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Mark A. Murrell
May, 2012

Principals Can Improve Student Achievement with Data Driven Decision Making

A Doctoral Thesis Presented to the
Faculty of the College Of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education
in Professional Leadership

by

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DEDICATION

Over many years, I have continued to pursue my professional and educational goals. As I approach the end of another educational level, I cannot forget the person that has always supported my career and educational goals, my wife Tina. Her continued support and dedication to our family has been the rock solid part of my life. Her sacrifices and never ending covering of events for our kids when my educational and professional obligations interfered have always impressed me. The effort that she has always made to make sure our family has opportunities to be together has gone above and beyond by meeting at Whataburger (our favorite) or another restaurant or a quick meal at home. The faith in God that we share and her commitment to make it a focal point in our family has made all of this possible. It made us a strong team and a strong family. Thank you for all that you have done. You are the best and I love you.

The pursuit of my doctorate was motivated by my dad, Frank Murrell. He always had a passion for education and constantly reminded all of us of its importance. He was so proud when I accomplished my masters and I know that he is watching and is very proud of this accomplishment. I miss you!

Through the years, my mother, Gwen Murrell, has been there by my side and has encouraged me. Her words of wisdom and advice have served me well. I appreciate her never ending love and support. I love you and thank you.

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Last but not least, my children, Todd, Blake, and Mark Alan. You have been wonderful. I appreciate all that you have sacrificed over the years to let me pursue my educational goals. I am sorry that I did not make all the practices and events but I hope that you understand that education opens the doors during your life and you can never learn too much. I hope that you learn from the process and take advantage of your education as you go through school. I love you more than you will ever know.

I dedicate this doctoral thesis and my doctoral degree to each of you for your love and support. Thank you!

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ABSTRACT

This study focused on the strategic data that a principal uses to determine the timing of appropriate interventions for students that are at risk for completing a high school education. The study examined the sources of data that are available to a principal about their students. Grades, credits earned, achievement tests, days out of placement due to discipline, attendance, gender, and socio-economic status were all examined for their significance on predicting a potential non-completer. A logistical and discriminant regression analysis was conducted on the data available. Through the analysis, the data that had the greatest impact on the predication model were related to attendance, math and English credits earned, and ethnicity. Once the identification of the relevant data was determined, a model was developed to predict a potential non-completer.

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CHAPTER 1

INTRODUCTION

Overview of the Study

There is evidence to suggest that data-management techniques can improve teaching and learning in schools. It is often suggested that student performance can improve by adapting business management to fit educational models, using data-driven decision making, the kind of data needed for improving school effectiveness (Fickes, 1998).

Administrators face tremendous challenges in schools today. The technology age has created easy access to data regarding curriculum and students. In order to allow for the management of all the data by an administrator, different programs, tools, and techniques are utilized to help disaggregate all of the information. Through this process, it is still challenging and cumbersome for administrators to sort through all of the information to identify students that are at high risk of potentially not completing high school at an early enough time in the student's high school career. The earlier an academic institution can identify students as being in danger of not completing high school, the greater the chance that interventions by the school and parents will be successful. This study is designed to help the administrator navigate through the data maze. Through data analysis, a point system will be developed using toleration levels of key indicators for students. This will in turn help administrators identify students in need and provide an individual intervention plan to help a student be more successful. Data that can be tracked and updated daily, by the 9-weeks, by the semester, or by the year will be utilized. The key areas to examine will include: attendance, performance on Texas

Assessment of Knowledge and Skills (TAKS), discipline placements (i.e. Discipline Alternative Educational Placement (DAEP), In-School Suspension (ISS), Out of School Suspension (OSS), and Juvenile Justice Alternative Educational Placement (JJAEP), student credits earned, and current performance in academic classes.

Through the process of examining the information on each student in each area, a point value is assigned to create a total value for each student. The end result will be a value assigned for every student in a school with the higher the value the more at-risk of not completing with the student's individual cohort. Utilizing each student's unique value, an administrator will be able to quickly identify which students are most at-risk of not completing high school with their cohort or may be a high potential drop-out. Using this information, school personnel will be able to develop a plan of action. Along with the parents, they can provide the necessary interventions to try to motivate the student to change his or her current behaviors and be on a more positive track for success.

Utilizing all of the information provided and the value for each student, the administrator is able to continually formulate a list of students that need to be monitored or an intervention plan to be developed. This enables an administrator to review a list of students daily by clicking a button on a computer and calculating a student's score in regular daily intervals. Information of this type will prove to be invaluable for the student, parents, and staff working to help all students progress.

Need for the Study

Administrators are faced with the challenge of being great predictors of student success and are being held more accountable than ever before. The availability of data has made it possible for early identification of students and their risk level, but it has also

made it much more challenging for administrators as the data is very raw and few proven systems exist to help administrators sift through the data to reveal the meaningful information in an easy and automatic process. A seasoned administrator can identify a few students as they enter their freshman year of high school as high potential non-completers. The challenge for administrators is to identify all students that have a potential of not completing high school at a point early enough in a student's high school career to allow educators and parents an opportunity to intervene. The reality of giving administrators and parents a tool or guide to follow that will help with the identification of students at an early time in the student's high school career would prove to be invaluable. Intervention plans and early communication give a school and a student's parents the ability to change behaviors and intervene prior to a student's situation becoming almost unrecoverable.

Statement of the Problem

The availability and ease of accessing information and data on students has created a logistical nightmare for administrators. Being able to disaggregate all of the data into meaningful information to help students progress in high school would be a key to a schools success. The ability to identify key indicators and determine what impacts student success and what does not is the challenging part, thus being able to have key indicators and know how each student is impacted by each indicator would prove to be invaluable in redirecting a student and his or her ability to progress in high school. For a long period of time, school administrators have found it easy to look at one or two key indicators and know that a particular student might be at risk. Usually this identification takes place years after a student has shown these behaviors to be more of a habit and have

frequently been dealt with by administration due to a variety of external behaviors. Early intervention is the key to student success, and early identification is the critical part in any school's success in turning a student that is headed in a negative direction toward a positive track to success.

Utilizing the data on a student through the information highway allows administrators to do a better job of predicting student success and provide intervention earlier than ever before. Even with all the technology available and programs to help sort through the information, administrators still find it a challenge to look at all the right information to maximize student identification and intervention at an early time period in a student's academic career or even through the continual process throughout the student high school time. Administrators need a tool that automatically helps identify students with the highest potential of being high school non-completers based on key factors that are proven to impact student learning. The development of a student score that can be quickly calculated based on key success identifiers would aide in the administrator's ability to identify students at the earliest time possible in a student's school career.

Purpose of the Study

Administrators need a tool that will help them identify students that are at a high potential of being non-completers so early intervention can be utilized to turn a student in the right direction towards graduation. Attendance has an impact on student learning, but what is truly acceptable and what is not? Identifying a toleration level is a key component, but equally important is developing a level system to assign points to students in order to identify the issue prior to the dangerous number of absences. Additionally, disciplinary consequences that involve a student being out of the normal

class have an impact on a student's performance in school. To what level in comparison to attendance is necessary to know in creating a mathematical number for an administrator to predict student completion. Monitoring a student's grades and progress in class is certainly critical in knowing and determining student success. Another key to student completion of high school is success in the core area subjects since a student must meet the State of Texas' four by four or having four years of math, English, science, and social studies. Each area is critical in determining a student's success, but one must determine how each area interacts with each other area and does any particular subject impact a student more than another. Each subject will indicate an impact, but in assigning values for each subject in order to develop an overall student score, it is necessary to look at a weighted system. This will account for the more critical indicators having a more substantial impact on a student's score than other indicators. The process, however, will value all areas that have an impact on student success.

Research Questions

It is clear that through the process an administrator is faced with many questions. The ability to answer these questions has become increasingly more challenging due to the availability of data and the challenging task of disaggregating the right information to help students be more successful in high school. The following questions need to be asked and answered to determine how a student score can be developed to identify students correctly.

1. Is there demographic data that would predict a student's path to be classified as a non-completer? The demographic data to be examined would be gender and economically disadvantaged.

2. Is there conduct and performance data that would predict a student's path to be classified as a non-completer? The conduct and performance data to be examined would be absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores.

In reviewing all of the questions, an administrator will be able to determine the success ability of every student and identify any student as low-risk, medium-risk, and high-risk. This will answer a multitude of questions for administrators and give them the ability to apply this information to appropriate interventions to help with student success.

Research Hypotheses

There are many factors that impact student learning. Attendance, discipline placements, success in core academic courses, and standardized testing results all have a link to student success and completion of high school. In reviewing data, research, and information, one would hypothesize that attendance would have a higher impact on student success than any other factor. All other factors are believed to be more pre-indicators to poor attendance that would impact graduation rates. Combined, it is believed that all have an impact to a certain degree, and taking all aspects into account, one could identify any student who is at risk of not completing high school at an earlier time in the student's high school career and with interventions provide a student an opportunity to have a more positive outcome.

It is also believed that the daily monitoring of students and their progress will aide administrators in identification of students and appropriate intervention plan development if needed. To be able to develop such a process, it is believed that a score system can be developed to help identify students. Values would be placed on each indicator based on

research and toleration levels related to student success and graduation rates. In the end, a value system would be created to award points for students exceeding the different toleration levels and therefore identifying them as potential non-completers. The level system would indicate that a student is highly likely to complete (green), in danger of non-completion (yellow), and most likely to be a non-completer (red). This system would identify the students and help create lists for schools to monitor and for parents to receive information about their child and what is the appropriate course of action.

Definitions of Terms

DAEP

DAEP is the acronym for Disciplinary Alternative Educational Placement. This is an off campus discipline placement for students whose behavior is persistent or the individual incident is severe enough to warrant the removal of the student from their regular campus. The length of removal varies from student to student and district to district. A student will complete assignments received from his or her classroom teacher or subject assignments created by the DAEP teachers depending on the school district.

ISS

In-School Suspension is a term for removal of a student from his or her normal class schedule and isolated to a specific classroom on campus with the loss of privileges for the day. The discipline placement is usually utilized for continual disruptions of class or failure to follow school rules. A student will complete assignments received from his or her classroom or subject teacher.

JJAEP

The term refers to the Juvenile Justice Alternative Educational Program. This program is designed for any student that has committed a serious crime or has committed continual offences on a campus and at DAEP which warrant removal from school. The student completes assignments that are created by the teachers at JJAEP.

No Child Left Behind

Federal program enacted under President George W. Bush to help improve education. The main component of the program is the evaluation of school using their own state assessment with the goal of all children passing the standard set on an annual basis.

OSS

Out of School Suspension is the removal of a student from school for a 1-3 day period. The student will stay at home during that time period and complete assignments received from his or her classroom or subject teacher.

School Reform

This is a process whereby a school, district, state, or country reviews the education processes and make significant changes in curriculum, assessment, or processes of a school system.

State of Texas Four by Four

The term relates to the graduation requirement set by the state specifically in the four core areas of the curriculum and means that a student will take classes for four years in each of the four core area subjects (English, math, science, and social studies)

TAKS

The term stands for Texas Assessment of Knowledge and Skills. This is the exam that students in the state of Texas take in grades 3-11 to evaluate educational progress. All students must pass the exit level exam prior to graduation. Math, English/language arts, science, and social studies are evaluated using this exam. English/language arts is evaluated each year of the exam. Math is evaluated in grades 4-11, science and social studies are evaluated in grades 5, 8, and 11.

Toleration Level

Toleration level is the point in which a person, group of people, or a society is willing to deal with a particular issue or event prior to taking further action. In this study it may relate to behavior or academic performance.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The review of literature for this study examines several aspects that impact student performance and ultimately student success termed as completion of high school. To effectively look at the impact of different factors that could alter student success in high school, a review of several key aspects of schools, both nationally and locally, are important. Factors such as school reform, the role of the principal in schools, the decision making process, as well as the data and data driven decisions that could impact student performance (social-economic status, attendance, discipline, and achievement) must be examined.

School Reform

School reform has been a driving force in education since its conception but most prominently in the last forty or fifty years. We have seen The Coleman Report, A Nation at Risk in 1983, Goals 2000, and No Child Left Behind. Overall reform continually invades the public school environment and makes it more challenging than ever before (Slavin, 1998). Prior to reviewing student performance and what makes an impact on student learning, we must review school reform and its impact on educational systems across America.

It is important to look at the major reforms of the past in order to better understand what school reform is and how it impacts schools. A summary of each of the four major reforms follows:

Coleman Report

The Coleman Report or the Equality of Educational Opportunity Study (EEOS) was commissioned by the United States Department of Health, Education, and Welfare in 1966. The purpose of the study was to examine the availability of educational opportunities to children of different race, color, religion, and national origin. This report was in response to the Civil Rights Act of 1964. A survey was conducted with students, teachers, and administrators across the United States creating a national sample of schools (Marshall, 1998).

The study was very influential for many years in the political and academic world. Data was examined differently as it looked at the output of education rather than the input of education. One of the strong indicators of success was built around the family unit although many factors of the school process improved learning. The Coleman Report changed how schools and the educational process looked at operated (Marshall, 1998).

A Nation at Risk

Ronald Reagan appointed a blue-ribbon commission to study the status of K-12 and higher education in the United States. The commission issued A Nation at Risk on April 26, 1983. The purpose of the report was to make recommendation to the president, secretary of education, and state boards of education. The commission focused on the preparedness of high school students entering college and the requirements necessary to do so. They also compared the results to other progressing nations (Tilman, 2006).

The study prompted educational reform across the country. It revealed that the once dominant country in commerce, industry, science, and technology was at risk of losing such status with other countries. It revealed that there was less rigor in the

curriculum compared to other countries and was resulting in lower standardized test scores. From A Nation at Risk, one begins to see the country look at education differently and emphasize the improvement of instruction and rigor especially in math and science (Tilman, 2006).

Goals 2000

In 1994, a bipartisan bill was passed to create a new focus and direction for education in the United States. The bill, Goals 2000: Educate America Act, created a bond between the federal government and the states to improve student achievement. Goals 2000 was in direct response to the states' governors prior to 1994 when it was discussed that the educational needs of the entire country needed to be addressed. President George H. W. Bush helped guide the bill to a successful passage and implementation. Goals 2000 begin the standard based reform in the country (Tucker, 2004).

From Goals 2000, objectives were developed to improve the educational level of students. The goals included all students ready to learn when they start school; a 90% graduation rate; all students in grades 4, 8, and 12 will have demonstrated competency; students will be first in math and science achievement; every adult will be literate; every school will be safe campuses; improvement in the teaching force and performance; and a promotion of school and community partnerships (Tucker, 2004).

No Child Left Behind

In 2002, President George W. Bush signed the No Child Left Behind Act (NCLB) into law leading to the most comprehensive and complex education law in existence. The law was generated by the low performance in public schools across the country. The bill

increased the federal government's role in education but also came with additional funding to help with the changes. The bill began the process of holding schools, school districts, and states accountable for student performance especially in reading and mathematics. The process also mandated that teachers and their instruction meet standards that are recognized by research. The ultimate goal is for all students to achieve at an appropriate level, and that their teachers are prepared (Yell, 2008).

Through the development of No Child Left Behind, states would be held responsible for developing state curriculum standards and state assessments to measure student progress. Each year, schools must report to the federal government students' performance to assure that they are meeting adequate yearly progress toward the goal of 100% passing by 2013-14. The challenge for schools is to continually increase performance and passing rates to meet the law. As a result of improving instruction, teachers must use scientifically proven teaching strategies and be considered highly qualified. To be highly qualified, a teacher must be certified in a specific area of expertise or have the college hours/work experience to be deemed competent in a specific area. NCLB began the process of accountability for schools and states (Yell, 2008).

Reform

School reform could be defined as "a collection of principles, assumptions, and associated options that is sufficiently acceptable to and supported by a significant fraction of leaders associated with the current system of education. It constitutes the dominant agenda for public school change, having been formulated by those close to and in charge of the current system of public education" (Hentschke, 1997). One must understand that reform can take on two different faces. Most reform that we know, such as No Child Left

Behind, are mandated changes instituted by a governmental agency, but voluntary reform also exists in the form of projects or grants. Through projects or grants, schools and the reform entity agree on a common belief system for change. Schools and districts can elect to participate in the reform initiative (Hentschke, 1997).

Reform is a necessary part of any entity, and education is not exempt from the process. For any business or educational institution to improve, a review of past performance needs to be presented as well as an evaluation to look for ways to improve weaknesses and even strengths. In education, it is a way to uniformly institute and increase high standards in the classroom for all students, but it is critical to allow the individuals closest to the issue to evaluate the existing program and develop a plan to meet the new standard or goals. Additionally, it is important to evaluate the effectiveness of the change, which may be completed through standardized tests; however, to be more effective, it should include but not be limited to other forms of assessment such as student portfolios (Hentschke, 1997).

Another factor in reform is the political component wherein each politician talks about education and how he or she will help improve education. In turn this has caused schools and districts to take on a continual barrage of changes or reforms in education (Glickman, 1990). Consequently, it has schools, districts, and states on a quest to become one of the "good schools" in the current reform standards. All of this creates changes in the role of the principal and how he or she will progress towards the new movement. Reform clearly brings about many challenges for principals as they are constantly adjusting to a new standard of curriculum and instructional strategies (Payne & Wolfson, 2000). Politically motivated reforms bring about many challenges and

adjustments for districts and schools, but other external factors also create issues within the reform and change process. No reform process has taken into account the changes in neighborhoods and homes across the country, and all aspects of change must be examined to adequately implement reform (Hentschke, 1997). Through the process, reform will bring about a stronger system in developing teachers and helping them grow to understand change and how they impact students directly (Daggett, 2000). We do know that through the reform process, no matter the situation in the area or district, we will have increased rigor in the testing system which will cultivate a higher standard of instruction.

By implementing the reform process across America, it has led to continual changes and improvements in the curriculum and instructional aspects of education. One must wonder has it captured the students as a vital part of the educational process. It could be contended that all of the reform, over the years, has resulted in no change and failed in implementation because they do not address the students and their involvement in the process and making sure that they are accountable for learning (Pagano, 2011). Overall in the reform process, it has brought about positive changes as one has seen a movement to shared decision making, school-based management, and data-driven instruction and decision making (Gardner & Talbert-Johnson, 2000).

Importance of the Principal in Schools

The role of a principal in schools is a continual and evolving process. We have seen since the 1980's a shift in the position of the principal. Prior to the 1980's the principal was clearly a manager of facilities, staff, and students, but the role of the principal continues to emerge as instructional or academic leaders. The swing in thinking

is created by the notion that the leader of the campus has the greatest impact on the teachers and students. If he or she leads the school in a way that instruction and learning are important, the teachers and students will continue to perform at a higher level. Effective schools have principals that stress the importance of educational leadership (Brookover & Lezotte, 1982). The principal clearly serves in many capacities; he or she is an instructional leader, a building manager, a personnel administrator, an agent of change, and a disciplinarian. With these roles comes all the responsibility for various areas such as hiring, supervising, and evaluating faculty and staff; guiding and formulating curriculum development; administering the budget; and overseeing and supervising the student population. The principal is also called upon to handle other tasks that impact the school and community. He or she must solve social and academic issues as well as understand and involve parents in the educational process (Anderson, 1991). As our educational system and society continue to develop the role of the principal in education, the movement is going in a direction that the principal is a facilitator of learning for staff and students. The principal has become the leader of a learning community with many roles and responsibilities: a coach offering support and guidance; a cheerleader of the school promoting pride and enthusiasm; and a groundbreaker leading the way to new ideas and concepts through professional development. Consequently the return is great as the principal will see an increase in morale, enhanced self-esteem, and a motivation to move forward and improve the quality of education (Blase & Blase, 2000). Early in the process, instructional leaders only devoted about 10% of their time to instructional development and leadership (Stronge, 1988). As the instructional leader continues to develop more time is being spent on the

instructional side and less on the management side, but the goal is to seek a balance between the two. In the past, the instructional leaders were challenged in making this transition as a result of the principal lacking the depth of training. Also, the lack of time to execute instructional activities and the growing amount of state and federal paperwork requirements limited time for the instructional leaders. The change, in the mindset of the community, also stifled that changed from manager to instructional leader as the community expected the manager (Flath, 1989; Fullan, 1991).

Overtime, the role of the principal has evolved to an instructional leader who is expected to lead a campus in a positive direction. Attention to the different areas of the educational process by the principal has shifted from teaching to learning and the title of instructional leader has moved closer to that of learning leader (DuFour, 2002). The impact of a principal on a school can have a positive impact on the school if the individual is allowed to lead the campus. If the principal is allowed the freedom to develop and direct curriculum and instructional techniques, the growth in a school could be exponential. The role of the principal is one that works collaboratively with teachers to develop a positive environment for students as well as develop a curriculum and instructional strategies that meet the needs of the campuses students. Also through the process, the principal must be creative in securing the resources necessary for the campus to grow (Bottoms & Fry, 2009). As the different functions of the principal are taken into account, one must examine each component separately. The leader of a campus today is one that sets the tone for school climate. The principal is watched very carefully by the community, students, and teachers, and his or her actions impact what is important at school. Ultimately, the school's climate will reflect the values of the principal as the

instructional leader (Lashway, 2002). The actions of the principal are important to bring about the vision of the school. A strong principal promotes growth in student learning by making the quality of instruction the top priority of the school (Flath, 1989). Additionally, as the principal continues to grow in the position as an instructional leader, it is important to remember that he or she should take steps to alleviate problems within the school. It is important for the principal to support teacher instructional methods. In the process he or she needs to allocate the appropriate resources for the instructional setting. During the instructional process, it is important for the principal to visit classrooms and provide feedback to the teachers about their performances as well as the students. All of this leads to efforts to improve classroom instruction and performance by utilizing data to drive instruction (Mendez-Morse, 1991). It is clear that the evolution of the principal as an instructional leader is important to the success of the teachers and students and is a key to the schools climate and building a strong vision.

As the role of the principal is now that of an instructional leader or learning leader, it is important to look at the characteristics of the principal as well as the behaviors, aspects, and skills of an instructional leader. Successful principals have some similar characteristics that allow them to be instructional leaders and champions for improvement in schools. First, a principal must show with his or her actions and resources that quality teaching and learning is the number one priority in the school. Second, the instructional leader must be a strong communicator of the mission of the school to the staff, parents, students, and the community. Third, the expectations for the students and staff must be high and attainable for instruction and learning. Fourth, the principal must provide follow up and feedback related to the goals. He or she must

monitor the data and assure that the path of the school is matching the mission. Fifth, the principal must visually see what is happening in the classroom by making visits and listening to students and teachers. Sixth, he or she must develop an atmosphere that will foster growth, imagination, trust, and sharing. Finally, he or she cannot tolerate poor performance from students or teachers (Keller, 1998).

With the characteristics of a principal in place, looking at the important aspects of a principal will be appropriate. The instructional leader must have a deep understanding of how to support teachers and students in the learning process. It is vital to help teachers be successful in the classroom so that students can be successful as well. The principal also has to manage the curriculum in such a way that it promotes student learning and progression towards the common goal. Last, a principal must develop the belief that all means all and schools must transform into more effective organizations so that all instruction is powerful and learning is taking place for students (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

The skills of the principal are vital to the organization's health and ability to move forward. A principal must have the skill to foster the characteristics and aspects of a positive leader. Even though some of the terms overlap, the application as opposed to the conceptual is a key difference. A strong principal must be a resource provider. Additionally, he or she must have the answers or know where to go to get the answers to questions that relate to instruction, curriculum, and current trends relating to instruction and learning. They must have the skills to foster curriculum growth that relate to state standards, pedagogical strategies and assessment. A principal must also have the skills to communicate effectively the beliefs of the school and foster the vision that all children

can learn. Last and perhaps the easiest skill to possess but the most challenging to accomplish is being visible. Being in the hall, in the classrooms and at events give the community, staff, and students an understanding that what they are accomplishing is important and vital to the success of the student and the learning process (Whitaker, 1997). Although, leadership in schools does not end with the basic skills or characteristics as presented, the principal must accelerate his or her behaviors to drive to a high level of success in schools. The instructional leader must be able to demonstrate high quality instruction, give meaningful feedback, be supportive and provide high quality staff development that allows the teacher to grow so that students can grow and excel (Blase & Blase, 2000).

Best practices, styles, and leadership in staff development help develop a principal into a strong instructional leader. Setting a standard of excellence for the educational field is important so that all institutions grow to the level that each community deserves. If a principal follows three core practices, the likelihood of success grows. The process of developing people that allow for them to do their jobs effectively is the first key practice. This allows for more intellectual support and stimulation through providing models of practice and support. The second key practice is setting direction for the organization which would include shared goals while monitoring performance through data and provide the communication necessary to promote the goals, mission, and vision. Lastly, design an organization that is productive in creating a positive school climate as well as creating an organization that has a process to build ownership and collaboration in the decision making process (Leithwood, Seashore-Louis, Anderson, & Wahlstrom, 2004).

In evaluating the gamut of qualities of an instructional leader, it is natural to then move to the styles of the different leaders. Style has a tremendous impact on how a principal functions in his or her job. Highly successful schools have principals that have leadership styles that match the situation at hand as individual needs arise among staff, faculty, students, and community. As it migrates to instruction and teacher development, four types of leadership styles emerge that will help teachers grow and be the best they can be. Visionary, coaching, afflictive, and democratic are the styles that lead to a successful instructional leader. Visionary leaders help define goals but not necessarily the path to get there. It is important to have individuals take different paths as long as the goal is the focus and the end point is the same for all. Along the way, it is important that the principal help coach teachers and students to the methods and beliefs to be successful. Afflictive leaders are concerned about the emotional aspects of the staff and students, and they work to create an environment that is conducive to learning and teaching. Last, the democratic leader looks to the staff for information and help to formulate the direction of the organization together. It is important to understand that all methods are used but must be done at the right time for the school, staff, and students to improve and excel (Goleman, Boyatzis, & McKee, 2002). Thus, the principal is a critical player in the development of the staff. He or she must recognize the needs of the campus and then strategically implement a plan to accomplish important goals. There are a variety of paths to take to develop a staff, and creating a learning community is one path for the principal to take. It allows staff members to meet and discuss their work and share ideas, solve problems, and take responsibility of their learning (National Association of Elementary School Principals, 2001). Staff development is the continual improvement of

the organization and teachers' instruction. Providing support and development is a key to a principal's influence on student achievement and the success of the school (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005). It is clear that principals have a positive impact on staff when the professional development relates to the vision of the school and promotes change. It helps stimulate the staff and creates a supportive environment so higher stages of development can be reached (Phillips & Glickman, 1991). Over all, the time a principal spends as an instructional leader creating staff development opportunities, pays off as the staff stays updated on new instructional strategies and develops a deeper understanding of skills and strategies (Showers & Joyce, 1996).

Decision Making Process and Data in Education

The decision making process in education has developed slowly compared to the business world. Educators are just now developing the skills and process that businesses have used for years to improve companies. Businesses take failure as an opportunity; they review the issue and analyze the data and build a better design for improvement and move forward. Education has moved a little slower. Initially the educational system did not have the tools or information to analyze to determine the problem so that they could develop a solution. Without the tools, educational systems often made uninformed reactions to situations which resulted in poor decision making or elimination of programs that had promise but failed early (Bennis & Nanus, 1997). As technology has increased and standards in education have become more defined, the educational system is on the fast track to better data decision making and how to make improvements on campuses that will be effective and efficient. At this point, data warehouses are now providing a

detailed analysis of schools and districts and in turn impact how they function in the future (Rudner & Boston, 2003). The challenge with data is to provide an easy way for teachers and administrators to access the information. Web based applications have given that access to teachers and school leaders so that they can access and disaggregate information based on individual needs for schools and classrooms (Wayman, 2005). As the data becomes more available and usable, the decision making process turns to utilizing the data to surgically improve the educational organization.

As a principal reviews data and information about new instructional strategies or ideas, he or she must measure the idea to see if it is a good fit for the campus and not necessarily based on it just being a good idea. Some ideas are good but may not work on a specific campus (Ellis & Fouts, 1994). It is vital that school leaders at the campus level drive the decision making process. With the systems that are now in place and the accessibility of data, the principal cannot afford to wait on central office to give direction. If that is the case, the school and principal are fighting a losing battle (Johnson, 1996). With data that is readily available to campus leadership, a principal is now able to disaggregate the data and identify trends on his or her specific campus. The result of that identification helps the administrator create an appropriate vision and focus for the school (Petrides & Guiney, 2002). Also, as the focus and goals are developed to match the campus, it is easy for the principal to set achievement goals based on the data, focus, and vision (Ingram, Seashore-Louis, & Schroeder, 2004). The analysis of data by the principal and teachers allows for effective decision making on instructional practices that will benefit the curriculum, subject areas, subgroups, and programs (Bernhardt, 2004). It is very clear that principals who do not use data to drive decision making are not aware of

trends on their campus and will wrongly guide teachers that will result in less effective instruction and curriculum (Price & Burton, 2004).

Data is becoming more and more a part of the decision making process in education. It is vital that education continue to grow in this area to be effective in changing education, instruction, and learning success. If a program or instructional strategy is not getting the desired results, it is vital that data be used to determine the issues and facilitate change (Ingram, Seashore-Louis, & Schroeder, 2004). The issue at hand for administrators currently is that the amount of data that is now available is abundant, and they are now finding themselves trying to determine the best way to bulldoze this mountain of data and make it have meaning for all stakeholders. Education is moving towards the use of outside companies for guidance and development of effective tools to sort through the data and produce the desired information to facilitate appropriate change.

Important Data in Decision Making

Dropouts or non-completers are a major concern across the United States and for good reason. The impact of a dropout in a community threatens the safety and economic well-being of all in the surrounding area. The statistics are staggering; the employment status of high school dropouts is alarming as 56% are unemployed compared to their counterparts, high school graduates, which have an unemployment rate of 16% according to a 2000 study (Standard, 2003). Clearly, a dropout is at a disadvantage when trying to obtain a job. Obviously, if the dropout does not have a job, the earning potential is non-existent but what about the earning potential of a dropout that does obtain and hold employment. They also have limitations on earning potential. With less education or

failure to complete high school, a dropout is more likely to earn around $12,400 compared to the high school graduate that was approximately $21,000 (Campbell, 2003-2004). As unemployment increases and income potential declines with dropouts, services that would normally be obtainable are less likely. An individual is more likely to experience health issues due to the lack of ability to afford health care. Due to a decrease in earning potential, dropouts have a higher probability of being part of a welfare program or utilize other government programs for the indigent with some even resulting to criminal activity for a means of survival (Martin, Tobin, & Sugai, 2002). Dropouts are a clear issue according the Center for Democratic Policy, Institute for Education Leadership which reports that dropouts comprise 52% of all welfare recipients. The prisons are filled with dropouts recording a shocking 82% of all inmates, and the Juvenile court system is bogged down with 85% of cases resulting from dropouts (Standard, 2003). The concerning part of this information is that this trend has continued for over 30 years and has held a constant dropout rate of 10.9% (Kaufman, Alt, & Chapman, 2001). Knowing the statistics related to dropouts, it brings about a deep desire for our society to determine the issues and provide interventions to derail the dropout crisis. Student characteristics such as socio-economic status, ethnicity or race, attendance, out of class suspension, and academic completion or engagement will be examined to determine their impact on a student's potential for being a non-completer. Also, many factors influence a student's decision to be a non-completer in school. Economic factors can play a role in the student's decision as family needs for support arise. Social and political influences impact a student's decision as well. All factors seem to center around the development and educational progress in school (Campbell, 2003-2004). Factors that

impact the educational process are sometimes out of the control of the educator or school but must be overcome by the individual or school personnel to be a high school completer. The impact of each area needs to be critically examined so all have a better understanding of the factors that impact student performance. It has become clear that 12 factors have impacted the dropout rate. As the retention rate, SES, and removal from class increased so did the dropout rate; in other words, there was a positive correlation between the dropout rate and retention, SES, and removal from class. There was also a negative correlation between attendance and academic achievement. As attendance and achievement improved, the dropout rate lowered (Christle, Jolivette, & Nelson, 2007).

The first area to look at is the socio-economic status (SES) of students. Research shows a strong relationship between dropout rate and students from low-income families. Research revealed that students from low SES families are 2.4 time more likely to dropout than that of middle income families (Coalition for Juvenile Justice, 2001).

Discipline

As the research concentrates on performance in the school atmosphere, a look at the reasons why student performance may be declining is necessary. It is very clear that behavior in school is a key contributor to success in schools. Suspension from school, in-school suspension programs, and placements to alternative campuses has an impact on student performance. Suspension from school is the number one most used consequence for student's inappropriate behavior in American schools. The statistics report a staggering 3.3 million students are suspended each year (U.S. Department of Educaiton, 2008). Students that maintain composure in class and are compliant in the classroom are more likely to be successful, avoid retention, and perform higher on test scores. Students

that have been removed from the classroom for various reasons and miss instruction have their ability to progress through the curriculum limited. In turn, they are more likely to become frustrated, not perform at a high level, have lower test scores and perpetuate a failing pattern. Ultimately, they would become a non-completer (Christle, Jolivette, & Nelson, 2007). Consequently, school suspensions result in missed instruction which then impacts the outcome for a student in class. The results are commonly negative for the students, therefore generating a greater risk of dropping out of school (Brooks, Schiralki, & Ziedenberg, 2000). As suspensions occur in schools, students that continue to encounter the consequence develop adverse effects as well as the consequence impacting the climate of the school. A perception of being harsh and punitive leaves the student feeling rejected and a sense of being pushed out of the school. Students feel that they have no connection and are not wanted at the school. This in-turn leads to more inappropriate behavior and more suspensions. The student overall becomes more disengaged and ultimately frustrated academically; the result is clear, a non-completer (Bowditch, 1993; Christle, Jolivette, & Nelson, 2007). The statistics related to a history of suspensions for a student only increased the likelihood of being a non-completer. If a student experienced multiple suspension episodes over the school year or over multiple years, the student was more likely, 78% higher, to dropout. The impact on a school with a high rate of suspension impacts dropout significantly, and the rates show the clear difference in schools. Schools with a suspension rate of 22% recorded a dropout rate of 3.52%. However, schools that utilized alternatives for discipline measures and limited suspensions from school, 9%, resulted in only a 2.26% dropout rate which creates a clear advantage in keeping kids in school. A 56% increase in dropout rate between the two

figures compels one to reconsider the suspension route traditionally taken and begin to look for alternatives to manage behavior. The data shows that as the suspension rate increases so does the dropout rate and each school must work to improve this standard (Lee, Cornell, Gregory, & Fan, 2011).

Achievement

The review of achievement in schools across the country is devastating. Today, over 7,000 students will drop-out of high school each day. Each year, a staggering 1.7 million students will not finish public school or lack educational skills necessary to continue an education (Bottoms & Fry, 2009). Overall, success in school seems to gravitate to two factors. Achievement scores played a key role. As a student performs at a higher level, the student is more likely to be a completer. Consequently, as a student is successful and moves from grade to grade or is not being retained, the student is less likely to be a non-completer. It is clear that schools with low dropout rates had high scores and low retention rates. High dropout rates related to poor scores and a very high retention rate (Alexander, Entwisle, & Kabbani, 2001). Students with a different background or those that receive services from a school are impacted and could lead to a non-completer. African American students tend to dropout at a rate that is twice that of the White students, and the Hispanic students exceed that rate of comparison (Dorn, 1996). When one shifts from ethnicity or race and looks at students with disabilities, a problem continues to exist. In 2000-01 a dropout rate of 29% was recorded for students with disabilities. However, the range of the dropout rate varies as students with minimal cognitive disabilities had a dropout rate close to 13% while students with severe disabilities or emotional disturbances were at an alarming 53% (Bellis, 2003). With

disabilities playing a role in a student being a non-completer, a look at students without disabilities is necessary to examine the entire problem. Students who experience failure early in their school career may be going down a path of loss of interest in school as well as weakening of a student's interest and involvement, therefore, ultimately leading to the student being a non-completer (U.S. General Accounting Office, 2002). The concern centers on when a student disengages from school. It is clear that a student being retained in school, especially during the middle school years, has a strong relationship with being a dropout in high school (Alexander, Entwisle, & Kabbani, 2001).

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine the key factors or indicators that related to student progress in school and ultimately being a completer. The relationship between non-completers and key factors such as gender, economic status, attendance, out of class discipline placements, standardized test scores (TAKS), performance obtaining credits, and performance in the main core area subjects (math, English, social studies, and science) were examined. Addressed in Chapter III is the methodology of the study, including information about the population, instrumentation, procedures, data analysis, and the scope and limitations.

Research Questions

The research questions posed were designed to look at key factors related to students being considered completers and determining the limits in a variety of categories that would impact that success and to what degree.

1. Is there demographic data that would predict a student's path to be classified as a non-completer? The demographic data to be examined would be gender and economically disadvantaged.
2. Is there conduct and performance data that would predict a student's path to be classified as a non-completer? The conduct and performance data to be examined would be absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores.

Population

Data of students, from a Houston suburban school district containing five comprehensive high schools, was collected for the school years 2006-2007 to 2010-11. The number of years obtained was five so that students that continue high school after their fourth year would not be counted as a non-completer. Through the collection of data from the School District, it was estimated that 3,200 students were reviewed based on their academic and behavioral history for the given years. The school district had approximately 52,000 students. The ethnic make-up of the district was 55% White, 31.9% Hispanic, 6.7% African American, and 5.3% other. The district was about 36% economically disadvantaged and was considered a fast growth district.

Instrumentation

For the purpose of this study, archival data was gathered using the Texas AEIS data and data provided by the school district for the five academic years 2006-2007 to 2010-2011. The AEIS is a comprehensive reporting system, which is used to generate reports about campuses, school districts, and the state, and this data was then used to determine accountability ratings. Data for this study was collected by the TEA and reported through AEIS. Collected data was used to determine the correlation between non-completers and gender, socio-economic status, attendance, out of class discipline, TAKS scores, progress with high school credits, and progress in the four core subject areas throughout the five year period. Additionally, the collected data was used to determine toleration levels in the effort to help identify students that need to receive interventions at an early age to prevent the possibility of a non-completer.

Procedures and Time Frame

A review of the literature was conducted regarding data driven decision making, educational reform, the role of the principal in schools, the impact of attendance on the education of the student, the impact of out of class discipline assignments, decision making process in education, important data in decision making, and achievement of students. Next, the candidacy of study was completed with the doctoral thesis committee. Once complete, the Methodology section of the paper was completed for the proposal of the study. Before the data was obtained, the appropriate application for the school district as well as the Institutional Review Board (IRB) was obtain with permission for the research to take place.

Once the IRB granted approval, data was downloaded from the AEIS to a database, and the appropriate statistical studies were performed related to the data over the five year period. The procedures were repeated for each area of the study related to gender, socio-economic status, attendance, out of class discipline placements, TAKS scores, credit progress, and achievement in core area classes. Additionally, statistical analysis was performed on the data and the toleration levels for each category determined which resulted in an identification model being constructed to help with identification of students in need of intervention.

Data Analysis

A logistic regression analysis was conducted to determine the probability of the occurrence of the data. Through this analysis, the multiple regression allowed for the prediction of an event. The process of analysis utilized non-metric dependent variables that developed a probabilistic assessment of a choice. Independent variables were

discrete or continuous. Through the process a contingency table was produced to show the classification of observations as to whether observed and predicted events match. The logistic regression allowed for one to test the relationships between categorical outcomes and one or more categorical predictors (Peng, Lee, & Ingersoll, 2002). The model considered multiple data points and their impact on student performance and being a non-completer as it relates to gender, economic status, attendance, out of class discipline placements, TAKS scores, credit progress, and achievement in core area classes. Once the key data points were identified, a discriminant regression analysis was performed. The discriminant regression analysis was used to determine the relationship between the different variables selected through the logistical regression analysis. Through the discriminant regression, a statistical model was developed to help determine which students are more likely to be a non-completer within a 95% confidence interval. The model development allows for a principal to predict high potential non-completers in the future and supply appropriate interventions.

Limitations

Limitations did exist in the population of this study. Although many variables exist within the data, the data set was consistent and provided valid information in regards to this study. The first limitation was the withdrawal codes and changes in the codes from the state level. Every year the state updates withdrawal codes and changes procedures; the data is adjusted, and one year a student might be considered a dropout while the next another student is not, even though the characteristics of the situation is exactly the same. Also, new codes and more classifications of withdrawals made some of the data challenging to interpret. However, the researcher analyzed the data based on the

guidelines from the State of Texas and coded dropouts according to the state's procedures and applied such regulations fair and consistent.

The specific students did have some limitations. The data presented at withdrawal was dependent on individuals reporting accurately their intention for education in the future. The reporting of dropouts during the interval of 2006 thru 2009 was skewed to less than normal since the rules and regulations in reporting of specific withdrawal codes changed. For example, parents were able to choose homeschool as a withdrawal reason and no follow-up or assurances were required. Parents became more likely to choose home school for a withdrawal reason to avoid their student being considered a dropout even though no educational placement was pursued. Therefore, many dropouts were coded as home school and not calculated in the dropout numbers. The data for recent years supports the conclusion that this occurrence did occur.

As Texas transitions to a new state wide assessment called State of Texas Assessment of Academic Readiness (STAAR), the data did not reflect or include such data. The impact of the exam in the future was unknown, and the effects that it has on a prediction model was unknown. However, the prediction model will still be a valid predictor as the test changes since a multitude of additional factors have been considered. Also, history provided evidence that the top performers of one state exam will still be the top performers of new adopted exams. Conversely, the opposite holds true for lower exam performers. Therefore, the performance level at a later date can be determined to help mold the model if the test and its data is relevant to the model.

CHAPTER IV

RESULTS

Introduction

In this chapter, the two research questions previously delineated were addressed through use of descriptive statistics and logistic regression procedures. The research questions posed are designed to examine the extent to which demographic data and school-related factors can predict students' path to being classified as either completers or as non-completers.

1. Are there demographic data that would predict a student's path to be classified as a non-completer? The demographic data analyzed herein were gender and economically disadvantaged.
2. Are there conduct and performance data that would predict a student's path to be classified as a non-completer? The conduct and performance data analyzed herein were absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores.

Descriptive Statistics for Research Question One

Prior to conducting the statistical procedures to address the first research question, descriptive statistics were calculated for completers and for non-completers for the variables of gender and economically disadvantaged for each of the five years of school data analyzed herein. Depicted in Table 1 are the descriptive statistics for the 2007 school year. A total of 40 students were in the non-completer group, compared to 5,266 students in the completer group. Although the gender composition was similar for completers and non-completers, the economic status was substantially different. That is,

for the non-completers, 75.0% were economically disadvantaged, whereas for the completers, only 19.5% were labeled as economically disadvantaged.

Table 1

School Characteristics of Sample for the 2007 School Year

Characteristic	Non-Completer	Completer
Gender		
Boys	21 (52.5%)	2762 (52.4%)
Girls	19 (47.5%)	2504 (47.6%)
Economic Status		
Economically Disadvantaged	30 (75.0%)	1027 (19.5%)
Not Economically Disadvantaged	10 (25.0%)	4239 (80.5%)

Present in Table 2 are the descriptive statistics for the 2008 school year. A total of 29 students were in the non-completer group, compared to 5,277 students in the completer group. For the 2008 school year, the percent of boys in the non-completer group was more than double the percent of girls in the non-completer group. This percent differed from the gender composition of non-completers in the 2007 school year. Interestingly, the economic status of non-completers also differed from the previous year's results. Only one non-completer (3.4%) was economically disadvantaged in the 2008 school year, a very different percent from the 75.0% of non-completers who were economically disadvantaged in the 2007 school year.

Table 2

School Characteristics of Sample for the 2008 School Year

Characteristic	Non-Completer	Completer
Gender		
Boys	20 (69.0%)	2763 (52.4%)
Girls	9 (31.0%)	2514 (47.6%)
Economic Status		
Economically Disadvantaged	1 (3.4%)	1056 (20.0%)
Not Economically Disadvantaged	28 (96.6%)	4221 (80.0%)

Revealed in Table 3 are the descriptive statistics for the 2009 school year. A total of 32 students were in the non-completer group, compared to 5,274 students in the completer group. For the 2009 school year, the percent of boys in the non-completer group was much higher than the percent of girls in the non-completer group. Similar to the previous school year in which only one non-completer was economically disadvantaged, no non-completers were economically disadvantaged in the 2009 school year.

Table 3

School Characteristics of Sample for the 2009 School Year

Characteristic	Non-Completer	Completer
Gender		
Boys	19 (59.4%)	2764 (52.4%)
Girls	13 (40.6%)	2510 (47.6%)

Economic Status		
Economically Disadvantaged	0 (0.0%)	1057 (20.0%)
Not Economically Disadvantaged	32 (100.0%)	4217 (80.0%)

Depicted in Table 4 are the descriptive statistics for the 2010 school year. A total of 24 students were in the non-completer group, compared to 5,282 students in the completer group. For the 2010 school year, the percent of boys in the non-completer group was almost four times higher (79.2%) than the percent of girls in the non-completer group (20.8%). Similar to the previous school year in which no non-completers were economically disadvantaged, no non-completers were economically disadvantaged in the 2010 school year.

Table 4

School Characteristics of Sample for the 2010 School Year

Characteristic	Non-Completer	Completer
Gender		
Boys	19 (79.2%)	2764 (52.3%)
Girls	5 (20.8%)	2518 (47.7%)
Economic Status		
Economically Disadvantaged	0 (0.0%)	1057 (20.0%)
Not Economically Disadvantaged	24 (100.0%)	4225 (80.0%)

Depicted in Table 5 are the descriptive statistics for the 2011 school year. A total of 21 students were in the non-completer group, compared to 5,285 students in the

completer group. Interestingly, a higher percent of girls were in the non-completer group (52.4%) than were boys (47.6%). In contrast to the previous three years of data in which 3% or less of non-completers were economically disadvantaged, a substantial percent of non-completers (38.1%) in the 2011 school year were economically disadvantaged.

Table 5

School Characteristics of Sample for the 2011 School Year

Characteristic	Non-Completer	Completer
Gender		
Boys	10 (47.6%)	2773 (52.5%)
Girls	11 (52.4%)	2512 (47.5%)
Economic Status		
Economically Disadvantaged	8 (38.1%)	1049 (19.8%)
Not Economically Disadvantaged	13 (61.9%)	4236 (80.2%)

Logistic Regression Results for Research Question One

To ascertain the extent to which student non-completer and student completer status could be predicted, a logistic regression analysis was conducted, using student gender and economically disadvantaged status. The dependent variable (i.e., completion status) and the two independent variables (i.e., gender and economically disadvantaged status) were dichotomous variables. Separate logistic regression analyses were conducted for each school year of data and then for all school years combined. This set of analyses permits the generation of trends, if present, as well as the determination of differences across the school years of data analyzed herein.

For the 2007 school year, the forward conditional logistic regression yielded a statistically significant model. The independent variable of economically disadvantaged was a statistically significant predictor, whereas gender was not selected to be in the equation. Table 6 contains the relevant statistical information concerning the logistic regression results for the 2007 school year. The coefficient for the Economically Disadvantaged variable had a Wald statistic equal to 47.06 which was statistically significant at the .001 level.

Table 6

Logistic Regression Model Results for the 2007 School Year

	B	S.E.	Wald	*df*	*p*	Exp(B)
Economically Disadvantaged	-2.53	.37	47.06	1	.001	.08
Constant	-3.53	.18	363.88	1	.001	.03

Depicted in Table 7 is the odds ratio for the statistically significant variable of economically disadvantaged status. The odds ratio for the not economically disadvantaged variable is 3.22 with a 95% confidence interval of [1.88, 5.51]. This result may be interpreted to mean that those students who were not economically disadvantaged were three times less likely to be a dropout or non-completer than were those students who were economically disadvantaged.

Table 7

Odds Ratio for the Logistic Regression Model for the 2007 School Year

		95% Confidence Interval	
Variable	Value	Lower	Upper
Odds Ratio for Dropout Variable	12.38	6.03	25.41
Odds Ratio for Not Economically Disadvantaged	3.22	1.88	5.51
Odds Ratio for Economically Disadvantaged	0.26	0.22	0.31

Regarding the 2008 school year, the forward conditional logistic regression yielded a statistically significant model. The independent variable of economically disadvantaged was again a statistically significant predictor, whereas gender was again not selected to be in the equation. Table 8 contains the relevant statistical information concerning the logistic regression results for the 2008 school year. The coefficient for the Economically Disadvantaged variable had a Wald statistic equal to 3.65 which was statistically significant at the .056 level.

Table 8

Logistic Regression Model Results for the 2008 School Year

	B	S.E.	Wald	*df*	*p*	Exp(B)
Economically Disadvantaged	1.95	1.02	3.65	1	.056	7.005
Constant	-6.96	1.00	48.43	1	.000	.001

Depicted in Table 9 is the odds ratio for the statistically significant variable of economically disadvantaged status. The odds ratio for the economically disadvantaged variable is 5.80 with a 95% confidence interval of [0.84, 39.85]. This result may be interpreted to mean that those students who were economically disadvantaged were almost six times more likely to be a dropout than were those students who were not economically disadvantaged.

Table 9

Odds Ratio for the Logistic Regression Model for the 2008 School Year

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Dropout Variable	0.14	0.02	1.05
Odds Ratio for Not Economically Disadvantaged	0.83	0.77	0.89
Odds Ratio for Economically Disadvantaged	5.80	0.84	39.85

Concerning the 2009 school year, the forward conditional logistic regression did not result in a statistically significant model. The independent variable of economically disadvantaged was entered into the model, however, gender was again not selected. Table 10 contains the relevant statistical information concerning the logistic regression results for the 2009 school year. Because the regression equation was not statistically significant, odds ratios were not calculated for the 2009 school year.

Table 10

Logistic Regression Model Results for the 2009 School Year

	B	S.E.	Wald	*df*	*p*	Exp(B)
Economically Disadvantaged	16.32	1236.27	.000	1	.99	.001
Constant	-21.20	1236.27	.000	1	.99	.000

With respect to the 2010 school year, the forward conditional logistic regression revealed a statistically significant model. The independent variable of gender was entered into the model, however, economically disadvantaged was not selected. This finding is in stark contrast to the first two years, in which economically disadvantaged was statistically significant and gender was not statistically significant. Table 11 contains the relevant statistical information concerning the logistic regression results for the 2010 school year. The coefficient for the variable of gender had a Wald statistic equal to 6.52 which was statistically significant at the .011 level.

Table 11

Logistic Regression Model Results for the 2010 School Year

	B	S.E.	Wald	*df*	*p*	Exp(B)
Gender	1.29	.50	6.52	1	.011	3.619
Constant	-22.08	1213.51	.000	1	.985	.000

Depicted in Table 12 is the odds ratio for the statistically significant variable of student gender. The odds ratio for boys is 2.29 with a 95% confidence interval of [1.05,

4.99]. This result may be interpreted to mean that boys were more than twice as likely to be a non-completer or dropout than were girls for the 2010 school year.

Table 12

Odds Ratio for the Logistic Regression Model for the 2010 School Year

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Dropout Variable	0.29	0.11	0.78
Odds Ratio for Gender = Girls	0.66	0.54	0.81
Odds Ratio for Gender = Boys	2.29	1.05	4.99

Concerning the 2011 school year, the forward conditional logistic regression again resulted in a statistically significant model. The independent variable of economically disadvantaged was entered into the model, whereas the variable of gender was not selected. This finding, though not congruent with the 2010 school year results, was commensurate with the first two years of school data, in which economically disadvantaged was statistically significant and gender was not statistically significant. Table 13 contains the relevant statistical information concerning the logistic regression results for the 2010 school year. The coefficient for the economically disadvantaged variable had a Wald statistic equal to 4.08 which was statistically significant at the .043 level.

Table 13

Logistic Regression Model Results for the 2011 School Year

	B	S.E.	Wald	*df*	*p*	Exp(B)
Economically Disadvantaged	-0.91	0.45	4.08	1	.043	.40
Constant	-4.88	0.36	188.78	1	.000	.01

Depicted in Table 14 is the odds ratio for the statistically significant variable of economically disadvantaged. The odds ratio for students who were not economically disadvantaged is 1.29 with a 95% confidence interval of [0.92, 1.81].

Table 14

Odds Ratio for the Logistic Regression Model for the 2011 School Year

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Dropout Variable	2.48	1.03	6.01
Odds Ratio for Not Economically Disadvantaged	1.29	0.92	1.81
Odds Ratio for Economically Disadvantaged	0.52	0.30	0.90

Finally, a forward conditional logistic regression was performed for all school years combined (i.e., 2007 through 2011). This analysis yielded a statistically significant model. Both independent variables of economically disadvantaged and student gender were entered into the model. Table 15 contains the relevant statistical information

concerning the logistic regression results for all of the school years. The coefficient for the variable of gender had a Wald statistic equal to 3.88 which was statistically significant at the .049 level. Moreover, the economically disadvantaged variable had a Wald statistic equal to 3.81 which was statistically significant at the .051 level.

Table 15

Logistic Regression Model Results Across All School Years

	B	S.E.	Wald	*df*	*p*	Exp(B)
Gender	.34	.17	3.88	1	.049	1.39
Economically Disadvantaged	-.37	.19	3.81	1	.051	.69
Constant	-5.10	.19	686.84	1	.000	.01

Depicted in Table 16 is the odds ratio for the statistically significant variable of student gender. The odds ratio for boys is 1.22 with a 95% confidence interval of [0.99, 1.49].

Table 16

Odds Ratio for Gender in the Logistic Regression Model Across All School Years

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Dropout Variable	0.70	0.50	0.98
Odds Ratio for Girls	0.86	0.76	0.98
Odds Ratio for Boys	1.22	0.99	1.49

Depicted in Table 17 is the odds ratio for the statistically significant variable of economically disadvantaged. The odds ratio for students who were not economically disadvantaged is 1.09 with a 95% confidence interval of [0.99, 1.21].

Table 17

Odds Ratio for Economically Disadvantaged in the Logistic Regression Model Across All School Years

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Dropout Variable	1.47	1.02	2.12
Odds Ratio for Not Economically Disadvantaged	1.09	0.99	1.21
Odds Ratio for Economically Disadvantaged	0.74	0.57	0.98

Descriptive Statistics for Research Question Two

Prior to conducting the statistical procedures to address the second research question, descriptive statistics were calculated for completers and for non-completers for the variables of absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores. Depicted in Table 18 are the descriptive statistics for these variables for the 2007 school year. Readers should note that not all of the non-completers and the completers had data for all of these variables. Sample sizes for the non-completers ranged from a high of 40 for the English, Math, Science, and Social Studies total credit variables to a low of 1 for the TAKS ELA, Science, and Social Studies variables. Similarly, sample sizes for the completers ranged

from a high of 5,266 for the English, Math, Science, and Social Studies total credit variables to a low of 54 for the TAKS ELA and Social Studies variables.

Table 18

School Characteristics of Sample for the 2007 School Year

	Non-Completers		Completers	
Characteristic	*M*	*SD*	*M*	*SD*
School Absences	25.50	22.17	9.70	10.97
Out of Placement Days	13.31	12.11	9.55	10.06
English Semester 1 Grades	56.50	24.30	79.17	11.41
English Semester 2 Grades	68.20	28.97	79.46	11.99
Math Semester 1 Grades	59.10	23.15	77.74	13.88
Math Semester 2 Grades	59.17	33.29	76.85	15.29
Science Semester 1 Grades	60.20	25.75	78.10	11.65
Science Semester 2 Grades	68.14	29.79	78.66	12.51
Social Studies Semester 1 Grades	62.18	25.24	79.49	11.31
Social Studies Semester 2 Grades	74.00	21.14	79.80	11.49
English Credit 1 Year	0.23	0.37	0.85	0.32
Math Credit 1 Year	0.27	0.42	0.79	0.38
Science Credit 1 Year	0.33	0.41	0.84	0.33
Social Studies Credit 1 Year	0.43	0.42	0.86	0.31
English Credit All Total	0.80	1.16	2.76	1.27
Math Credit All Total	0.63	1.27	2.59	1.28
Science Credit All Total	0.85	1.33	2.63	1.32
Social Studies Credit All Total	0.87	1.28	2.69	1.19
English Credit Total By Year	0.09	0.25	0.49	0.48
Math Credit Total By Year	0.10	0.28	0.47	0.49
Science Credit Total By Year	0.12	0.29	0.51	0.49
Social Studies Credit Total By Year	0.16	0.33	0.52	0.49
TAKS Reading	68.27	18.17	80.12	9.69
TAKS ELA	63.00	0.00	69.18	15.55
TAKS Math	49.67	28.47	71.74	18.19
TAKS Science	25.00	0.00	60.77	18.44
TAKS Social Studies	56.00	0.00	71.48	18.17

An examination of the descriptive statistics in this table reveals substantial differences in the number of absences from school between non-completers and completers. Non-completers had almost three times as many school absences as did completers. Of interest is that, for every variable in this table, non-completers had lower

grades, lower number of credits earned, and lower scores on the TAKS measures than did completers.

Present in Table 19 are the descriptive statistics for these variables for the 2008 school year. Readers should note that not all of the non-completers and the completers had data for all of these variables. Sample sizes for the non-completers ranged from a maximum of 29 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 3 for the Math Semester 2 grades, Science Semester 2 grades, and the TAKS Reading score variables. Similarly, sample sizes for the completers ranged from a maximum of 5,277 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 239 for the TAKS Reading variable.

Table 19

School Characteristics of Sample for the 2008 School Year

	Non-Completers		Completers	
Characteristic	*M*	*SD*	*M*	*SD*
School Absences	16.40	14.37	9.88	10.63
Out of Placement Days	12.91	11.44	9.07	9.19
English Semester 1 Grades	58.75	22.58	80.40	10.67
English Semester 2 Grades	82.75	5.91	80.39	11.41
Math Semester 1 Grades	60.75	24.96	78.74	11.30
Math Semester 2 Grades	76.67	15.14	78.23	12.66
Science Semester 1 Grades	69.86	16.98	80.32	10.39
Science Semester 2 Grades	85.67	8.39	81.29	10.82
Social Studies Semester 1 Grades	70.11	14.87	81.53	9.77
Social Studies Semester 2 Grades	75.80	12.09	82.16	9.82
English Credit 1 year	0.39	0.49	0.89	0.31
Math Credit 1 year	0.31	0.46	0.86	0.35
Science Credit 1 year	0.44	0.49	0.91	0.29
Social Studies Credit 1 year	0.45	0.47	0.93	0.29
English Credit All Total	0.92	1.18	2.76	1.27
Math Credit All Total	0.89	1.17	2.58	1.28
Science Credit All Total	0.81	1.02	2.63	1.32
Social Studies Credit All Total	0.98	1.06	2.69	1.19
English Credit Total By Year	0.36	0.55	1.09	0.82
Math Credit Total By Year	0.26	0.41	0.16	0.83
Science Credit Total By Year	0.34	0.55	1.11	0.85

Social Studies Credit Total By Year	0.43	0.56	1.15	0.81
TAKS Reading	80.33	5.13	68.03	18.11
TAKS ELA	62.40	31.05	78.58	10.56
TAKS Math	56.14	20.01	71.55	10.88
TAKS Science	72.00	13.24	72.55	17.33
TAKS Social Studies	87.50	9.57	83.55	17.29

An examination of the descriptive statistics in this table reveals substantial differences in the number of absences from school between non-completers and completers. Non-completers had almost twice as many school absences as did completers. In contrast to the 2007 school year, non-completers did not demonstrate lower performances in all of these variables than was demonstrated by completers. Readers are directed to Table 19 for a comparison of non-completer and completer performance.

Revealed in Table 20 are the descriptive statistics for these variables for the 2009 school year. Readers should note that not all of the non-completers and the completers had data for all of these variables. Sample sizes for the non-completers ranged from a maximum of 32 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 0 for the Science Semester 2 grades, Social Studies Semester 2 grades, and the TAKS Reading score variables. Similarly, sample sizes for the completers ranged from a maximum of 5,274 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 20 for the TAKS Reading variable.

Table 20

School Characteristics of Sample for the 2009 School Year

	Non-Completers		Completers	
Characteristic	*M*	*SD*	*M*	*SD*
School Absences	17.48	13.46	10.18	10.49
Out of Placement Days	4.33	3.28	7.05	7.49
English Semester 1 Grades	54.86	12.33	80.64	9.95

English Semester 2 Grades	20.00	0.00	81.02	10.89
Math Semester 1 Grades	66.43	11.06	79.04	10.41
Math Semester 2 Grades	58.50	16.26	78.78	11.62
Science Semester 1 Grades	66.50	25.09	80.91	9.19
Science Semester 2 Grades	n/a	n/a	81.46	9.77
Social Studies Semester 1 Grades	73.00	20.46	81.83	9.16
Social Studies Semester 2 Grades	n/a	n/a	83.23	9.03
English Credit 1 year	0.07	0.19	0.94	0.31
Math Credit 1 year	0.21	0.27	0.94	0.36
Science Credit 1 year	0.25	0.29	1.02	0.44
Social Studies Credit 1 year	0.20	0.27	0.98	0.28
English Credit All Total	1.12	0.75	2.76	1.27
Math Credit All Total	1.04	0.72	2.59	1.28
Science Credit All Total	1.24	0.66	2.63	1.32
Social Studies Credit All Total	1.19	0.74	2.69	1.19
English Credit Total By Year	0.81	0.72	1.66	1.20
Math Credit Total By Year	0.77	0.76	1.63	1.23
Science Credit Total By Year	1.05	0.69	1.74	1.29
Social Studies Credit Total By Year	0.98	0.73	1.75	1.19
TAKS Reading	n/a	n/a	61.75	20.77
TAKS ELA	79.75	8.66	81.00	11.92
TAKS Math	23.00	0.00	77.61	18.03
TAKS Science	24.00	0.00	76.64	15.76
TAKS Social Studies	38.00	0.00	86.57	14.46

An examination of the descriptive statistics in this table reveals substantial differences in the number of absences from school between non-completers and completers. Non-completers had almost twice as many school absences as did completers. Similar to the 2007 school year results, non-completers demonstrated lower performances in all of these variables, with the exception of number of out of placement days, than was demonstrated by completers. Readers are directed to Table 20 for a comparison of non-completer and completer performance for the 2009 school year.

Depicted in Table 21 are the descriptive statistics for these variables for the 2010 school year. Readers should note that not all of the non-completers and the completers had data for all of these variables. Sample sizes for the non-completers ranged from a

maximum of 24 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 0 for the English Semester 2 grades, Math Semester 2 grades, and the TAKS Reading, TAKS ELA, TAKS Science, and TAKS Social Studies score variables. Similarly, sample sizes for the completers ranged from a maximum of 5,282 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 1 for the TAKS Reading variable.

Table 21

School Characteristics of Sample for the 2010 School Year

	Non-Completers		Completers	
Characteristic	*M*	*SD*	*M*	*SD*
School Absences	23.04	17.88	11.55	11.79
Out of Placement Days	6.00	5.48	6.32	7.05
English Semester 1 Grades	72.25	12.91	81.82	9.66
English Semester 2 Grades	n/a	n/a	82.63	9.71
Math Semester 1 Grades	64.10	14.29	80.65	9.95
Math Semester 2 Grades	n/a	n/a	79.24	12.28
Science Semester 1 Grades	70.71	8.42	83.27	10.00
Science Semester 2 Grades	75.00	0.00	82.79	11.00
Social Studies Semester 1 Grades	68.80	14.89	84.23	8.48
Social Studies Semester 2 Grades	83.00	0.00	80.12	10.63
English Credit 1 year	0.32	0.40	0.98	0.26
Math Credit 1 year	0.08	0.19	0.94	0.40
Science Credit 1 year	0.18	0.25	1.02	0.48
Social Studies Credit 1 year	0.20	0.26	0.99	0.27
English Credit All Total	1.95	0.86	2.75	1.28
Math Credit All Total	1.50	0.94	2.58	1.29
Science Credit All Total	1.95	0.92	2.62	1.33
Social Studies Credit All Total	2.14	0.89	2.68	1.20
English Credit Total By Year	1.54	1.02	2.16	1.59
Math Credit Total By Year	1.19	0.95	2.02	1.56
Science Credit Total By Year	1.67	0.98	2.07	1.59
Social Studies Credit Total By Year	1.79	1.06	2.15	1.52
TAKS Reading	n/a	n/a	52.00	0.00
TAKS ELA	n/a	n/a	58.18	25.67
TAKS Math	38.00	0.00	53.94	16.52
TAKS Science	n/a	n/a	53.02	18.20
TAKS Social Studies	n/a	n/a	59.59	27.09

An examination of the descriptive statistics in this table reveals substantial differences in the number of absences from school between non-completers and completers. Non-completers had more than twice as many school absences as did completers. Similar to the 2007 and 2009 school year results, non-completers demonstrated lower performances in all of these variables, with the exception of number of out of placement days and for the Social Studies Semester 2 grades, than did completers. Readers are directed to Table 21 for a comparison of non-completer and completer performance for the 2010 school year.

Presented in Table 22 are the descriptive statistics for these variables for the 2011 school year. Readers should note that not all of the non-completers and the completers had data for all of these variables. Sample sizes for the non-completers ranged from a maximum of 21 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 0 for the English Semester 2 grades, Math Semester 2 grades, Science Semester 2 grades, Social Studies Semester 2 grades, and the TAKS Reading, TAKS Science, and TAKS Social Studies score variables. Similarly, sample sizes for the completers ranged from a maximum of 5,285 for the English, Math, Science, and Social Studies total credit by year variables to a minimum of 0 for the TAKS Reading variable.

Table 22

School Characteristics of Sample for the 2011 School Year

	Non-Completers		Completers	
Characteristic	*M*	*SD*	*M*	*SD*
School Absences	29.50	22.44	20.03	18.29
Out of Placement Days	3.00	0.00	4.97	4.45
English Semester 1 Grades	42.00	0.00	69.24	16.01
English Semester 2 Grades	n/a	n/a	74.39	14.35
Math Semester 1 Grades	44.00	0.00	73.91	12.63
Math Semester 2 Grades	n/a	n/a	78.77	9.78

Science Semester 1 Grades	12.00	0.00	72.22	15.88
Science Semester 2 Grades	n/a	n/a	80.15	8.24
Social Studies Semester 1 Grades	28.00	0.00	75.48	14.30
Social Studies Semester 2 Grades	n/a	n/a	82.71	7.30
English Credit 1 year	0.00	0.00	0.71	0.56
Math Credit 1 year	0.00	0.00	0.58	0.48
Science Credit 1 year	0.00	0.00	0.69	0.57
Social Studies Credit 1 year	0.00	0.00	0.79	0.55
English Credit All Total	2.24	0.96	2.75	1.28
Math Credit All Total	1.87	1.05	2.58	1.29
Science Credit All Total	1.71	0.97	2.62	1.33
Social Studies Credit All Total	1.97	0.95	2.68	1.20
English Credit Total By Year	2.00	1.11	2.16	1.60
Math Credit Total By Year	1.69	1.15	2.03	1.56
Science Credit Total By Year	1.69	0.98	2.08	1.59
Social Studies Credit Total By Year	1.67	1.33	2.15	1.52
TAKS Reading	n/a	n/a	n/a	n/a
TAKS ELA	46.00	0.00	66.55	18.70
TAKS Math	n/a	n/a	58.18	23.79
TAKS Science	n/a	n/a	52.50	16.46
TAKS Social Studies	n/a	n/a	64.80	25.02

An examination of the descriptive statistics in this table reveals substantial differences in the number of absences from school between non-completers and completers. Non-completers had more than twice as many school absences as did completers. Similar to the 2007, 2009, and 2010 school year results, non-completers demonstrated lower performances in all of these variables than did completers. Readers are directed to Table 22 for a comparison of non-completer and completer performance for the 2011 school year.

Logistic Regression Results for Research Question Two

To ascertain whether student non-completer and student completer status could be predicted, a logistic regression analysis was conducted, using the variables of: absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores. Separate logistic regression analyses were conducted for each school

year of data and then for all school years combined. This set of analyses permits the generation of trends, if present, as well as the determination of differences among the school years of data analyzed herein.

For the 2007 school year, the entire set of variables mentioned above could not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were school absences; total credits earned in English, math, science, and social studies; and TAKS Reading and Math scores. Utilizing students who had data for these variables resulted in a sample size of 2,586 students. The forward conditional logistic regression yielded a statistically significant model. Two variables were statistically significant predictors of whether or not students were completers or non-completers: Math total credits and TAKS Math scores. Table 22 contains the relevant statistical information concerning the logistic regression results for the 2007 school year. The coefficient for the variable of Math Total Credits had a Wald statistic equal to 26.76 which was statistically significant at the .001 level whereas the coefficient for the TAKS Math scores variable had a Wald statistic equal to 15.84 which was also statistically significant at the .001 level. The odds ratios for both of these variables are present in Table 23.

Table 23

Logistic Regression Model Results for the 2007 School Year

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Total Credits	-0.74	.14	26.76	1	.001	.48	0.36	0.63

TAKS Math Scores	-0.04	.01	15.84	1	.001	.96	0.94	0.98
Constant	-0.06	.46	.02	1	.901	.94		

Concerning the 2008 school year, the entire set of variables mentioned above could again not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were school absences; credit total by year in English, math, science, and social studies; total credits earned in English, math, science, and social studies; and TAKS Math, ELA, Science, and Social Studies. Utilizing students who had data for these variables resulted in a sample size of 2,456 students. The forward conditional logistic regression yielded a statistically significant model. In this equation, three variables were statistically significant: school absences, English total credits, and Math total credits. The Math total credits variable was also a statistically significant predictor for the 2007 school year. Depicted in Table 24 is the relevant statistical information concerning the logistic regression results for the 2008 school year. The coefficient for the Math total credits variable had a Wald statistic equal to 10.15 which was statistically significant at the .001 level whereas the English total credits variable had a Wald statistic equal to 5.60 which was also statistically significant at the .018 level. The coefficient for the variable of school absences had a Wald statistic equal to 5.48 which was statistically significant at the .019 level. Table 24 contains the odds ratios for these three statistically significant variables.

Table 24

Logistic Regression Model Results for the 2008 School Year

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Total Credits	-0.79	.25	10.15	1	.001	0.453	0.28	0.74
English Total Credits	-0.58	.24	5.60	1	.018	0.562	0.35	0.90
School Absences	0.04	.02	5.48	1	.019	1.038	1.01	1.07
Constant	-1.35	.61	4.93	1	.026	0.259		

Regarding the 2009 school year, the entire set of variables mentioned above could again not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were school absences; total credits earned in English, math, science, and social studies; and TAKS Math, ELA, Science, and Social Studies scores. Utilizing students who had data for these variables resulted in a sample size of 2,726 students. The forward conditional logistic regression again resulted in a statistically significant model. Three variables were statistically significant predictors of completer/non-completer status: Math total credits; TAKS Math scores; and school absences. Two of these variables, Math total credits and school absences, were also statistically significant variables in the previous school year.

Depicted in Table 25 is the relevant statistical information concerning the logistic regression results for the 2009 school year. The coefficient for the Math total credits

variable had a Wald statistic equal to 12.58 which was statistically significant at the .001 level. Similarly, the TAKS Math scores had a Wald statistic equal to 11.42 which was also statistically significant at the .001 level. The coefficient for the variable of school absences had a Wald statistic equal to 4.68 which was statistically significant at the .031 level. Also present in Table 25 are the odds ratios for these three statistically significant variables.

Table 25

Logistic Regression Model Results for the 2009 School Year

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Total Credits	-0.76	.21	12.58	1	.001	.47	0.31	0.71
TAKS Math scores	-0.04	.01	11.42	1	.001	.96	0.94	0.98
School Absences	0.02	.01	4.68	1	.031	1.02	1.00	1.05
Constant	-0.47	.65	.51	1	.475	.63		

With respect to the 2010 school year, the entire set of variables mentioned above could again not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were school absences; credit by year in English, math, science, and social studies; and total credits earned in English, math, science, and social studies. Utilizing students who had data for these variables resulted in a sample size of 2,886 students. The logistic regression again resulted in a statistically significant model. Four variables were statistically significant predictors of completer/non-completer status:

Math credits by year; English credits by year; Math total credits; and school absences. Two of these variables, Math total credits and school absences, were also statistically significant variables in the previous two school years.

The coefficient for the Math credits by year variable had a Wald statistic equal to 14.54 which was statistically significant at the .001 level. Similarly, the English credits by year variable had a Wald statistic equal to 7.40 which was statistically significant at the .007 level. For the Math total credits variable, the Wald statistic was 5.22 which was statistically significant at the .022 level. Finally, the coefficient for the variable of school absences had a Wald statistic equal to 10.66 which was statistically significant at the .001 level. Also present in Table 26 are the odds ratios for these four statistically significant variables.

Table 26

Logistic Regression Model Results for the 2010 School Year

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Credits by year	-2.18	.57	14.54	1	.000	0.11	0.04	0.35
English Credits by year	-0.52	.19	7.40	1	.007	0.59	0.41	0.86
Math Total Credits	1.27	.56	5.22	1	.022	3.55	1.19	10.53
School Absences	0.03	.01	10.66	1	.001	1.03	1.01	1.05
Constant	-1.12	.50	4.95	1	.026	0.33		

For the 2011 school year, the entire set of variables mentioned above could again not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were total credits earned in English, math, science, and social studies. Utilizing students who had data for these variables resulted in a sample size of 4,086 students. The forward conditional logistic regression again resulted in a statistically significant model, with one variable that was statistically significant: Math total credits. Present in Table 27 contains the relevant statistical information concerning the logistic regression results for the 2011 school year. The coefficient for the variable of Math Total Credits had a Wald statistic equal to 117.15 which was statistically significant at the .001 level. Also present in Table 27 are the odds ratios for this statistically significant variable.

Table 27

Logistic Regression Model Results for the 2011 School Year

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Total Credits	-0.93	.09	117.15	1	.001	0.39	0.33	0.47
Constant	-1.92	.14	187.14	1	.001	0.15		

Finally, all of the school years were analyzed together. Similar to the previous analyses conducted for each school year, the entire set of variables mentioned above could again not be utilized due to missing data. Accordingly, variables that were included in the regression analysis were school absences and total credits earned in

English, math, science, and social studies. Utilizing data for these variables resulted in a sample size of 12,128 cases.

The forward conditional logistic regression again resulted in a statistically significant model, with three variables that were statistically significant: Math total credits; English total credits; and absences from school. Present in Table 28 contains the relevant statistical information concerning the logistic regression results across the five school years. The coefficient for the Math total credits variable had a Wald statistic equal to 82.51 which was statistically significant at the .001 level. Similarly, the English total credits variable had a Wald statistic equal to 4.04 which was statistically significant at the .045 level. Finally, the coefficient for the variable of school absences had a Wald statistic equal to 26.26 which was statistically significant at the .001 level. Also present in Table 28 are the odds ratios for these three statistically significant variables.

Table 28

Logistic Regression Model Results Across All School Years

							95% Confidence Interval	
	B	S.E.	Wald	*df*	*p*	Exp(B)	Lower	Upper
Math Total Credits	-0.83	.09	82.51	1	.001	0.44	0.36	0.52
English Total Credits	-0.17	.08	4.04	1	.045	0.84	0.72	0.99
School Absences	0.02	.00	26.26	1	.001	1.02	1.01	1.03
Constant	-1.97	.15	170.94	1	.001	0.14		

Development of Equation for Predictive Purposes

Following the use of logistic regression procedures to answer the two research questions previously delineated, canonical discriminant analysis procedures were conducted to ascertain the extent to which a mathematical equation could be generated to predict non-completers. Because of the focus on student conduct and performance variables, canonical discriminant analysis procedures were performed for the variables analyzed in research question two. In particular, only the variables on which the majority of the sample had data were utilized in the discriminant analyses. Analyses were conducted for each year separately and then for across all of the years of data.

For the 2007 school year, the canonical discriminant analysis yielded a statistically significant model, $X^2(3) = 131.14$, $p < .001$, with a canonical R of .22; $\Lambda = .95$. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. Accordingly, three of the variables were identified as essential in contributing to the canonical function: TAKS Math scores (Standardized Canonical Discriminant Function = .526); English Total Credits (Standardized Canonical Discriminant Function = .455); and Math Total Credits (Standardized Canonical Discriminant Function = .311). Each of these values represents the relative importance of each of these three statistically significant variables in differentiating group membership. The centroids of -1.695 for non-completers and 0.031 for completers were indicative of the positive correlation coefficients in which completers were more likely to have higher TAKS Math scores; more English total credits; and more Math total credits than were non-completers.

Table 29

Discriminant Function Coefficients for Statistically Significant Variables for the 2007 School Year

Variable	Standardized Discriminant Function Coefficient
TAKSMath	.526
English Total Credits	.455
Math Total Credits	.311

Regarding the 2008 school year, the canonical discriminant analysis yielded a statistically significant model, $X^2(4) = 88.43$, $p < .001$, with a canonical R of .19; $\Lambda = .96$. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. As such, four variables were identified as essential in contributing to the canonical function: English Total Credits (Standardized Canonical Discriminant Function = .512); Number of School Absences (Standardized Canonical Discriminant Function = -.408); Math Total Credits (Standardized Canonical Discriminant Function = .336); and TAKS Math scores (Standardized Canonical Discriminant Function = .242). Each of these values represents the relative importance of these four statistically significant variables in differentiating group membership. The centroids of -1.817 for non-completers and 0.02 for completers were indicative of the positive correlation coefficients in which completers were more likely to have more English Total Credits; more Math Total Credits; and higher TAKS Math scores than were non-completers. The negative correlation that was present

reflected that non-completers were more likely to have more absences from school than were completers.

Table 30

Discriminant Function Coefficients for Statistically Significant Variables for the 2008 School Year

Variable	Standardized Discriminant Function Coefficient
English Total Credits	.512
School Absences	-.408
Math Total Credits	.336
TAKS Math Scores	.242

With respect to the 2009 school year, the canonical discriminant analysis yielded a statistically significant model, $X^2(4) = 101.00$, $p < .001$, with a canonical R of .19; $\Lambda = .96$. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. Accordingly, two of the four variables in the discriminant equation were identified as essential in contributing to the canonical function: TAKS Math scores (Standardized Canonical Discriminant Function = .563); and English Total Credits (Standardized Canonical Discriminant Function = .392). Though not at the Lambert and Durand's (1975) cutoff level of .3, Math Total Credits (Standardized Canonical Discriminant Function = .270) and Number of School Absences (Standardized Canonical Discriminant Function = -.263) were also present in the discriminant equation. The centroids of -1.842 for non-completers and 0.02 for

completers were indicative of the positive correlation coefficients in which completers were more likely to have higher TAKS Math scores, more English Total Credits, and more Math Total Credits than were non-completers. The negative correlation that was present reflected that non-completers were more likely to have more absences from school than were completers.

Table 31

Discriminant Function Coefficients for Statistically Significant Variables for the 2009 School Year

Variable	Standardized Discriminant Function Coefficient
TAKS Math Scores	.563
English Total Credits	.392
Math Total Credits	.270
Number of School Absences	-.263

Concerning the 2010 school year, the canonical discriminant analysis yielded a statistically significant model, $X^2(3) = 136.46$, $p < .001$, with a canonical R of .22; $\Lambda = .95$. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. Three variables were identified as essential in contributing to the canonical function: Math Total Credits (Standardized Canonical Discriminant Function = .549); Number of School Absences (Standardized Canonical Discriminant Function = -.444); and English Total Credits (Standardized Canonical Discriminant Function = .400). The centroids of -1.931 for non-completers

and 0.025 for completers were indicative of the positive correlation coefficients in which completers were more likely to have more Math Total Credits and more English Total Credits than were non-completers. The negative correlation that was present reflected that non-completers were more likely to have more absences from school than were completers.

Table 32

Discriminant Function Coefficients for Statistically Significant Variables for the 2010 School Year

Variable	Standardized Discriminant Function Coefficient
Math Total Credits	.549
Number of School Absences	-.444
English Total Credits	.400

For the 2011 school year, the canonical discriminant analysis yielded a statistically significant model, $X^2(2) = 170.65$, $p < .001$, with a canonical R of .20; $\Lambda =$ .96. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. As such, two variables were essential in contributing to the canonical function: Math Total Credits (Standardized Canonical Discriminant Function = .673) and English Total Credits (Standardized Canonical Discriminant Function = .385). The centroids of -1.278 for non-completers and 0.034 for completers were indicative of the positive correlation coefficients in which

completers were more likely to have more Math Total Credits and more English Total Credits than were non-completers.

Table 33

Discriminant Function Coefficients for Statistically Significant Variables for the 2011 School Year

Variable	Standardized Discriminant Function Coefficient
Math Total Credits	.673
English Total Credits	.385

Finally, data for all of the school years were analyzed together. The canonical discriminant analysis resulted in a statistically significant model, $X^2(3) = 613.64$, $p < .001$, with a canonical R of .22; $\Lambda = .95$. The minimum cutoff value of .3, as recommended by Lambert and Durand (1975), was used to establish statistically significant correlations. Accordingly, three variables were essential in contributing to the canonical function: Math Total Credits (Standardized Canonical Discriminant Function = .529); Number of School Absences (Standardized Canonical Discriminant Function = -.377); and English Total Credits (Standardized Canonical Discriminant Function = .372). The centroids of -1.574 for non-completers and 0.033 for completers were indicative of the positive correlation coefficients in which completers were more likely to have more Math Total Credits and more English Total Credits than were non-completers. Non-completers had more school absences than did completers.

Table 34

Discriminant Function Coefficients for Statistically Significant Variables for all School Years

Variable	Standardized Discriminant Function Coefficient
Math Total Credits	.529
School Absences	-.377
English Total Credits	.372

Summary

In this chapter, the findings of the study were presented. Data were analyzed using SPSS statistical software. Descriptive statistics were calculated for each variable at the high school level for 2007, 2008, 2009, 2010, and 2011. Several logistic regression analyses were conducted, one for each year as well as an analysis of all years. The analyses included both research questions as they related to gender, economically disadvantaged, attendance, days out of placement, TAKS scores, grades in the four core class areas, and credits earned in the four core class areas. Based on the information found in the logistic regression analysis, canonical discriminant analyses were conducted to determine a model of prediction of non-completers. Math Total Credits, English Total Credits, and School Absences were consistent predictors of completer/non-completer status. Completers had more total credits in Math and in English than did non-completers whereas non-completers had more school absences than did completers. Students' TAKS Math scores, when available, were also statistically significant in predicting

completer/non-completer status. Presented in Chapter V are the discussions of the findings calculated to address the research questions.

CHAPTER V

SUMMARY, CONCLUSION, RECOMMENDATIONS

Introduction

The American school system, the envy of the world during the 1950's and 1960's, has slipped to being rated only average and below average in math and science. The educational system continues in a downward spiral as the Organization of Economic Co-operation and Development (OECD) reports on the 36 participating countries. The U.S. earned an average rating with scores of 500 in reading, 487 in math, and 502 in science all out of a possible 1000, and the math ranks 25th or lower quarter in the study (U.S. falls in world education ratings, 2011). Concerns over the American educational system seem to intensify around the world as the potential economic impact is tremendous.

It is generally understood that a good education is the route to earning a decent living and to enhancing personal growth and happiness. There is ample evidence that better educated people are more productive and make decisions that lead to healthier and longer lives (Education and skills, 2010). In the United States, it is clear that education has a tremendous impact on a person's life as well as his or her financial security. According to OECD study, the higher the education the more earning potential a person has with the United States ranking the highest. In the U.S., if everything is based on a high school graduate with earnings of $100, the differences are staggering; a high school non-completer will earn $64 for every $100 of a high school graduated. A university graduate will earn $180 and a college graduate $114. The impact of wage potential and education level proves the importance of being a high school graduate and pursuing a college education (Education and skills, 2010). The focus of the United States must be

on how to improve education and maintain a high level of income potential. Without improvement in the key areas, the income potential and global economic impact will be devastating.

According to the data reported by OECD, policies makers around the country look at ways to improve the country's educational system. It is clear that other countries are surpassing the United States in several areas, and without intervention the downward spiral will continue (Shepard, 2010). Over time, we have seen many school reforms take place; from the Coleman Report, A Nation at Risk, Goals 2000, and No Child Left Behind, schools have been challenged to find data to help the principal and teachers make better decisions in order to stay one step ahead of the newest and latest in accountability standards. As the evaluation process continues at schools throughout the U.S., standardized testing has been the route taken to assure educational success and progress. However, studies show that in addition to standardized testing other forms of assessment should be utilized as well (Hentschke, 1997). With reports of the struggles of the American education system, the reform process will begin again taking into account the issues revealed. As we approach future educational reform initiatives, we must remember that positive changes have occurred in the decision making process, school management, and data-driven instruction and decision making (Gardner & Talbert-Johnson, 2000). It is important to understand, as we weave our way through another educational reform process, that stronger school systems as well as teacher development programs will improve, and the impact on students will clearly increase performance (Daggett, 2000). In turn, we will see stronger schools and students that will be able to continue to compete in the global economy.

The principal has become the main player in today's educational system. Principals have taken on the role of educational leaders as well as directors of the improvement process; it is clear that effective schools have principals that stress the importance of educational leadership (Brookover & Lezotte, 1982). Prior to the major educational reforms in the United States, only 10% of a principal's time was devoted to instructional leadership (Stronge, 1988). Now, instructional leadership and curriculum development is the main portion of a principal's responsibilities, and local communities demand the principal lead in this manner (Flath, 1989). It is clear that a principal must make the quality of instruction and the curriculum a top priority for the school to succeed (Flath, 1989). Over the years, instructional leaders have been the key concept; however, the term learning leader seems to have a better fit (DuFour, 2002). The principal's leadership ability is a key to success for the principal, school, staff, students, and district.

As a principal continues to lead a campus instructionally, it is vital that he or she have certain characteristics. A principal must be a strong communicator and establish learning goals and expectations; the higher the goals and expectations are established, the stronger the performance. The principal must be able to see what instructional strategies are being utilized and develop a learning process to improve instruction in the classroom. As the instructional and learning pieces are addressed, a successful school makes sure that the instructional staff has the resources necessary to accomplish the given task of teaching students. Through this process, if all students matter, then instruction will be more powerful; therefore, learning will take place (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

To be a competitor in the global economy, the principal of today's schools must accomplish what businesses have done for years, disaggregate data effectively and efficiently. Data allows for both principal and teachers to evaluate student progress and the curriculum and make adjustments that are helpful to the entire process. Without such tools, the practitioner would make uninformed reactions to situations, and the end result would be poor decision making (Bennis & Nanus, 1997). The advancement of technology continues to help the process of understanding and utilizing data. Schools have now been inundated with data, but one problem still exists there is not a systematic approach to pull information that is meaningful from the data. As technology improves in the area of education as it did in business fields many years ago, one now sees more data warehouses that are providing the data necessary for school leaders to be successful (Rudner & Boston, 2003). Web based applications have been developed that give access to the data that school leaders and teachers can now access with ease (Wayman, 2005). However, one problem still exists, what data is the most important and how can an individual pull the information efficiently? The continual analysis of data to determine the key factors must be conducted so that a clear vision and focus of a school can be established. Data and its interpretation is the way to develop a clear vision and focus for a school (Petrides & Guiney, 2002).

As one looks at data as a principal, it is a key to know the information that is valuable. In looking at alarming statistics related to dropouts and correlating unemployment rates, one has to wonder what factors in school led to a student being unsuccessful (Standard, 2003). We know that when a student drops out of school his or her earning potential decreases significantly (Campbell, 2003-2004). Also, a non-

completer is more likely to have health issues and will be likelier to become part of a welfare program (Martin, Tobin, & Sugai, 2002). It has become evident over years of study that economic factors play a role in a student's educational development (Campbell, 2003-2004). Based on the information, lack of progression in course work, economic status, and attendance all have an impact on student success (Christle, Jolivette, & Nelson, 2007). Data is very important to the decision making process, and looking at the right pieces of the puzzle can help a principal work with teachers and students to become more successful.

Achievement in school is probably one of the more logical areas to review. As a student performs higher in class and on standardized exams, the more likely he or she will complete high school. As a student achieves credits in high school and approaches graduation, he or she is more likely to complete. Conversely, the lower the performance in class and the lack of progression in courses, leads a student to being a non-completer (Alexander, Entwisle, & Kabbani, 2001). The key is to keep a student progressing in the curriculum and maximizing his or her credits in the core subject areas of high school. The challenging part regarding achievement is to identify a struggling student early in the educational process. If a struggling student can be identified early, a school is able to provide appropriate interventions to help the individual be successful.

Reform has played a key role in the change of education over many years. The position of principal in schools has grown to a point of a learning leader. Data, as well as the ability to disaggregate the right data, is essential to the success of students and teachers. The key concepts to know is what data is important to student success and can we identify the key elements that make up a non-completer in high school.

SUMMARY

Chapter IV is an analysis of the data provided by a Houston suburban school district. The district has a 9th grade high school student population of approximately 3,200 students that were part of the study over the 2007 through 2011 school years. The school district had approximately 52,000 students at the time of the study. The ethnic make-up of the district was 55% White, 31.9% Hispanic, 6.7% African American, and 5.3% other. The district was about 36% economically disadvantaged and was considered a fast growth district. Through the research, the following questions were generated and the data analyzed to determine the validity of each variable:

1. Is there demographic data that would predict a student's path to be classified as a non-completer? The demographic data to be examined would be gender and economically disadvantaged.
2. Is there conduct and performance data that would predict a student's path to be classified as a non-completer? The conduct and performance data to be examined would be absences; days out of placement for discipline reasons; English, math, science, and social studies grades; credits earned; and TAKS scores.

Summary of the Descriptive Statistics for Research Question One

Descriptive statistics were calculated by each year for each of the two data points, gender and economic status. For the 2007 school year, Table 1, the gender for completers and non-completers were very similar. Boys made up approximately 52% while the girls were approximately 48%. Economically disadvantaged was very different with 75% of the non-completers being economically disadvantaged compared to 19.5%

being the population of the completers. The 2008 school year, Table 2, was vastly different than 2007 with 69% of the boys as a non-completer. Economically disadvantaged students reduced in 2008 to only 3.4% while the number of non-completers remained constant. In 2009, Table 3, the balance between boys and girls returned as 59.4% of the boys were non-completers and 40.6% were girls; however, economically disadvantaged students appear to vanish in 2009 to a 0.0%. As we examine the 2010 data, the non-completers are boy heavy at 79.2% and girls at 20.8%. Economically disadvantaged still showed at 0% for the 2010 school year. In 2011, the boys and girls were basically equal based on gender for non-completers with 47.6% and 52.4% respectively. An increase in the economically disadvantaged occurred for non-completers to 38.1%.

Summary of the Logistic Regression Analysis for Research Question One

A logistic regression was conducted for research question one. In research question one, all of the years were analyzed as well as across all school years. In 2007, the analysis determined that economically disadvantaged was statistically significant with a Wald value of 47.06 at a .001. In turn, this produced an odds ratio of 3.22 with a 95% confidence interval. The result of 2007 is supported by the 2007 descriptive statistics. Gender in 2007 did not appear to be statistically significant. The 2008 results of the logistic regression revealed similar results as 2007 reporting a Wald value of 3.65 at a .05. The odds value of 5.8 with a 95% confidence interval was a slight increase compared to 2007. Gender for the 2008 school year still did not seem to have a significant impact on non-completers. The 2009 school year was analyzed and neither gender nor economic status was a predictor of a non-completer. Table 11 and 12 shows

the statistics for 2010. In 2010, gender appears for the first time to be significant, although economically disadvantaged is removed as a predictor for the year. Through the logistic regression gender had a 6.52 Wald at a .01. The odds were 2.29 boys over girls at a 95% confidence interval. As we move to 2011, we see that economically disadvantaged students become significant in predicting a non-completer with a Wald of 4.08 at a .04. The odds ratio for non-economically disadvantaged students was at 1.29 at a 95% confidence interval. The last analysis was conducted by conducting the regression analysis across all school years. The statistics revealed that gender and economically disadvantaged were statistically significant in predicting a non-completer. Gender had a Wald of 3.88 at a .05 and economically disadvantaged had a Wald of 3.81 at a .05. The ratio for boys to girls was at 1.22 at a 95% confidence ratio. Non-economically disadvantaged students had an odds ratio of 1.09 at a 95% confidence ratio.

Summary of the Descriptive Statistics for Research Question Two

Descriptive statistics were conducted for research question two. Research question two examined the impact of school absences, out of placement days, core area subject grades, core area subject credits, and TAKS scores. In review of the descriptive statistics for the 2007 school year, the mean for non-completers in absences was at 25.5 compared to 9.7 for completers. Math and English grades appear to show similar characteristics with a non-completer at a mean of 59 and 62 compared to a completer of 77 and 79. Math and English credits also correspond to the mean results of non-completers compared to completers. TAKS math in 2007 had a mean of 49.67 for non-completers compared to 71.74 for completers. All other variables had a similar mean or the variable had no data for the year. In 2008, a similar pattern held true, although the

mean for absences declined slightly to 16.4. The math and English credits for students have a significant gap in the mean between non-completers and completers with 0.89 and 0.92 compared to 2.58 and 2.76 respectively. In 2009, the pattern continues with absences mean at 17.48 and 10.18 for non-completer and completers respectively. Math and English credits still show significance through the descriptive statistics with a mean of 1.04 and 1.12 for non-completers compared to 2.59 and 2.76 for completers respectively. The 2010 year, continued the trend of large gaps between school absences and math and English credit totals. The absences mean was 23.04 compared to 11.55. Math and English credits were 1.5 and 1.95 compared to 2.58 and 2.75 respectively. The last year of descriptive statistics showed similar results although this is the 5th year and the sample size was greatly reduced. Absences still had a difference of 29.5 to 20.3, non-completers to completers. Math and English Credit still had a mean difference of 2.24 and 1.87 compared to 2.58 and 2.75.

Summary of the Logistic Regression Analysis for Research Question Two

A logistic regression was conducted on research question two to identify the variables that were statistically significant. The analysis was conducted year by year as well as an analysis on all years combined. Through the analysis, it became evident that out of placement days were not significant in the year by year or overall analysis. The course grades, although significant in earning credit, did not show to be significant. TAKS scores overall did not appear to have any significance except TAKS math in 2007 and 2009. A review of each year shows the significant variables at the specific Wald score. In 2007, math total credits and TAKS math showed to be significant with a Wald of 26.76 and 15.84 at a .01. The 2008 school year analysis revealed a little different

result. Math and English total credits as well as school absences were significant. The Wald of 10.15, 5.60 and 5.48 at a .01, .02, and .02 respectively were significant. In 2009, math total credits, math TAKS scores, and school absences were statistically significant. Math credits had a Wald of 12.58 at a .001. TAKS math scores were at a Wald of 11.42 at a .001. Absences were at a Wald of 4.68 at a .031. The 2010 school year was examined and determined that math as well as English credits by year, total math credits, and school absences were statistically significant. The Wald score for each was 14.54, 7.40, 5.22, and 10.66 respectively. All with a p value of .022 or better. The last individual year examined was 2011. The data revealed that math total credits were significant for a non-completer with a Wald of 117.15 at a .001. The analysis across all school years showed that math total credits, English total credits, and school absences were statistically significant in relation to non-completers and completers. Math total credits have a Wald of 82.51 at a .001. English total credits have a Wald of 4.04 at a .045. School absences have a Wald of 26.26 at a .001. Through the logistic regression analysis, school absences as well as math and English total credits have an impact on predicting a non-completer.

Summary of the Development of Equation for Predictive Purposes

The descriptive statistics and the logistic regression were conducted and identified key variables related to research question one and two. Once the statistically significant variables were determined, a discriminant regression analysis was conducted to create a model of prediction for potential non-completers. Each year was examined to determine the appropriate model for each year as well as a model across all school years. The 2007 statistically significant model is, $X^2(3) = 131.14$, $p < .001$. The model contains

Standardized Discriminant Function Coefficients of TAKS math at .526, English total credits of .455, and math total credits of .311. The 2008 statistically significant model is, $X^2(4) = 88.43$, $p < .001$. The model contains Standardized Discriminant Function Coefficients of English total credits at .512, school absences of -.408, math total credits of .336, and TAKS math scores of .242. The 2009 statistically significant model is $X^2(4) = 101.00$, $p < .001$. The model contains Standardized Discriminant Function Coefficients of TAKS math at .563, English total credits of .392, math total credits of .270, and school absences of -.263. The 2010 statistically significant model is $X^2(3) = 136.46$, $p < .001$. The model contains Standardized Discriminant Function Coefficients of English total credits of .400, math total credits of .549, and school absences of -.444. The 2011 statistically significant model is $X^2(2) = 170.65$, $p < .001$. The model contains Standardized Discriminant Function Coefficients of English total credits of .385 and math total credits of .673. All years combined statistically significant model is $X^2(3) = 613.64$, $p < .001$. The model contains Standardized Discriminant Function Coefficients of English total credits of .372, math total credits of .529, and school absences -.377.

CONCLUSION

The summary of the data disclose the statistically significant data for each year as well as across all school years. In drawing conclusions, one must look at factors that impact the data and create some possible inconsistencies. In reviewing the data year by year, students who are dropouts do not factor in future years; therefore, the data does not always take into account their information that may increase the likelihood of a variables impact on a non-completer. The analysis of the data looking at all years is the better predictor as well as looking at the first year of the cohort. The grades of core classes

were impacted based on a variety of concerns. Credit denials, no grades, dropping out before grades were determined, and incompletes had the potential to skew data and were ultimately eliminated from the analysis. The course credit was a better predictor although course grades have a direct influence on credits. The data did, however, prove to be reliable and consistent. Expected predictors based on others' research and the descriptive statistics were confirmed by the analysis. The specific review of each variable contained in each research question follows in the conclusion developed for each analysis conducted.

Conclusion for Research Question One

Through the analysis of research question one, the data reveals different outcomes each year. 2007, 2008, and 2011 all show economically disadvantaged as a significant variable. In 2007 and 2008, economically disadvantaged indicates a significance in determining a non-completer. In 2011, the data changes and the better predictors in relation to a non-completer are students who are not economically disadvantaged. The same holds true in the analysis for all years combined showing that an odds ratio of 1.09 for non-economically disadvantaged students is an indicator of a non-completer.

In relation to gender, the specific year analysis did show significance only in 2010. However, when the analysis is conducted across all school years, gender is a determining factor related to non-completers. Boys are more likely to be a non-completer by an odds factor of 1.22.

In regards to research question one, gender clearly has an impact in relation to non-completers. Also, not being identified as economically disadvantaged shows as a

slight indicator of a non-completer. It is concluded that a model of prediction for non-completers should take into consideration gender.

Conclusion for Research Question Two

The review of the data related to research question two reveals that some of the data analyzed did not have a statistical significance on whether a student was a non-completer or not. The number of days a student is out of placement is insignificant on whether or not a student is a non-completer. Even though TAKS math scores appeared in the individual year analysis for 2007 and 2009, when the data is looked at across all years, it does not have a significant influence on whether a student is a completer or non-completer. Grades in courses are also eliminated from the pool as the data is limited as one moves through the years because of the non-completers and lack of grades. Three of the data points from research questions two showed significance in the analysis across all school years. Math total credits are a key factor at .001 and a Wald of 82.51. Also, English total credits are statistically significant with a Wald of 4.04 at a .045. School absences play a role in a student being a non-completer with a Wald of 26.26 at a .001. Based on all of the information and looking at the data analysis over the five years and across all years, math and English total credits and school absences will be good predictors of whether a student is a completer or non-completer.

Conclusion for the Development of Equation for Predictive Purposes

The data, through the logistic regression, shows that math total credit and English total credit along with school absences are statistically significant. The next step is to utilize the data for each year as well as across all school years to validate the findings and develop a model to predict a student's success in school from the key factors. A

discriminant regression analysis is used and reveals many of the same conclusions as did the logistic regression analysis therefore confirming the findings. The individual years are still not the best predictor; rather the analysis across all school years appears to be the best predictor of whether a student will be a non-completer or completer. Based on the information, the model $X^2(3) = 613.64, p<.001$ is the prediction model for non-completers based on the data from the given district. The model coefficients for the model are school absences of -.377, math total credits of .529, and English total credits of .372.

RECOMMENDATIONS

The study is a comprehensive study spanning only one school district in the greater Houston, Texas area. For the student data to develop a more valid model to be used globally, more schools and districts across the state will need to be utilized. The prediction model should hold similar across districts.

The change in coding of withdrawals is a challenge to overcome, and the data is skewed because some students are most likely coded homeschool instead of a non-completer. The data shows a significant difference in home school number in 2007 and 2008 compared to that in 2009 and 2010. An analysis of non-completers with appropriate coding in relation to home school could produce a stronger model.

The grade category in the process is very important as this gives another changing data point through a normal semester. It is important that schools and districts examine grade policies and procedures to produce a semester grade as appropriate and not leave grades blank, no grade, or incompletes. This made the use of grade data very limited although it is believe that the math and English grades will be similar to the outcomes in

the data related to math and English total credits. Through the research, the process and data appears to be consistent with research and expected outcomes. It is recommended that the statistical process remain constant in order to validate future statistical studies related to student success prediction models.

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APPENDIX A

UNIVERSITY of **HOUSTON**

DIVISION OF RESEARCH

November 28, 2011

Mr. Mark Murrell
c/o Dr. Angus MacNeil
Curriculum and Instruction

Dear Mr. Mark Murrell,

Based upon your request for exempt status, an administrative review of your research proposal entitled "Principals Can Improve Student Achievement with Data Driven Decision Making" was conducted on November 8, 2011.

At that time, your request for exemption under **Category 4** was approved pending modification of your proposed procedures/documents.

The changes you have made adequately respond to the identified contingencies. As long as you continue using procedures described in this project, you do not have to reapply for review. * Any modification of this approved protocol will require review and further approval. Please contact me to ascertain the appropriate mechanism.

If you have any questions, please contact Alicia Vargas at (713) 743-9215.

Sincerely yours,

Anne Sherman
Director Research Compliance

*Approvals for exempt protocols will be valid for 5 years beyond the approval date. Approval for this project will expire **November 1, 2016**. If the project is completed prior to this date, a final report should be filed to close the protocol. If the project will continue after this date, you will need to reapply for approval if you wish to avoid an interruption of your data collection.

Protocol Number: 12109-EX

316 E. Cullen Building Houston, TX 77204-2015 (713) 743-9204 Fax: (713) 743 9577
COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS

UNIVERSITY OF HOUSTON
Division of Research
Institutional Review Board Application

Institutional Review Board
Application ID : 12109-EX - (800)
Title : Principals Can Improve Student Achievement with Data Driven Decision Making
Approval details for the Application Id: 800
Decision Approver Name Date Comment
PI
Approval
Approved Murrell, Mark Mr. 11/10/2011
Application Data for Application ID: 800
Title Principals Can Improve Student Achievement with Data Driven Decision Making
Application Type New
Review Type Exempt
Expedite Code Not Applicable
Exemption Code 4: Research involving the collection/study of data
Research Reason Doctoral Dissertation
Investigator Data for Application ID: 800
PI Name Is Pricipal?
Is Co-Investigator?
Is External?
Other Personnel Type?
Is Student?
Faculty Sponsor
Name
Murrell, Mark Mr. Yes No Yes
MacNeil, Angus Dr.
MacNeil, Angus Dr. No Thesis Committee Member
No Not Applicable
Busch, Steven Dr. No Thesis Committee Member
No Not Applicable
Emerson, Michael Dr. No Thesis Committee Member
No Not Applicable
Project Review Summary Data for Application ID: 800
Question Answer
4) State the specific research hypotheses or questions to be addressed in this study:
Is there a correlation between a student being a non-completer and the number of days a student is absent, the number of days a student is removed from class for discipline purposes, the students scores on the TAKS exam, the students grades in the core area courses, and the number of credits a student eans each year/
5) What is the importance/significance of the knowledge that may result?
High school principals will be able to predict which students, at an early age, those who are most likely to be non-completers and provide them interventions so that they are able to be completers with their cohort.
6) Type of Subject Population (check all that are appropriate)
Children or minors (<18 in Texas and most states)

6.01) Expected maximum number of participants 4000
6.02) Age of proposed subject(s) (check all that apply) Adolescents (11yrs - 14 yrs),Adolescents (15yrs-17yrs) ,Adults (18yrs-64yrs)
6.03) Inclusion Criteria: I will review archival data on all students in the 2009, 2010, and 2011
cohorts. This includes students that withdraw to home school and GED.
6.04) Exclusion Criteria: All students withdrawing from Conroe ISD to go to another public school, private school, or out of state school.
6.05) Justification: The students leaving to another school would still be considered on track to be completers and are assumed so. Students withdrawing to home school or GED could be considered non-completers and would factor into the study depending on their withdrawal code review of their information.
I will review each such case and determine what their withdrawal reason
6.06) Determination: code is and eliminate the appropriate student data. I will also factor in thestudents have a relevant withdrawal code so that the data is most accurate for principals.
7) If this study proposes to include children, this inclusion must meet one of the following criterion for risk/benefits assessment according to the federal regulations (45 CFR 46, subpart D).
Check the appropriate box:
(404) Minimal Risk
8) If the research involves any of the following, check all that are appropriate:
Study of Existing Data,Data Analyses Only
9) Location(s) of Research Activities: Other (Explain) :Conroe ISD
10) Informed Consent of Subjects: Your study protocol must clearly address one of the following areas:
Research Protocol Data for Application ID: 800
Question Answer
11) Describe the research study design. (Describe the research methods to be employed and the variables to be studied. Include a description of the data collection techniques and/or the statistical methods to be employed.)
This study will examine various indicators as they relate to dropout. These indicators include academic achievement, discipline, and attendance. The dataset will be at the student level but will not include any identifiable student information. The analysis will be a regression analysis to identify the factors that contribute to students dropping out of high school. The study will be data analysis of existing data. All data will be looking at the correlation of student graduation as key non-completer data points.
12) Describe each task subjects will be asked to perform.
NA
13) Describe how potential subjects will be identified and recruited? (Attach a script or outline of all information that will be provided to potential subjects. Include a copy of all written solicitation, recruitment ad, and/or outline for oral presentation.)
All data will be obtained from Conroe ISD. No student names or information will be used.
14) Describe the process for obtaining informed consent and/or assent. How will investigators ensure that each subjects participation will be voluntary (i.e., free of direct or implied coercion)? NA
15) Briefly describe each measurement instrument to be used in this study (e.g., questionnaires, surveys, tests, interview questions, observational procedures, or other instruments) AND attach to the application a copy of each (appropriately labeled and collated). If any are omitted, please explain.

All Research information is data based and is obtained from the ISD.
16) Describe the setting and mode for administering any materials listed in question 15 (e.g., telephone, one-on-one, group). Include the duration, intervals of administration, and amount of time required for each survey/procedure. Also NA describe how you plan to maintain privacy and confidentiality during the administration.
17) Approximately how much time will be required of each subject? Provide both a total time commitment as well as a time commitment for each visit/session.
NA
18) Will Subjects experience any possible risks involved with participation in this project?
18.01) Risk of Physical Discomfort or Harm No:
18.02) Risk of Psychological Harm (including stress/discomfort)
No:
18.03) Risk of Legal Actions (such as criminal prosecution or civil sanctions)
No:
18.04) Risk of Harm to Social Status (such as loss of friendship)
No:
18.05) Risk of Harm to Employment Status No:
18.06) Other Risks No:
19) Does the research involve any of these possible risks or harms to subjects? Check all that apply.
Use of private records (educational or medical records)
20) What benefits, if any, can the subject expect from their participation?
NA
21) What inducements or rewards (e.g., financial compensation, extra credit, and other incentives), if any, will be offered to potential subjects for their participation?
NA
Research Data for Application ID: 800
Question Answer
22) Will you record any direct identifiers, names, social security numbers, addresses, telephone numbers, patient or student ID numbers, etc.?
No: :All data will be provided with a unique ID identifier that will organize data. No names or linking information will be obtained.
23) Will you retain a link between study code numbers and direct identifiers after the data collection is complete?
No:
24) Will anyone outside the research team have access to the links or identifiers?
No:
25) Where, how long, and in what format (such as paper, digital or electronic media, video, audio or photographic) will data be kept? In addition, describe what security provisions will be taken to protect these data (password protection, encryption, etc.). [Note: University of Houston policy on data retention requires that research data be maintained for a minimum of 3 years after completion of the project. All research data collected during this project is subject to the The data will be kept secure with the researcher for the period to which the dissertation is complete. Approximately 1 year. After which all data will be deleted. University of Houston data retention policy found at http://www.research.uh.edu/Home/Division-of-Research/Research-Services/Research-Policies/Access-to-and-Retention-of-Research-Data.aspx]

APPENDIX B

Christopher J. Hines, Ed.D.

October 18, 2011

RE: Permission to Conduct Research Study in Conroe Independent School District

To Whom It May Concern:

Mark Murrell, a Doctoral student at the University of Houston, is requesting permission from the Conroe Independent School District to study the key factors impacting student completion from high school.

Conroe ISD grants permission for Mark Murrell to conduct this study as outlined in the proposal. The following procedures will be followed in providing results and completing the study in Conroe Independent School District.

- The study will make no identifiable references to the specific school district, school, employees, or students involved in this research.
- No surveys will be conducted with Conroe ISD employees, students, or parents.
- Data will be provided to the research by Conroe ISD as requested in the proposal.
- The research study will be shared with Conroe ISD when completed.

Should you have any questions or concerns, please feel free to contact me.

Respectfully,

Chris Hines, Ed.D.
Deputy Superintendent of Schools
Conroe Independent School District

3205 West Davis • Conroe, Texas 77304-2098 • 936.709.7727 • chines@conroeisd.net