a mean of 536 with a standard deviation of 2.89. The school with the lowest mathematics score in 2004 reported a scaled score of 520, and the highest 2004 math scaled score in this study was 540. The mean score was 528 with a 3.76 standard deviation. The science scores in 2004 remained low. The range was 522 to 535, with a mean of 527 and a 2.74 standard deviation.

The standard deviations shown in Table 9 for the academic and engagement variables are small. This shows that the schools' scores are tight to the mean, and the bell-shaped curve was steep. These small deviations for the academic variables shows that there are relatively more students in Maine scoring close to the mean. These standard deviations for the academic variables were also influenced by the 80 point spread for the MEA scores. Even though during the years of 1999 to 2004 the MEA scores are reported in the 500s, the bottom score was 501, and the highest score possible was 580. The tight scores for dropout and attendance rates also showed smaller variance from the mean, with a 2% or less standard deviation. This information is useful in comparison to the other datasets in this study (National EMSC Data Analysis Center, 2006).

Regression Models

Mathematics Achievement

While controlling for poverty, school size, location, and past performance, do schools that implement Promising Futures practices have higher academic achievement in mathematics then schools who do not participate?

Part one of question one examined the amount of variance in achievement in overall 2004 mathematics scores as measured by scaled scores for each school's MEA performance that could be explained by Promising Futures practices. This hierarchical regression (as shown in Table 10) started with model one where the researcher controlled for location, school size, and poverty; the second model added 1999 mathematics scores as measured by the scaled scores for each school's MEA performance, and the third model added in the use of Promising Futures practices. All three models were significant.

Question one examined the amount of variance in achievement in overall 2004 mathematics scores as measured by scaled scores for each school's MEA performance that could be explained by Promising Futures practices. This hierarchical regression started with model one where the

Table 10

Model for Mathematics Achievement

Variable	R^2	Sig.	Change Sig.	Beta	Beta Sig.
Model 1	.328	.000	*		
School size				.002	.989
Location				.036	.780
Poverty				-.564	.000
Model 2	.522	.000	.000		
School size				.039	.759
Location				-.021	.845
Poverty				-.292	.030
1999 math scores				.515	.000
Model 3	.559	.000	.044		
School size				.504	.617
Location				-.320	.750
Poverty				-1.760	.085
1999 math scores				.592	.000
Promising Futures				.206	.044

researcher controlled for location, school size and poverty; the second model added prior achievement by including 1999 mathematics scores as measured by the scaled

scores for each school's MEA performance, and the third model added in the use of Promising Futures practices. All three models are significant.

Model one had an R^2 of .328. By examining the ANOVA table, the researcher discovered that model 1 had an F value of 8.444 (df 3,52; ρ = .000). This first model explained 32.8% of the variance in the 2004 MEA mathematics scaled scores.

As is evident in Table 10, the only Beta that is significant in model one is the predictor of poverty. This variable had a Beta of -.564 and a t value of -4.136 and was at the .000 level of significance. This negative value stated that, on average, the higher the level of poverty in the school the lower the mathematical scores on the 2004 MEA. In model one, the predictor of poverty had the largest Beta, more than 15 times as large as the next largest.

Model two adds previous achievement as a predictor as measured by 1999 Mathematics MEA scores. This model had an R^2 of .522. By adding this variable of previous achievement, there is an increase of 19.6% in the variance in math achievement as measured by the 2004 mathematics MEA scores. The ANOVA shows an F-value of 13.904 (df at 4,51; ρ

=.000). The change in the R^2 from model 1 to model 2 is significant at the .000 level.

The predictor of poverty was reduced to -.292 with a *t* value of -2.238, which was significant at the .030 level. Both school size and location continued to not be significant predictors of math achievement. The added predictor of the 1999 MEA math scores had a Beta of .515 and a *t* value of 4.549, which was statistically significant at the .000 level. This added predictor of past math scores had the largest Beta, nearly twice as large as the next largest, poverty. The impact of including previous mathematic achievement to this model increased the variance explained by almost 20%.

Model three includes the last predictor and was the main focus of this study, implementing Promising Futures practices. This model had an R^2 of 55.9%. By adding this variable, the amount of variance explained continued to increase. This time, the amount of variance was not as great, but increased by 3.7%. This change in R^2, although smaller, was still significant at the .044 level. As we looked at the ANOVA table we observed the *F* value was 12.684 (*df* at 5,50; ρ =.000).

The predictors in model three again showed variability because of the additional predictor. Poverty had a

slightly reduced Beta, which was not significant. School size and location were still not significant predictors. The past math score predictor revealed an increased Beta of .592 with a *t* value of 5.107, which was statistically significant at the .000 level. The newly added predictor of Promising Futures had a Beta of .206, a *t* value of 2.063, which was statistically significant at the .044 level. Past mathematics performance continued to have the largest impact in this model, but the Promising Futures predictor contributed to the variance explained with one third the impact as the past achievement predictor's. Schools that implemented Promising Futures practices had higher mathematical achievement as measured on the 2004 MEA test.

Writing Achievement

While controlling for poverty, school size, location, and past performance, do schools that implement Promising Futures practices have higher academic achievement in writing than schools who do not participate?

Part two of question one examined the amount of variance in achievement in overall writing scores as measured by scaled scores for each school's MEA performance that can be explained by Promising Futures practices. In

the first hierarchical regression model the researcher controlled for school size, poverty, and location; the second model added past performance in writing scores as

Table 11

Model for Writing Achievement

Variable	R^2	Sig.	Sig. Change	Beta	Beta Sig.
Model 1	.206	.007	*		
School size				.031	.847
Location				.132	.342
Poverty				-.391	.011
Model 2	.269	.003	.042		
School size				.037	.815
Location				.098	.468
Poverty				-.348	.020
1999 writing scores				.256	.042
Model 3	.324	.001	.049		
School size				.396	.694
Location				.624	.535
Poverty				-2.151	.036
1999 writing scores				2.724	.009
Promising Futures				2.019	.049

measured by the 1999 MEA Writing Assessment; and the third model added the use of Promising Futures practices. The dependent variable is the writing achievement of students included in the study as measured by 2004 MEA Writing Assessment.

Model one had an R^2 of .206. By examining the ANOVA table we can determine that Model one had an F value of 4.511 (df at 3,52; ρ =.007). This model explained 20.6% of the variance in the 2004 writing achievement.

In model one the predictor of poverty had a Beta of -.391 and a t value of -2.640 at the .011 level of significance. As evident in Table 11 both location and school size predictors did not rise to the level of significance.

Model two, where the predictor of 1999 MEA Writing Scores is added, had an R^2 of 26.9%. This additional predictor added 6.3% of the explained variance in writing achievement. This change in the R^2 was significant at the .042 level. The ANOVA table showed model two had an F value of 4.693 (df at 4,51; ρ =.003).

The impact of poverty was evident in model one with a Beta of -.348, which was significant at the .020 level. The predictors of location and school size were not

significant. The predictor of past writing achievement had the second highest Beta of .256 with a 2.089 *t* value, which was significant at the .042 level. Poverty had a negative impact on writing achievement, while past achievement had a positive impact on writing achievement.

The Promising Futures predictor was added to model three. This model had an R^2 of .324, which means that this model explained 5.5% more of the variance in writing achievement. This increase in the R^2 value was significant at the .049 level. An examination of the ANOVA table indicated that this model had an F-value of 4.796 (*df* 5,50), which was significant.

The predictors of school size and location continued not to be significant predictors of writing achievement. The overall impact of the predictor of poverty continued to decline, but be significant in this model, -.306 with a *t* value of -2.151. The past writing achievement predictor had an increased Beta of .346 with a *t* value of 2.724. The last predictor of Promising Futures had a Beta of .252 with a t-value of 2.019, which was significant at the .049 level. Past writing achievement had the largest Beta in this model. Poverty and Promising Futures had slightly smaller Betas in comparison. Schools that implemented

Promising Futures practices had higher writing achievement as measured on the 2004 MEA test.

Reading Achievement

While controlling for poverty, school size, location, and past performance, do schools that implement Promising Futures practices have higher academic achievement in reading than schools who do not participate?

Part three of question one examined the amount of variance in achievement in overall 2004 reading scores, as measured by scaled scores for each school's MEA performance that can be explained by Promising Futures practices. This hierarchical regression started with model one where the researcher controlled for location, school size, and poverty; the second model added 1999 reading scores as measured by the scaled scores for each school's MEA performance, and the third model added the use of Promising Futures practices. All three models are significant.

Table 12

Model for Reading Achievement

Variable	R^2	Sig.	Sig. Change	Beta	Beta Sig.
Model 1	.228	.003	*		
School size				-.057	.723
Location				.135	.325
Poverty				-.470	.002
Model 2	.314	.001	.015		
School size				-.405	.687
Location				.932	.356
Poverty				-2.302	.025
1999 reading scores				2.525	.015
Model 3	.366	.000	.049		
School size				-.285	.777
Location				.896	.377
Poverty				-1.906	.062
1999 reading scores				3.118	.003
Promising Futures				2.015	.049

Model one had an R^2 of .228. The examination of the ANOVA table reveals that Model one has an *F* value of 5.132 (*df* 3,52; ρ=.003). This first model explained 22.8%

of the variance in the reading achievement as measured by the 2004 MEA reading scaled scores.

As evident in Table 12 the only predictor to be significant in model one is poverty, which had a Beta of -.470 and a *t* value of -3.217 and is at the .002 level of significance. The predictor of location and school size were not significant predictors of reading achievement in model one. Poverty had a negative impact on reading achievement. Poverty had the largest Beta, almost four times as large as the next largest, location.

Model two added the predictor of past achievement by means of 1999 Reading MEA scores. This model had an R^2 of .314. By adding this variable the researcher accounted for 8.6% more of the variance in reading achievement as measured by the 2004 reading MEA scores. This R^2 change is significant at the .015 level. By examining the ANOVA, it reveals an *F* value of 5.841 (*df* 4,51), which was significant.

The predictor of poverty reduced to -.341. The added predictor of the 1999 MEA reading scores had a Beta of .322 and a *t* value of 2.525, which was statistically significant at the .015 level. This additional predictor of past reading scores had the second largest effect after poverty. The impact of poverty on reading achievement is negative,

while past performance has a positive impact of reading achievement.

Model three included the last predictor and is the main focus of this study, implementing Promising Futures practices. This model had an R^2 of .366. By adding this variable, the variance in mathematics achievement as measured by the 2004 reading MEA scores increased by 5.2%. This change in R^2 is significant at the .049 level. The ANOVA table displayed the F value at 5.765 (df 5,50; ρ=.000).

Both predictors of school size and location continued not to be significant. In the model, poverty loses its significant effect. Previous reading achievement effect increased to .409. The newly added predictor of Promising Futures had a Beta of .241, a t value of 2.015 and was statistically significant. Past reading performance continued to have the largest effect in this model as would be expected, since this is has proven to be a strong predictor in other studies. The Promising Futures predictor contributed to the model with slightly more than half the effect size as the past achievement predictors. Schools that implement Promising Futures practices on average did have higher reading achievement as measured on

the 2004 MEA test than those schools that did not implement Promising Futures.

Science Achievement

While controlling for poverty, school size, location, and past performance, do schools that implement Promising Futures practices have higher academic achievement in science than schools who do not participate?

Part four of question one examined the amount of variance in achievement in overall science scores as measured by scaled scores for each school's MEA science performance that can be explained by Promising Futures Practices. As shown in Table 13, the first hierarchical regression model, the researcher controlled for school size as measured by enrollment, poverty, and location; the second model added past performance in writing scores as measured by the 1999 MEA Science Assessment; and the third model added in the use of Promising Futures practices. The dependent variable was the science achievement of students included in the study as measured by 2004 MEA Science Assessment.

Table 13

Model for Science Achievement

Variable	R^2	Sig.	Sig. Change	Beta	Beta Sig.
Model 1	.157	.030	*		
School size				-.588	.559
Location				.884	.381
Poverty				-2.687	.010
Model 2	.251	.005	.014		
School size				-.055	.734
Location				.112	.410
Poverty				-1.616	.112
1999 science scores				2.536	.014
Model 3	.314	.002	.038		
School size				-.132	.896
Location				.795	.431
Poverty				-1.188	.240
1999 science scores				3.153	.003
Promising Futures				2.135	.038

Model one had an R^2 of .157, a small part of the variance in science scores. An examination of the ANOVA table the reveals that model one had an F value of 3.225

(*df* 3.52), and was significant. Model one explained 15.7% of the variance in the 2004 MEA science tests.

The predictor of poverty had a Beta of -.410 and a *t* value of -2.687 at the .010 level of significance. The predictors of location and school size did not rise to the level of significance.

Model two, where the predictor of past performance is added, had an R^2 of .251, which increased the amount of variance accounted for in science achievement by 9.4%. This R^2 change was significant. The ANOVA table displayed the *F* value at 4.279 (*df* 4,55; ρ=.005).

The predictors of school size and location continued not to be significant. Poverty was diminished as a predictor from model one and was no longer significant. The predictor of past science achievement had the largest effect .337 with a 2.536 *t* value, and was significant.

Model three had an added predictor of Promising Futures. This model had an R^2 of .314, which meant that this model explains 6.4% more of the variance in science achievement. This R^2 change is significant at the .038 level. By examining the ANOVA table it is determined this model had an *F* value of 4.573 (*df* 5,50) and was significant.

The overall impact of the predictors of school size, location, and poverty continued not to be significant as evident on Table 13. The past science achievement predictor had an increased Beta of .426 with a *t* value of 3.153, which was significant. The last predictor of Promising Futures had a Beta of .264 with a *t* value of 2.135 and was significant. Past science achievement had the largest Beta in this model. The Promising Futures predictor effect was a little more than half of the 1999 MEA science assessment predictor. Schools that implemented Promising Futures practices had on average higher science achievement as measured by the 2004 science MEA test.

Engagement – Dropout Rates

While controlling for poverty, school size, location, and past student engagement, do schools that implement Promising Futures practices have lower dropout rates than schools who do not participate?

Part one of question two examined the amount of variance in student engagement by investigating overall dropout rate, as measured by the dropout percentages for each school in the study that can be explained by Promising Futures practices. In the first hierarchical regression

model, the researcher controlled for school size, poverty, and location; the second model added past dropout rate performance, as measured by the 1999 dropout rate percentages for the schools in this study, and the third model added the use of Promising Futures practices. The dependent variable was the 2004 dropout rates.

Model one had an R^2 of .078. By examination of the ANOVA table it can be determined that model one is not statistically significant. Since this model was not significant, there is no discussion of the coefficients table.

Model two, where the predictor of 1999 dropout rates was added, had an R^2 of .238. This additional predictor adds to the model and explains 23.8% of the variance in dropout rates in 2004. The change in the R^2 from model one was significant. The ANOVA table showed model two had an F value of 3.890 (df 4,51; ρ=.007).

As shown in Table 14, school size and location were not significant predictors of dropout rates. The predictor of poverty had a Beta of .316 with a t value of 2.153, which was significant. Although this may be counterintuitive, on average the schools with the higher rates of poverty also had lower dropout rates. The predictor of past dropout

Table 14

Model for Dropout Rates

Variable	R^2	Sig.	Sig. Change	Beta	Beta Sig.
Model 1	.078	..223	*		
School Size				.264	.136
Location				-.085	.571
Poverty				.323	.048
Model 2	.238	.007	.002		
School Size				.252	.122
Location				-.103	.454
Poverty				.316	.036
1999 Dropout Rates				.400	.002
Model 3	.287	.004	.069		
School Size				.230	.150
Location				-.102	.447
Poverty				.289	.050
1999 Dropout Rates				.476	.000
Promising Futures				-2.35	.069

rate had the highest Beta of .400 with a 3.269 *t* value and was significant.

The Promising Futures predictor was added to model three. This model had an R^2 of 28.7%, which means that this model explained 4.9% more of the variance in 2004 dropout rates. This R^2 change was not significant. By examining the ANOVA table the researcher determined this model had an F value of 4.030 (df 5,50) and was significant.

The overall impact of the predictor of poverty declined in this model but was still significant. The predictor of location and school size remained not statistically significance. The 1999 dropout rate predictor had an increased Beta of .476 with a t value of 3.767 and was significant. The last predictor of Promising Futures was not statistically significant. Past dropout rates had the largest effect in this model. Both poverty and Promising Futures had a slightly smaller effect in comparison. Poverty and past dropout rates were the only significant predictors for dropout rate in this study. Schools that implemented Promising Futures practices did not attain lower dropout rates.

Engagement - Attendance Rates

While controlling for poverty, school size, location, and past performance, do schools that implement Promising

Futures practices have higher attendance rates than schools who do not participate?

Part two of question two examined the amount of variance in student engagement in overall 2004 attendance rates, as measured by the average rate of attendance in each school in the study that can be explained by Promising Futures practices. This hierarchical regression started with model one where the researcher controlled for school size, poverty, and location; the second model added 1999 attendance rates; and the third model added in the use of Promising Futures practices. As shown in Table 15, two of these three models were significant.

Model one had an R^2 of .073. By examining the ANOVA table, the researcher concluded that model one has an F value of 1.364 (df 3,52; ρ=.264). This first model was not statistically significant; therefore, the coefficients table was not included in this discussion.

Model two adds the predictor of the 1999 attendance rate. This model had an R^2 of .202. By adding this variable, the researcher accounted for 20.2% of the variance in 2004 attendance rates. This change in the R^2 is

Table 15

Model for Attendance Rates

Variable	R^2	Sig.	Sig. Change	Beta	Beta Sig.
Model 1	.073	.246	*		
School size				-.093	.559
Location				-.304	.661
Poverty				-.066	.063
Model 2	.202	.019	.006		
School size				-.072	.662
Location				-.074	.598
Poverty				-.312	.042
1999 attendance rates				.360	.006
Model 3	.203	.040	.845		
School size				-.075	.655
Location				-.073	.605
Poverty				-.315	.043
1999 attendance rates				.352	.011
Promising Futures				-.026	.845

significant at the .006 level. The ANOVA showed an *F* value of 3.229 (*df* 4,51; ρ=.019).

The predictor of poverty was -.312 with a *t* value of -2.083, and was significant. The added predictor of the 1999 attendance rates had a Beta of .360 and a *t* value of 2.873 and was statistically significant. School size and location were not significant predictors of attendance rates. This added predictor of past attendance rates had the largest effect with poverty a close second.

Model three included the last predictor and is the main focus of this study, implementing Promising Futures practices. This model had an R^2 of .203. By adding this variable it increased the amount of variance explained in 2004 attendance rates, but by only the smallest of amounts. This change in the R^2 square was not significant. The ANOVA table displayed the *F* value at 2.543 (df 5,50; ρ=.040).

The predictors in model three show very little variability from model two. School size and location continued to not be significant. Poverty had a Beta of -.315 with a *t* value of -2.072 and was significant. The past attendance rates predictor showed a Beta of .352 with a *t* value of 2.655, which was statistically significant. The newly added predictor of Promising Futures was not statistically significant. Past attendance rates continued to have the largest effect in this model, with poverty a close second. The only significant predictors in any of

these models were poverty and past attendance rates. Schools that implement Promising Futures practices did not see an increase in student attendance rates.

Summary

A brief summary of the statistics presented in this chapter allow the researcher to demonstrate patterns of impact of Promising Futures practices on student engagement and student achievement. The impact of Promising Futures practices had a greater influence on student achievement than it achieved with student engagement.

The impact of Promising Futures on the 2004 reading, writing, mathematics, and science scores were included in each regression's model three. The reading model showed a 36.6% impact on reading achievement. The writing model showed a 32.4% influence on writing achievement. The math model displayed the greatest impact from Promising Futures with this model explaining 55.9% of the variance of mathematics achievement. The third model for science achievement accounted for the smallest amount of variance with student achievement with 31.4%.

The effect of poverty decreased as the researcher added Promising Futures to each of the achievement models and the dropout model. School size and location (if the school was

in a rural setting or not) did not have a statistically significant influence on any of the dependent variables.

The results from the student engagement part of the study were not as robust. Model three of the dropout regression demonstrated that 28.7% of the variance in the dropout rate could be attributed to the factors included. When Promising Futures was added to this model the R^2 was increased by almost 5%. The attendance rate data were the weakest link to Promising Futures practices.

Chapter V: Summary, Discussion, and Recommendations

This chapter includes four major sections: a summary of the study, connections to literature, discussions of the results including implications for practice and policy, and recommendations for further research. The results of the previous chapter will be used to support each recommendation.

Thirty-three schools systematically implemented Promising Futures practices and were aided by CSRD grants from the federal government, receiving $50,000 each year for three years. They also received coordinated support from the State of Maine's Department of Education. This effort was the first comprehensive effort at high school reform in Maine in nearly 100 years. This effort focused on practices that were thought to improve teaching and learning at the high school level. However, there was a gap in the research as to whether this effort had an impact on student achievement or engagement.

Schools wishing to improve their students' academic achievement should implement the practices in Promising Futures. Some of these practices are backed up by literature; however, some do not have the support of

research. A safe, respectful, and caring environment is one of the first practices. A safe environment impacts student learning (Grogger, 1997; Marzano, 2003; Mayer, Mullens, Moore, and Ralph, 2000; Walsey et al. 2000).

Another practice is to hold high expectations for all students. Teachers and schools that hold high expectations for students have, on average, better student achievement (Anderson & Keith, 1997; Mizelle, 2005; Rowan, Chiang, & Miller, 1997; Shanahan & Walberg, 2001). An additional set of practices are linked to treating students as individuals and differentiate learning while the students are involved in decisions about their own learning. Research backs up these practices by showing an impact on student engagement and achievement (Jacobs, et. al. 2002; Schneider, Csikszentmihalyi, & Knauth, 1995).

The next set of practices includes increasing students' sense of belonging, academic teams that focus on student achievement, and personal growth. These teams are led by teachers who understand adolescent development. This set of practices have also been shown to impact student achievement (Achilles, 1998; Allen, 2001; Croninger & Lee, 2001; Davis, et. al. 2004; Hertzog & Morgan, 1998; Lee & Burkham, 2003; Lee et al., 1995; Lee & Smith, 1995; Wehlage, 1989).

The purpose of this study was to examine the impact of Promising Futures practices on student engagement and student achievement in Maine high schools. The researcher used two years of data for achievement and engagement: 1999 prior to the start of the implementation, and 2004 the year after the third cohort of schools completed their CSRD grant. The dependent variables were 2004 MEA data, 2004 dropout rates, and 2004 attendance rates.

This researcher started this study considering that if the results described a positive impact on student achievement and engagement, then such findings could be used to better focus policies and practices of school reform in the State of Maine. Federal CSRD grants are presently not being used to focus high schools on these Promising Futures practices. Comprehensive school reform efforts in the State of Maine did improve student achievement in schools that implemented Promising Futures practices. With backing and advocacy from the State Department of Education, districts may consider and adopt the Promising Futures practices for their high schools to increase student achievement and engagement.

To determine the impact of Promising Futures practices on student achievement and engagement, the researcher used a quantitative cross-sectional ex post facto design. The

statistical approach was HLR. This modeling allowed the researcher to control for several other factors that impact student achievement and engagement and to determine the amount of variance that could be explained in the 2004 MEA results, dropout rates, and attendance rates.

The first part of the first research question examined the percent of the variance in mathematics MEA test scores attributed to high schools participating in the Promising Futures practices when controlling for other factors that may have impacted student achievement. While controlling for school size, poverty, location, and past performance the findings explain 52.2% of the variance in math. By adding the final independent variable to the model, Promising Futures practices, 55.9% of the variance in math achievement was explained. Schools that implemented Promising Futures practices had higher mathematics achievement than schools who did not implement these practices. This was the first major finding of the study.

Schools using Promising Futures practices were able to significantly increase their overall school scaled scores in math, no matter their school size or how rural they were. In fact, both of these variables were not significant. The average poverty level at the school and past performance on the math MEA were significant, but

implementing Promising Futures practices gave schools on average higher MEA scaled scores.

The second part of the first research question examined the percent of the variance on writing MEA scores for schools that implemented Promising Futures practices. This question also controlled for location, poverty, school size, and past writing achievement. The third model explained 32.4% of variance in writing achievement. Schools that implemented Promising Futures practices on average scored higher on the writing portion of the MEA. Implementation of Promising Futures practices added 5.5% of the variance explained. School size and location continued not to be significant factors in this study. Schools, no matter the percentage of students in poverty or past performance, were able to raise their overall scaled score in writing by implementing Promising Futures practices.

With the third part of the first question, the researcher sought to discover the percent of variance in student achievement in reading that can be attributed to high schools participating in the Promising Futures practices. The first two models attempted to account for school size, location of the school, poverty, and past performance. These factors accounted for 31.4% of the variance in reading scores. By adding in the last

independent variable, Promising Futures, 36.6% of the variance was explained. High schools in Maine, no matter their size, poverty rate, or location would improve their average reading achievement by implementing Promising Futures practices. Promising Futures accounted for 5.2% of the variance in writing achievement.

Part four of question one focuses on the variance of student achievement in science attributed to high schools participating in the Promising Futures practices. The researcher used the first two models of this HLR to control for location of the school, poverty, school size, and past performance. These variables explain 25.1% of the variance in science achievement. The last model added the Promising Futures practices; this increased the percent of variance explained in writing achievement to 31.4%.

Schools in this study that used Promising Futures practices were able to raise their science scores, regardless of the school size or location. Schools that used Promising Futures practices were able to reduce the effect of poverty on student achievement in science. This finding concurred with Catterall (1998) who found that this school transition resiliency was not linked to students' poverty rate. Promising Futures practices provide many

opportunities, which impact a student's connection with and resiliency toward school.

The second major finding persists throughout the analysis of the academic data. Schools that implement Promising Futures practices on average tended to have higher MEA scores. The variable of Promising Futures schools accounted for increased student achievement: 3.7% higher in mathematics, 5.2% higher in reading, 5.5% higher in writing, and 6.3 % higher in science. These CSRD grants were $50,000 per year for three years for each school who won the grant. Although this was a large amount of funding for the overall project nationally, this funding was well spent in Maine. The efficacy of Promising Futures practices has been revealed in this study.

The first part of the second research question focused on student engagement as measured by average dropout rates for each school in the study. The amount of variance in dropout rates attributed to high schools participating in the Promising Futures practices has been answered here. The first two models controlled for the following variables that impact dropout rates: location, school size, poverty, and past dropout rates. The models explained 23.8% of the variance of dropout rates. The last independent variable, Promising Futures practices, increased the percent of

variance explained to 28.7%. Schools using Promising Futures practices were able to positively impact dropout rates. The efficacy of Promising Futures practices and CSRD grants to implement them was displayed again with dropout rates. Promising Futures explained 4.9% of the variance in dropout rates.

The second part of question two was designed to determine the amount of variance of attendance rates when Maine high schools adopt Promising Futures practices. The first two models controlled for school size, poverty, location, and past performance. This explained 20.2% of the variance in attendance. Adding Promising Futures to the model barely increased the percent explained to 20.3%. The change in the variance explained was not significant. Schools implementing Promising Futures practices did not enjoy better attendance rates than those schools that did not. This finding is not consistent with Roby (2004) who states that attendance rates do impact student achievement as shown on state tests. However, this finding does concur with Lamdin (1996) who observed a connection between attendance and achievement, but not a strong relationship.

A third major finding demonstrates that high schools that implemented Promising Futures practices saw an impact on student engagement, which was not as great as the

achievement data, but still significant. Since other studies have found attendance to be a significant connection with achievement, attendance might not be a reliable predictor of engagement for the uniqueness of the State of Maine. Chapter one points to many factors in how Maine differs from other states. These factors may also contribute to the need of finding a different independent variable that would better measure student engagement.

A fourth major finding was consistent with other research. Poverty had a significant impact on student achievement and engagement. In each model, it was only second to past achievement. The Beta for poverty decreased as the researcher added Promising Futures to each of the achievement models and the dropout model. Schools that implement Promising Futures practices can reduce the impact of poverty on student achievement.

A fifth major finding continued throughout the analysis of the data collected through the research questions. School size and location (if the school was in a rural setting or not) did not have a statistically significant influence on any of the dependent variables of student achievement or student engagement. This is contradictory to many other studies (Corbett & Wilson, 2000; Cotton, 2001; Lee & Burkham, 2003; Wehlage, 1989). A review of the

literature reveals a connection of school size relative to achievement. However, this study shows no impact of school size on student achievement in any of the content areas and no impact on student engagement. Before Maine begins any initiative to create smaller schools, policy makers need to examine the needs and intended outcomes for this expense. Though many Maine schools are small by population, some much larger comprehensive schools exist. Since the size of Maine high schools does not compare well with other states, this may not have been a relevant factor to include as a variable for studies on Maine high schools. This finding may be pertinent to other rural states with comparatively sized high schools.

Maine high schools of any size, poverty rate, and location are capable of improving student achievement in math, reading, and writing, and science. Schools of any size, poverty rate, and location can improve student engagement as measured by dropout rate, but not attendance rate. Leaders of Maine high schools, seeking to improve average test scores and/or dropout rates, should study the implementation of Promising Futures practices.

Schools that used Promising Futures practices have increased student achievement and engagement. One may infer this may be due to the strong connections teachers

make with students through the transition programs implemented at these schools.

The results from the student engagement section of the study were not as robust. Model three of the dropout regression demonstrated that 28.7% of the variance in the dropout rate could be attributed to the factors included. When Promising Futures was added to this model, the R^2 was increased by almost 5%. Although the attendance rate data proved to be significant, it was the weakest link to Promising Futures practices.

Researchers wishing to duplicate this study may want to look at other states and their high school reform initiatives. This study was limited to public high schools in Maine. This quantitative study shows a positive trend in student achievement and dropout rates for schools that implemented Promising Futures practices. A qualitative study could show why the implementation of these practices had positive effects. Future researchers may choose to complete a qualitative study to better understand the participants' point of view of why the Promising Futures practices had the impact it did on their school.

Researchers may also want to complete a case study related to one school's results to examine more details. Such a case study could delve into the implementation of

the Promising Futures practices. An ethnographic study focusing on the culture of the schools that have implemented Promising Futures may also further inform the research in this area. Further research in this area would be useful to high schools interested in student centered high school reform.

The Maine Department of Education supported the grantee schools through formal and informal visits, evaluation workshops, and a summer retreat where schools learned from one another. This support, as well as the requirements of the grant, including the school coach may have had an impact that was not measured in the scope of this study. This would be a rich area of further study.

Schools that implement Promising Futures practices varied in their rate of implementation of each of the principles. The schools also conceptualized the principles differently as well (Lane & Hamann, 2001). Further studies could focus on finding the most important combination of practices or key characteristics of implementation for a practice to improve student achievement and engagement.

Qualities of school leadership also could have impacted student achievement and engagement. The schools that implemented Promising Futures practices had to apply for and win the CSRD grant. Therefore, the leadership in these

schools could have been a factor in influencing the outcome of this study. Those schools with the leadership who brought this initiative forward in their schools may have had an impact on the outcome. Although almost half of the high schools in Maine were a part of the CSRD grants awards, this may possibly have been the high school and district level leaders that were most able to create positive changes in their schools. This area would also be of interest for future research.

Maine continues to strive toward world-class education to ensure students and the Maine economy are successful. This goal bumps up against the aim of lowering the state's tax burden, frequently repeated in the media as the highest in the nation. Maine needs to examine the goals of Promising Futures and consider the student achievement improvements and reduced dropout rates gained by the high schools that have already succeeded with these practices. These schools used $50,000 each year for three years; this small amount of funding and support from the Department of Education was able to impact student achievement and dropout rates significantly. The Promising Futures practices are not only effective; leaders who implement them will realize an efficient use of school funds.

Since poverty and past performance were found to be significant predictors in most of the models, and they also had the largest Betas, schools who implement Promising Futures should focus on particular students. Promising Futures is designed as a whole school reform initiative, but students at risk of failure and living in poverty need particular attention. While designing an entire school reform, more programs, smaller teams or advisory groups should be used to pay particular attention to these students.

The findings presented here strongly suggest that high school student achievement in mathematics, reading, writing, and science are enhanced by high schools that implement Promising Futures practices. Student engagement as measured by dropout rates was also enhanced. This study assisted in developing further the empirical association between poverty and student achievement and engagement, but this link could be reduced with the implementation of Promising Futures practices. The results of this study suggest that implementing Promising Futures practices for any public high school in the State of Maine would be one technique to increase student achievement and engagement. The results of this study have implications at the State level as mentioned above, but also have national

implications. The federal government funded the CSRD grants, which Maine used to improve high schools. One of the federal government's educational goals is to improve high schools for all students. The success shown in Maine for school wide reform in high schools could be duplicated.

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Appendix A - Promising Futures Short Form

Below is the short form of the Promising Futures a Call to Improve Learning for Maine's Secondary Students (Maine Commission on Secondary Education, 1998). To view the entire document, please see http://mainegov-images.informe.org/education/cse/promisin.pdf.

Maine Commission

On Secondary Education

Core Principles

(Short Form)

The Maine Commission on Secondary Education believes that successful secondary educational experiences require:

1. A safe, respectful, and caring environment that assures that every student can attend fully to her or his central mission: learning;
2. Adults to hold high universal expectations of all students and to provide a variety of pathways for students as they strive to meet these expectations;
3. Frequent assessment of student learning and reviews of these assessments among students, teachers, and

parents so that all can share responsibility for planning and carrying out learning activities;

4. Teaching and procedures that honor and build upon the unique contributions and needs of each learner so that all students will make full use of their opportunities to learn;
5. Staff, parents, and especially students to be engaged democratically in decisions about learning and the conduct of the school so they learn civic responsibility and skills and so that respect and equity are assured among all members of the school community; and
6. Internal coherence among school mission, goals, actions, and outcomes so that the efforts of students, staff and community result in the fulfillment of mission and goals.

MAINE COMMISSION

ON SECONDARY EDUCATION

SUMMARY OF CORE PRACTICES

Core Practices for Learning and Teaching

1. Every student is respected and valued by adults and by fellow students.

2. Every teacher tailors learning experiences to the learner's needs, interests, and future goals.
3. Every teacher challenges learners both to master the fundamentals of the disciplines and to integrate skills and concepts across the disciplines to address relevant issues and problems.
4. Every student learns in collaborative groups of students with diverse learning styles, skills, ages, personal backgrounds and career goals.
5. Every student makes informed choices about education and participation in school life and takes responsibility for the consequences of those choices.
6. Every student employs a personal learning plan to target individual as well as common learning goals and to specify learning activities that will lead to the attainment of those goals.
7. Every teacher makes learning standards, activities, and assessment procedures known to students and parents and assures the coherence among them.
8. Every student who receives the secondary school diploma has demonstrated, through performance exhibitions, knowledge and skills at a level deemed

by the school and by the state to be sufficient to begin adult life.

Core School Practices to Support Learning

9. Students and teachers belong to teams that provide each student continuous personal and academic attention and a supportive environment for learning and growth.
10. Learning governs the allocation of time, space, facilities, and services.
11. Every teacher has sufficient time and resources to learn, to plan, and to confer with individual students, colleagues, and families.
12. Every staff member understands adolescent learning and developmental needs, possesses diverse instructional skills, and is a constructive model for youth.
13. Every school has a comprehensive professional development system in which every staff member has a professional development plan to guide improvement.

14. Staff, students, and parents are involved democratically in significant decisions affecting student learning.
15. Active leadership by principals and others inspires and mobilizes staff, students, and parents to work toward the fulfillment of the school's mission and, within it, their own learning and life goals.

Appendix B - SPSS Outputs

Dropout Rate Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	drop out rate 1999[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: drop out rate 2004

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.280[a]	.078	.025	1.9708867%
2	.488[b]	.238	.178	1.8095154%
3	.536[c]	.287	.216	1.7674044%

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, drop out rate 1999

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, drop out rate 1999, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.136	3	5.712	1.471	.233[a]
	Residual	201.989	52	3.884		
	Total	219.125	55			
2	Regression	52.133	4	13.033	3.980	.007[b]
	Residual	166.992	51	3.274		
	Total	219.125	55			
3	Regression	62.939	5	12.588	4.030	.004[c]
	Residual	156.186	50	3.124		
	Total	219.125	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, drop out rate 1999

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, drop out rate 1999, Promising Futures

d. Dependent Variable: drop out rate 2004

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.535	1.106		.483	.631
	enrollment	.002	.001	.264	1.513	.136
	Poverty %	.044	.022	.323	2.027	.048
	location r=1 non-r=0	-.350	.614	-.085	-.570	.571
2	(Constant)	-.465	1.061		-.438	.663
	enrollment	.002	.001	.252	1.571	.122
	Poverty %	.043	.020	.316	2.153	.036
	location r=1 non-r=0	-.426	.564	-.103	-.755	.454
	drop out rate 1999	.378	.116	.400	3.269	.002
3	(Constant)	-.017	1.064		-.016	.987
	enrollment	.001	.001	.230	1.461	.150
	Poverty %	.039	.019	.289	2.006	.050
	location r=1 non-r=0	-.422	.551	-.102	-.766	.447
	drop out rate 1999	.450	.119	.476	3.767	.000
	Promising Futures	-.931	.501	-.235	-1.860	.069

a. Dependent Variable: drop out rate 2004

Attendance Rate Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	attendance 1999[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: attendance 2004

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.270[a]	.073	.019	2.2819841%
2	.450[b]	.202	.140	2.1377095%
3	.450[c]	.203	.123	2.1581516%

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, attendance 1999

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, attendance 1999, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.304	3	7.101	1.364	.264[a]
	Residual	270.787	52	5.207		
	Total	292.092	55			
2	Regression	59.032	4	14.758	3.229	.019[b]
	Residual	233.060	51	4.570		
	Total	292.092	55			
3	Regression	59.211	5	11.842	2.543	.040[c]
	Residual	232.881	50	4.658		
	Total	292.092	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, attendance 1999

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, attendance 1999, Promising Futures

d. Dependent Variable: attendance 2004

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	95.090	1.281		74.227	.000
	enrollment	-.001	.001	-.093	-.528	.599
	Poverty %	-.047	.025	-.304	-1.901	.063
	location r=1 non-r=0	-.314	.711	-.066	-.441	.661
2	(Constant)	52.826	14.758		3.579	.001
	enrollment	-.001	.001	-.072	-.439	.662
	Poverty %	-.049	.023	-.312	-2.083	.042
	location r=1 non-r=0	-.353	.666	-.074	-.530	.598
	attendance 1999	.457	.159	.360	2.873	.006
3	(Constant)	53.828	15.751		3.417	.001
	enrollment	-.001	.001	-.075	-.450	.655
	Poverty %	-.049	.024	-.315	-2.072	.043
	location r=1 non-r=0	-.350	.672	-.073	-.520	.605
	attendance 1999	.447	.168	.352	2.655	.011
	Promising Futures	-.119	.608	-.026	-.196	.845

a. Dependent Variable: attendance 2004

Reading Achievement Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	MEA 1999 Reading[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: MEA 2004 Reading

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.478[a]	.228	.184	2.843
2	.561[b]	.314	.260	2.707
3	.605[c]	.366	.302	2.629

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Reading

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Reading, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	124.472	3	41.491	5.132	.003[a]
	Residual	420.385	52	8.084		
	Total	544.857	55			
2	Regression	171.184	4	42.796	5.841	.001[b]
	Residual	373.674	51	7.327		
	Total	544.857	55			
3	Regression	199.255	5	39.851	5.765	.000[c]
	Residual	345.602	50	6.912		
	Total	544.857	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Reading

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Reading, Promising Futures

d. Dependent Variable: MEA 2004 Reading

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	541.697	1.596		339.373	.000
	enrollment	-.001	.002	-.057	-.357	.723
	Poverty %	-.100	.031	-.470	-3.217	.002
	location r=1 non-r=0	.881	.885	.135	.995	.325
2	(Constant)	333.832	82.339		4.054	.000
	enrollment	-.001	.002	-.062	-.405	.687
	Poverty %	-.073	.032	-.341	-2.302	.025
	location r=1 non-r=0	.786	.844	.121	.932	.356
	MEA 1999 Reading	.383	.152	.322	2.525	.015
3	(Constant)	276.681	84.853		3.261	.002
	enrollment	.000	.001	-.042	-.285	.777
	Poverty %	-.060	.031	-.280	-1.906	.062
	location r=1 non-r=0	.731	.820	.112	.892	.377
	MEA 1999 Reading	.486	.156	.409	3.118	.003
	Promising Futures	1.506	.747	.241	2.015	.049

a. Dependent Variable: MEA 2004 Reading

Writing Achievement Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	MEA 1999 Writing[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: MEA 2004 Writing

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.454[a]	.206	.161	2.647
2	.519[b]	.269	.212	2.565
3	.569[c]	.324	.257	2.491

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Writing

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Writing, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.809	3	31.603	4.511	.007[a]
	Residual	364.316	52	7.006		
	Total	459.125	55			
2	Regression	123.520	4	30.880	4.693	.003[b]
	Residual	335.605	51	6.580		
	Total	459.125	55			
3	Regression	148.828	5	29.766	4.796	.001[c]
	Residual	310.297	50	6.206		
	Total	459.125	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Writing

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Writing, Promising Futures

d. Dependent Variable: MEA 2004 Writing

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	538.264	1.486		362.243	.000
	enrollment	.000	.001	.031	.193	.847
	Poverty %	-.076	.029	-.391	-2.640	.011
	location r=1 non-r=0	.790	.824	.132	.959	.342
2	(Constant)	398.240	67.051		5.939	.000
	enrollment	.000	.001	.037	.236	.815
	Poverty %	-.068	.028	-.348	-2.403	.020
	location r=1 non-r=0	.588	.805	.098	.731	.468
	MEA 1999 Writing	.261	.125	.256	2.089	.042
3	(Constant)	347.894	69.724		4.990	.000
	enrollment	.001	.001	.061	.396	.694
	Poverty %	-.060	.028	-.306	-2.151	.036
	location r=1 non-r=0	.489	.783	.082	.624	.535
	MEA 1999 Writing	.353	.130	.346	2.724	.009
	Promising Futures	1.442	.714	.252	2.019	.049

a. Dependent Variable: MEA 2004 Writing

Mathematics Achievement Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	MEA 1999 Math[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: MEA 2004 Math

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.572[a]	.328	.289	3.171
2	.722[b]	.522	.484	2.701
3	.748[c]	.559	.515	2.619

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Math

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Math, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	254.764	3	84.921	8.444	.000[a]
	Residual	522.950	52	10.057		
	Total	777.714	55			
2	Regression	405.692	4	101.423	13.904	.000[b]
	Residual	372.022	51	7.295		
	Total	777.714	55			
3	Regression	434.865	5	86.973	12.684	.000[c]
	Residual	342.849	50	6.857		
	Total	777.714	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Math

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Math, Promising Futures

d. Dependent Variable: MEA 2004 Math

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	532.335	1.780		299.019	.000
	enrollment	2.57E-005	.002	.002	.014	.989
	Poverty %	-.143	.035	-.564	-4.136	.000
	location r=1 non-r=0	.277	.988	.036	.281	.780
2	(Constant)	251.760	61.701		4.080	.000
	enrollment	.000	.002	.039	.308	.759
	Poverty %	-.074	.033	-.292	-2.238	.030
	location r=1 non-r=0	-.167	.847	-.021	-.197	.845
	MEA 1999 Math	.528	.116	.515	4.549	.000
3	(Constant)	208.493	63.393		3.289	.002
	enrollment	.001	.001	.062	.504	.617
	Poverty %	-.058	.033	-.229	-1.760	.085
	location r=1 non-r=0	-.263	.822	-.034	-.320	.750
	MEA 1999 Math	.607	.119	.592	5.107	.000
	Promising Futures	1.532	.743	.206	2.063	.044

a. Dependent Variable: MEA 2004 Math

Science Achievement Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	location r=1 non-r=0, Poverty %, enrollment[a]	.	Enter
2	MEA 1999 Science[a]	.	Enter
3	Promising Futures[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: MEA 2004 Science

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.396[a]	.157	.108	2.589
2	.501[b]	.251	.193	2.464
3	.560[c]	.314	.245	2.382

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Science

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Science, Promising Futures

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.851	3	21.617	3.225	.030[a]
	Residual	348.577	52	6.703		
	Total	413.429	55			
2	Regression	103.878	4	25.969	4.279	.005[b]
	Residual	309.551	51	6.070		
	Total	413.429	55			
3	Regression	129.734	5	25.947	4.573	.002[c]
	Residual	283.695	50	5.674		
	Total	413.429	55			

a. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment

b. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Science

c. Predictors: (Constant), location r=1 non-r=0, Poverty %, enrollment, MEA 1999 Science, Promising Futures

d. Dependent Variable: MEA 2004 Science

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	529.328	1.453		364.182	.000
	enrollment	-.001	.001	-.098	-.588	.559
	Poverty %	-.076	.028	-.410	-2.687	.010
	location r=1 non-r=0	.713	.806	.126	.884	.381
2	(Constant)	325.542	80.378		4.050	.000
	enrollment	.000	.001	-.055	-.342	.734
	Poverty %	-.047	.029	-.255	-1.616	.112
	location r=1 non-r=0	.638	.768	.112	.831	.410
	MEA 1999 Science	.385	.152	.337	2.536	.014
3	(Constant)	270.848	81.829		3.310	.002
	enrollment	.000	.001	-.020	-.132	.896
	Poverty %	-.034	.029	-.185	-1.188	.240
	location r=1 non-r=0	.590	.743	.104	.795	.431
	MEA 1999 Science	.486	.154	.426	3.153	.003
	Promising Futures	1.435	.672	.264	2.135	.038

a. Dependent Variable: MEA 2004 Science