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Latino Students in Suburban High Schools: An Examination of School Malleable Predictors of High School Graduation

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LOYOLA UNIVERSITY CHICAGO

LATINO STUDENTS IN SUBURBAN HIGH SCHOOLS:
AN EXAMINATION OF SCHOOL MALLEABLE PREDICTORS OF HIGH
SCHOOL GRADUATION

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN SCHOOL PSYCHOLOGY

BY

KIRA JEAN HICKS

CHICAGO, ILLINOIS

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For my family

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ABSTRACT

Despite recent gains, Latino students drop out of high schools in the United States at a higher rate than their peers and at a significant cost. As more Latino students move to the suburbs, it is important for suburban high schools to meet their needs and solidify their path to graduation. Practices that appear to be promising in keeping students on track to graduate have been developed and studied in urban school districts and now need to be validated with other populations and settings. The purpose of this study was to investigate the indicators that are predictive of on time graduation for Latino students in a suburban school district and to determine if the Consortium for Chicago School Research's on-track indicator is a useful predictor of on time graduation for a Latino population in a suburban setting. Demographic, attendance, discipline, and academic data were examined for 317 Latino first-time 9th graders during the 2009-2010 school year to determine the strongest predictors of graduation within four years from a suburban school district in the Midwest. Logistic regression was used to determine the strongest predictors of on time graduation. Overall, alterable variables (academics, behavior, attendance) were better predictors than static demographic variables. When utilizing data that is available during the first semester of freshman year, English grade and unexcused absences were the strongest predictors of which Latino students would graduate on time within this suburban high school context. The on-track indicator was also a strong predictor. Whether or not a student was in an ESL program their freshman

year provided additional predictive power to the English grade and unexcused absences model as well as to the on-track indicator, suggesting that using these models with students in ESL may underestimate the number of students at risk. Limitations of the current study and implications are discussed.

CHAPTER ONE

INTRODUCTION

Ensuring that students successfully earn a high school diploma is widely accepted as a fundamental role of compulsory education (Boyer, 1983). Despite this edict, a significant number of students dropout of high school every year and students of color, as well as students living in poverty are often overrepresented in these sobering statistics (Barton, 2005; Carpenter & Ramirez, 2007; Darling-Hammond, 2006, 2007; Heckman & Lafontaine, 2010; Mac Iver & Messel, 2013; Swanson, 2004; Zvoch, 2006). From 1990 to 2012, Hispanic students have consistently had the highest status dropout rates of any ethnic group (U.S. Department of Education, 2014). At the same time the percentage of Latino students attending suburban schools has nearly doubled from 11 percent in 1993-94 to 20 percent in 2006-2007 (Fry, 2009). The long-term consequences of not graduating high school for both individuals and society at large are staggering, as are the benefits to the nation of a well-educated workforce (Heckman & Lafontaine, 2010). Despite numerous political proclamations and hundreds of research articles, increasing high school graduation rates remains a challenge. This study seeks to expand the current literature on high school graduation rates by examining predictors of graduation for Latino students learning in a suburban setting, an increasing and under-researched population.

In 2001, the advent of the No Child Left Behind (NCLB) Act brought additional attention to the importance of addressing graduation rates. This legislation required states monitor graduation rates as a measure of Adequate Yearly Progress (AYP) (NCLB, 2002). According to the U.S. Department of Education, approximately 80 percent of students graduated on time in 2012 (U.S. Department of Education, 2013). This seemingly straightforward statistic can be misleading as it does not reflect the intense ongoing debate within academic, political, and economic spheres as to the measurement of graduation and dropout out rates (Barton, 2005; Bowers, Spratt, & Taff, 2013; Greene, 2001; Heckman & Lafontaine, 2010; Swanson, 2004). For example, a report by the Center for Labor Market Studies (2009) found that in 2007 almost 6.2 million people in the United States between the ages of 16 and 24 had dropped out of high school, accounting for 16 percent of that population. Other studies have posited that closer to a third of all students do not complete high school and in large urban school districts such as Chicago Public Schools, the dropout rates can be closer to 50 percent (Allensworth, 2004; Barton, 2005; Swanson, 2004). Depending on the data sources, definitions, and methods employed, national high school graduation rates in recent years have been reported as ranging from 66 to 88 percent. For African American and Latino students, the range in reported graduation rates has been even greater than the national averages, with estimates ranging from 50 to 85 percent (Heckman & Lafontaine, 2010). While there is a great deal of variation in researchers' quantification of this crisis, there is also considerable agreement in the field that high school dropout prevention should be a critical focus for our schools and for our nation.

The dropout rate in the United States is particularly troublesome as it has a long lasting negative impact on both the individuals who are directly affected as well as our community as a whole. Students who do not graduate from high school tend to face economic and health hardships, as well as an increased risk of being involved in the judicial system (Barton, 2005; Jerald, 2006). On average, people who do not graduate from high school earn \$8,100, or about 30% less per year than those who do graduate from high school, are more likely to be unemployed, and are less likely to have access to job-based health insurance and pension plans (Jerald, 2006; McNeil, Coppola, Radigan, & Vasquez-Heilig, 2008). While there is a long history of earning gaps based on education, this gap has widened over time, particularly in the last several decades. In families headed by a non high school graduate, the median income declined by about a third from 1974 to 2004. This may be at least partially explained by the loss of industrial jobs which, according to the U.S. Bureau of Labor, have been replaced by technology jobs requiring higher levels of education and minimum wage jobs that make earning a living wage a significant challenge.

Statement of the Problem

The number of studies and programs designed to positively impact the high school graduation rate in the United States is staggering. This productivity has likely contributed to increasing positive outcomes for students, including a slight gain in graduation rates in the past several years (Allensworth, 2013; Heckman & Lafontaine, 2010; Stetser & Stillwell, 2014). However, despite the positive trends, there continues to be a significant number of students who do not graduate each year and a disturbingly disproportionate number of these youths are students living in poverty and students of

color. The gap in graduation rates between African American and Caucasian students, while certainly not sufficiently explored or addressed, has received considerable attention. Despite a growing population, this is not the case for the disparity between Hispanic and White students. According to the National Center for Education Statistics (NCES), the 4-year adjusted cohort graduation rate for Latino youths in 2011 was 76 percent, below that of students classified as Asian/Pacific Islander (88) and White (86) (Stetser & Stillwell, 2014). In examining all Latinos between the ages of 16-24, 14 percent had dropped out of high school compared to 5 percent of white students (Center for Labor Market Studies, 2013). As noted above, the negative lifelong impact of not having a high school diploma is significant for all youths. However, for Latino adolescents the consequences of not graduating appear to be more severe than for their white peers, including higher unemployment and incarceration rates than white non-graduates (The U.S. Bureau of Labor, 2014).

The great majority of the studies conducted to address the issue of high school persistence and dropout have been conducted in large, urban school districts. Research teams examining the public school districts in New York, Baltimore, Los Angeles, Philadelphia, and Chicago have contributed a great deal to the understanding of predictors of graduation in each of these districts and in the nation as a whole (Allensworth, 2004; Balfanz et al., 2007). However, an increasing number of students who would be considered “at risk” of dropping out (namely being from a low income background and an African American or Latino male) are moving from urban areas to suburban communities (U.S. Census Bureau, 2010). Members of the Latino community in particular are moving to the suburbs in record numbers. The latest Illinois census

results show that the concentration of the Latino community has moved from the city limits of Chicago to surrounding western suburbs outside of the city over the past ten years (U.S. Census Bureau, 2010). Similar trends are being seen in other major cities that have traditionally been an entry point for immigrants. In Illinois, the Hispanic population has grown from 1.53 million in 2000 to 2.03 million in 2010, with the highest amount of growth occurring in the counties surrounding the city of Chicago (U.S. Census Bureau, 2010). Currently, Latinos in the Chicago area are more likely to live in a suburb than in the city of Chicago.

One potentially promising approach to affecting positive change in graduation rates is the use of the on-track indicator developed by the Consortium for Chicago School Research (CCSR) (Allensworth, 2013). This dichotomous indicator denotes if a student has enough credits and has failed no more than one semester of a core course at the end of 9th grade. Using this information from 9th grade alone, researchers have been able to predict 80 percent of graduates in the Chicago Public Schools. On-track freshmen are almost 4 times as likely to graduate on time as their peers (Allensworth, 2005). After developing and providing simple reports to school staff that include a student's GPA, attendance, course failures, and test scores at each quarter, the district has seen the graduation rate increase from 64 to 82 percent (Roderick, Kelley-Kemple, Johnson, & Beechum, 2014). While receiving a great deal of public attention, this predictor model has not been widely studied outside of the Chicago Public Schools. Many Latino students who would have previously attended school in the city of Chicago are now enrolled in the suburban districts surrounding city (U.S. Census Bureau, 2010). These districts are not always prepared and equipped to address the needs of their changing

student population. As an increasing number of Latino students move to the suburbs, it will be important to confirm that the graduation and intervention models that have shown promise in urban school districts are also effective within a suburban context.

This study was situated in a suburban Midwestern context outside of a large city that mirrors many of the national graduation issues and specifically examines predictors of graduation for Latino students. According to data provided on the publically available Illinois Interactive School Report Card, about 88 percent of students who enter this district as freshmen went on to graduate in four years (Illinois Interactive School Report Card, 2013). Compared to the state, a higher percentage of students in each of the three high schools that make up the school district graduate in four years. Also of note is that the resources available in this district exceed what is typical within the state. For instance, about 94 percent of teachers within the district have a master's degree (compared to the state average of about 38 percent) and the average teacher salary is about 1.7 times greater than the state average. While these statistics paint a picture of a privileged student population, this is a misleading oversimplification. For instance, in one of the three schools the percentage of Hispanic students exceeds that of the state. In another school the large Asian population, typically not considered an "at risk" group, makes up about a third of the school's population and includes many students who have recently immigrated to the United States from places like India, Iraq, and Jordan. The percentage of students who are considered low income in this school (46) is almost as high as the average percentage within the state (50). Studying this small school district provided an opportunity to expand the current literature on high school graduation rates by examining predictors of graduation for Latino students learning in a suburban setting,

an increasing and under-researched population. This information can help equip suburban school staff members to take a preventative and proactive approach to working with Latino students, a population with which they might not have extensive training or experience.

Purpose of the Study

The primary purpose of this study was to investigate the indicators that are predictive of on time graduation for Latino students in a suburban school district. In doing so, it contributes to the current research on early identification of students at risk for dropping out of high school by identifying the academic, disciplinary, and attendance factors in 9th grade that significantly predict if Latino students attending a suburban school district will graduate in four years. The data representing these factors are available from the school district's student records and are described in greater detail in the methodology section of this document. These indicators were chosen based on their ubiquitous availability in high schools, their utility in leading to the development of intervention and prevention programs, their nature as factors that are malleable by schools, and finally, by their predictive power as noted in previous studies (Allensworth & Easton, 2007; Allensworth, 2013; Neild & Balfanz, 2006; Roderick et al., 2014). The secondary purpose of this study was to examine if variables that may be particularly meaningful for a Latino student population significantly add to the predictive power of the developed model. Finally, the predictive strength of the CCSR on-track indicator for this cohort was determined.

Research Questions

1. To what degree do academic, attendance, and discipline variables during 9th grade combine to contribute to the prediction of on time graduation for Latino students in a Midwestern suburban school district?
2. Does the inclusion of birth country, home language, and/or ESL program participation significantly add to the predictive power of the model?
3. Is the Consortium for Chicago School Research (CCSR) on-track indicator a strong predictor of graduation for Latino students in a suburban setting (Allensworth & Easton, 2007)?

Significance of the Study

This study enriches the discourse surrounding high school graduation by investigating a growing and under-researched population, Latino students attending suburban high schools. For decades Latino students have consistently graduated from high school at lower than average rates and are now increasingly likely to be living in a suburban environment (Fry, 2009; U.S. Department of Education, 2014). It was organized around this population with the intent to reveal findings that are significant for the particular school district being studied, as well as to provide information that may be useful in understanding salient factors for this population in other districts. The immediate impact of this study was the formation of ideas related to prevention and intervention practices that are relevant for this population within the school district being studied.

While there are a number of studies that have revealed that a student's high school graduation status can be predicted as early as in elementary school, the reality within

many high schools is that information from elementary and middle school is limited, in a format (paper files) that makes it difficult to systematically use for planning and data-based decision making, or that school staff are hesitant to use the information due to differences in expectations at the high school level (Bowers, 2010). In many cases, the first semester of freshman year may be the earliest time that relevant data is available to predict later graduation status on a school-wide basis. Using school malleable factors (e.g., grades, attendance, conduct, etc.) rather than static information over which school staff has limited or no control, allows for problem-solving practices to be employed rather than promoting feelings of frustration and helplessness among high school staff. The predictor model that resulted from this study will allow school teams to identify early on in the trajectory students who are at risk, determine the results of interventions for the students that are identified and targeted for interventions intended to positively influence graduation outcomes, and focus large scale school improvement prevention efforts on the factors that are specifically relevant for suburban Latino students.

In the larger context outside of facilitating best practices within schools, the results of this study contribute to the progress of conceptualizing graduation risk and protective factors for specific populations, and in doing so, inform educational and economic policy. Prolific research in this area has already resulted in great progress in the measurement of graduation rates and development of intervention and prevention practices. For instance, in 2013 state school boards adopted a standard graduation rate reporting method and as described above, the CCSR on-track indicator and resulting school practices have greatly increased the high school graduation rate in the Chicago

Public Schools (Roderick et al., 2014; Stetser & Stillwell, 2014). To build on this progress, we must now ensure that these strides affect positive change for all students. For instance, the state graduation rates that are at long last determined in a consistent manner are only reported by either ethnicity or school context (urban, suburban, rural) and the on-track indicator has not been greatly researched outside of the Chicago Public Schools. The intersection of student demographic and school context factors is not currently being examined and may be a relevant nuance to consider.

Methodology

Multiple logistic regression analysis was used to determine the predictive power of the variables (e.g., GPA, core course grades, attendance, suspensions, behavior incidents) on the criterion variable (4-year graduation). Next, the most salient of the predictors were identified and an efficient prediction model was determined. Once the model was defined, variables that may be especially important to Latino students (home language and/or ESL program participation) were added to the model to determine if any or all of them added significantly to the predictive power of the model. Finally, the predictive power of the CCSR's on-track indicator with Latino students attending high school in a suburban setting was examined. As noted by Pampel (2000), the use of logistic regression is appropriate when the criterion variable is dichotomous and the predictor variable is continuous or categorical.

One of the most pertinent criticisms of studies examining graduation and dropout rates is the use of cross-sectional research design methods. (Bowers, Spratt, & Taff, 2013). This study sought to address this methodological issue by investigating a cohort of first-time freshmen from the class of 2013 at two points of time. Data from the first

semester of their 9th grade year was used as the predictor variables and their dichotomous graduation status was determined from data collected four years later (spring 2013).

Summary

Despite recent gains, Latino students drop out of high schools in the United States at a higher rate than their peers and at a significant cost. As more Latino students move to the suburbs, it will be important for suburban high schools to meet their needs and solidify their path to graduation. Practices that appear to be promising in keeping students on track to graduate have been developed and studied in urban education settings and need to be validated with other populations and settings. The purpose of this study will be to investigate the indicators that are predictive of on time graduation for Latino students in a suburban school district and to determine if the CCSR's on-track indicator is useful for a Latino population in a suburban setting. The details of this study are discussed in the following chapters. The second chapter presents a critical review of the literature related to high school dropouts. The methodology for the study is detailed in chapter three. The fourth chapter presents the results of the study. Finally, chapter five discusses the significance of the findings.

CHAPTER TWO

REVIEW OF THE LITERATURE

While earning a high school diploma certainly does not guarantee a student a successful future, it without question provides a significant number of benefits. Students who have graduated from high school earn more money, are healthier, and avoid incarceration at higher rates than those that do not graduate high school (Barton, 2005; Jerald, 2006). Students of color and those living in poverty graduate at a lower rate than their peers and experience disproportionately negative effects of not graduating (Barton, 2005; Carpenter & Ramirez, 2007; Darling-Hammond, 2006, 2007; Heckman & Lafontaine, 2010; Mac Iver & Messel, 2013; Swanson, 2004; Zvoch, 2006). As more students of color, particularly Latino students move to the suburbs, it will be important for suburban schools to develop ways to support these students to graduate. The advances made in positively affecting urban graduation rates should be examined as potential models for suburban schools. This chapter will include a historical background of the importance of high school graduation in the United States, information regarding its measurement, a review of large-scale research on improving graduation rates in urban schools, and summarize the current studies on graduation rates for Latino students in suburban schools.

Historical Background

The cultural relevance of graduating from high school in the United States has

along history dating back to 1635 when the first high school, The Boston Latin School, opened its doors to the children of the privileged class. The school's primary purpose was to prepare its students for the rigors of Harvard University and its legacy of defining high schools as elite college preparatory institutions has persisted for centuries (Boyer, 1983). Almost 200 years later, the first public high school opened. The English Classical School focused on providing its students with a liberal arts education, and while not requiring further schooling in college, would allow its students to access employment in positions that previously would only have been available to college graduates (Boyer, 1983). Access to high school expanded further in 1874 when the Michigan State Supreme Court ruled that taxes could be collected to fund public high schools and in 1892 when the National Educational Association (NEA) formed the Committee of Ten to recommend that all students receive 12 years of formal education (Boyer, 1983). Despite the progress made in the late 19th century, the idea of wide access to public high school remained slow to be adopted. In 1910, only about 15% of American youths were enrolled in high school and for every 100 students enrolled in their first year of high school in 1911, only 38 students remained in the 4th year (Fenske, 1997).

The period from 1910 to 1940 is referred to as "the high school movement" and was a time of surging enrollment in and graduation from high school in the United States (Boyer, 1983). By 1930 the percentage of students aged 14 to 17 enrolled in secondary school increased to 51 percent (Fenske, 1997). Driving this increase was a shift toward industrialization and urbanization. As the need for a more educated and technically savvy workforce grew, the purpose of a high school education expanded from solely college preparation to also include vocational training. The large influx of new

immigrants to the United States during this time further challenged secondary schools to acculturate older students to the language and social norms of the country (Boyer, 1983). Growing enrollment numbers spurred by increased educational demands in the workforce and stronger labor laws led to significant increases in graduation rates during this time; despite these gains, inequity in access to education remained a significant challenge (Fenske, 1997).

The period following “the high school movement” was one of increasing public and government interest in issues concerning equity and access to quality education. Numerous legal and legislative decisions from the 1950s onward have had a profound impact on public high schools and signaled an increasing federal influence in public education (Fenske, 1997). *Brown v. Board of Education* (1954), a fundamental ruling by the Supreme Court, mandated the desegregation of public elementary and high schools. Almost a decade later as part of President Lyndon Johnson’s “War on Poverty,” congress passed the Elementary and Secondary Education Act of 1965 (ESEA). The creation of the ESEA was the first time the federal government committed significant financial support to fund kindergarten through 12th grade education (Fenske, 1997). It emphasized the need for all students to have equal access to a quality education in order to promote a more equal society (Hana, 2005). The ESEA aimed to narrow achievement gaps through providing specific revenue (Title I) to fund training and resources so that students living in poverty would have access to a quality public education (Mitchell, Crowson, & Shipps, 2011). A year after the initial Act was passed, an amendment was added that provided federal aid to school districts specifically for addressing the needs of English Language Learners (Mitchell, Crowson, & Shipps, 2011). Those who drafted the ESEA explicitly

noted the importance of increasing graduation rates to building a just society through the inclusion of a section (Part H) that specifically addressed funding dropout prevention initiatives (ESEA, 1965).

The 1990s heralded a period of increasing interest in high school graduation rates across the United States. In 1990, the President of the United States in partnership with the National Governors Association adopted six national education goals for the year 2000 (Mitchell, Crowson, & Shipps, 2011). The second of the goals was to increase the high school graduation rate to 90 percent by the year 2000. In 1994, the US Congress enacted the Goals 2000: Educate America Act, which awarded significant financial resources to states and school districts to support communities in the development and implementation of education reforms, many specifically focused on reducing the graduation rate gap between ethnic and socioeconomic groups. The concern and focus of the federal government, out of which this legislation was born, was at least partially a result of new data regarding graduation rates of disaggregated groups. It was not until 1988 that the National Center for Education Statistics (NCES) included rate differences disaggregated by race/ethnicity categories in their annual reports on trends in high school dropout rates (Kaufman, Alt, & Chapman, 2001). In 1998, the reported dropout rate among Hispanics was 29.5 percent, much higher than White (7.7 percent) and Black (13.8) students (U.S. Department of Education, National Center for Education Statistics, 2000). The high dropout rate among Hispanics was a particular concern for the federal government, leading to a commissioned report to address the high Hispanic dropout rate (Secada et al., 1998). This report will be discussed at greater length below.

The latest reauthorization of the ESEA, titled the No Child Left Behind Act of

2001 (NCLB), further increased scrutiny of high school graduation rates. NCLB requires school receiving Title I funds to report measures of adequate yearly progress (AYP). Along with academic performance indicators, graduation rates are a required measure of progress (NCLB, 2002). There is a great deal of debate concerning the accuracy of school and state level reporting of graduation rates under NCLB (Greene, 2002; Orfield, 2004; Swanson, 2004). One issue is the variety of definitions and metrics that have been used across districts and states, an issue that will be further discussed below. Another problem is intrinsically linked to our current era of accountability and high stakes statistics. Schools are under a great deal of pressure to make their graduation outcome numbers look positive. Some administrators “push out” students through the use of suspension and expulsion to ensure that the data from these students are not included in the evaluation of the school (McNeil, Coppola, Radigan, & Vasquez, 2008; Neild & Balfanz, 2006). In their seminal study on the connection between high-stakes accountability and graduation rates, McNeil and colleagues posit that the disaggregation of scores by race/ethnicity can have the unintended consequence of pushing out poor, English language learners (ELL), African American, and Latino youth, some of our most vulnerable populations, so that school ratings can show “measurable improvement” (McNeil et al., 2008).

Measuring Graduation and Dropout Rates

One of the barriers to work focused on high school graduation has been the lack of consistent reporting of high school persistence and dropout. The National Center for Education Statistics (NCES) is the primary federal agency that collects, analyzes, and reports data related to education in the United States (Kaufman et al., 2004). Founded in

1988, the NCES has reported different metrics to codify graduation and dropout rates throughout its history in response to changing availability of data and statistical advances (Kaufman et al., 2004; Laird, Lew, DeBell, & Chapman, 2006; Stetser & Stillwell, 2014). In addition, many research groups across the country have developed their own definitions and metrics for operationalizing the issue of high school graduation and dropout within the United States (Greene, 2002; Kaufman et al., 2004). The great variety and changing metrics have led to large differences in reported rates and general confusion over the true state of high school graduation attainment. However, strides are being made in consistent reporting practices (Stetser & Stillwell, 2014).

In general there are three types rates that are used to describe graduation and dropout: 1) event, 2) status, and 3) cohort. Event rates examine the percentage of students who drop out or graduate within a relatively short period of time, usually within the period of one year. Status rates describe the percentage of a specific population (usually an age range, such people aged 18-24) who either holds a high school diploma or who do not have the credential. Cohort rates follow individual students over time to determine graduation status (Kaufman et al., 2004; Laird, Lew, DeBell, & Chapman, 2006; Stetser & Stillwell, 2014). The following sections describe the rates that are currently or have previously been utilized by the NCES. Advantages and drawbacks for each are detailed and discussed.

Event Dropout Rate

The event dropout rate examines the number of students who drop out of high school in a single year (Kaufman et al., 2004; Neild & Balfanz, 2006; Stetser & Stillwell, 2014). It is defined as the percentage of students who were enrolled at some time during

the school year and expected to be enrolled in grade 9-12 the following school year, but were not enrolled by October 1st (Stetser & Stillwell, 2014). In 2012, the event dropout rate in the United States was reported to be 3.3 percent (Stetser & Stillwell, 2014). This metric is highly debated as an accurate measure and widely seen as underreporting the magnitude of the issue (Greene, 2001; Neild & Balfanz, 2006; Swanson, 2004; Swanson & Chaplin, 2003; Warren, 2005). However, it is useful for studying how education policy changes or shifting economic conditions affect the propensity of students to drop out in the short term (Kaufman et al., 2004).

Status Dropout Rate and Status Completion Rate

The status dropout rate is the most commonly reported and understood dropout rate (Kaufman et al., 2004). It refers to the percentage of 16- through 24-year-olds who are not currently enrolled in school and who have not received a high school diploma or General Educational Development (GED) certificate. This calculation also includes immigrants who have never attended school in the U.S., but excludes people in the military or who are incarcerated. This data is based on the Current Population Survey (CPS) rather than from state reported school district data (Kaufman et al., 2004). From 1990 to 2012, the NCES reports that the status dropout rate decreased from 12 percent to 7 percent, with most of the decline occurring after 2000. During the same period the status dropout rate for Hispanics decreased from 32 to 13 percent. While a significant decline (and one that begins to close the gap between Caucasian and Hispanic rates), it should be noted that Hispanic students have had the highest status dropout rates every year from 1990 to 2012 (U.S. Department of Education, 2014). The status completion rate is a measure of 18-through 24-year-olds who hold a high school credential. High

school credentials include regular and alternative diplomas, and General Educational Development (GED) certificates (Kaufman et al., 2004). These rates focus on an overall age group rather than individuals in the U.S. school system and as such, are best suited to study general population issues (Kaufman et al., 2004)

Average Freshman Graduation Rate and Adjusted Cohort Graduation Rate

Several research groups have determined that the preferred data for graduation and dropout calculations is based on individual students and allows for each student's progress throughout high school to be followed over time (Greene, 2001; Neild & Balfanz, 2006; Stetser & Stillwell, 2014). Many government and policy leaders share this consensus. In fact, the National Governors Association has called for states to ensure that students have unique state IDs so that their progress can be tracked over time (National Governors Association, 2005). Using this method, a cohort of students is followed over time to determine who graduates from that original cohort and who drops out (Stetser & Stillwell, 2014). While this is the preferred method for calculating graduation and dropout rates, there are several issues that can profoundly impact results using this method (Stetser & Stillwell, 2014). First, there is the issue of ensuring common definitions. In calculating a graduation rate for the class of 2012, one must define what it means to graduate. For instance, NCLB called into question whether students who had obtained a GED should be counted as having graduated from high school and school districts have varying graduation requirements (NCLB, 2002; Stetser & Stillwell, 2014). Another issue is the amount of time the cohort is followed. The graduation rate for the class of 2012 four years after they were freshmen versus 6 years after is likely to be quite different. Finally, it is very important that the raw data be

accurately reported.

Currently, one of the rates reported by the NCES is the Averaged Freshman Graduation Rate (AFGR). It is a proxy indicator for a cohort rate that uses aggregated counts of students by grade level and diploma counts to estimate on-time graduation rates. While not as accurate as true cohort rates, it can be estimated annually back to the 1960s allowing for a historical view of on-time graduation rates. Of note is that both cohort rates reported by the NCES report a 4-year graduation rate. Students who earn a diploma in more than 4 years are not counted as graduating on time. In 2012, the AFGR was reported as 81 percent overall, 75 percent for Hispanic students, and 85 percent for Caucasian students (Stetser & Stillwell, 2014).

Recently, an effort to provide a consensus on the definition of graduation rate has led to the 4-year Adjusted Cohort Graduation Rate (ACGR) being a required component of each state's yearly report to the U.S. Department of Education. In their 2014 report, Stetser and Stillwell from the National Center of Education Statistics (NCES) defined ACGR as

the number of students who graduate in 4 years or less with a regular high school diploma divided by the number of students who form the adjusted cohort for the graduating class. In order to calculate and report the 4-year ACGR states must follow the progress of each individual 9–12 grade student over time and maintain documentation of students who enter or leave schools or districts within their state. From the beginning of ninth grade (or the earliest high school grade) students who are entering that grade for the first time form a cohort that is “adjusted” by adding any students who subsequently transfer into the cohort from another state and subtracting any students who subsequently transfer out, emigrate to another country, or die. (p. B-1)

This appears to be a promising approach to ensuring accurate and consistent reporting on graduation rates. However, Stetser and Stillwell note in their report that despite

improvements in how states report their dropout and graduation data, there is still a great deal that could be improved. For instance, states individually determine how students are identified for inclusion in certain subgroups, how the beginning of the cohort is defined, whether summer school students are included, and the requirements for what work constitutes a diploma. In 2012, the ACGR was reported as 80 percent overall, 73 percent for Hispanic students, and 86 percent for Caucasian students (Stetser & Stillwell, 2014).

Urban School Reform and Increasing High School Graduation Efforts

Johns Hopkins University Center for Social Organization of Schools

In examining the high school dropout and graduation literature, one cannot help but come upon work conducted by the Center for Social Organization of Schools (CSOS) at Johns Hopkins University. The Center has a long history dating back to 1966 and in the mid 1990s began an extensive examination of high school reform aimed at reducing the nation's dropout rate in large urban school systems (Neild, Balfanz, & Herzog, 2007). In 1996, as a result of a partnership with the School District of Philadelphia, Ruth Neild and Robert Balfanz conducted a six year long investigation of high school graduation within the district (Neild & Balfanz, 2006). They utilized an individual-level data set that integrated data from the School District of Philadelphia, the Department of Public Health, the Department of Human Services, and the Office of Emergency Shelter and Services (Neild & Balfanz, 2006). Ultimately, their goal was threefold: to describe the students who dropped out within a single year (2003-2004), to determine trends in cohort graduation rates, and finally to identify early predictors of dropping out.

Neild and Balfanz note that they chose to investigate factors that are known to

school and agency personnel, as well as by parents, rather than variables that might be the “root causes” of dropout. They go on to explain that while complex issues related to a student’s individual, family, school, and community context are important, this study was focused on determining easily available factors that would serve as a warning that students were at risk of dropping out (Neild & Balfanz, 2006). After following a cohort of students in Philadelphia who had attended Philadelphia public schools during the 1995-1996 school year and made up the Class of 2000, Neild and Balfanz were able to identify two factors from 8th grade that gave students at least a 75% chance of dropping out of school. The first factor was attending school less than 80% of the time in 8th grade and the second was receiving a failing final grade in math and/or English during 8th grade. Gender, ethnicity, age, and test scores were not as predictive as the attendance and course failure factors. Using only attendance and course failure in 8th grade as predictors, about half of the students who had dropped out by 2000 could be identified in 8th grade. In fact, Balfanz and Herzog (2006) conducted a separate study in the Philadelphia public schools and were able to show that many of the students who eventually dropped out of high school were able to be identified as early as 6th grade using similar data.

Neild and Balfanz identified a second group of students who were at risk of dropping out after their first year in high school. They found that students who were not considered at risk in 8th grade, but attended school less than 70% of the time during 9th grade, or earned fewer than 2 credits during 9th grade, or were not promoted to 10 grade on time had at least a 75% chance of dropping out of high school. Using their 8th and 9th grade definitions of at risk, the researchers were able to correctly identify 80% of the students who would eventually drop out of school. Particularly important for this study,

the researchers noted that higher proportions of Latino students than students of any other ethnic background fell into the at-risk category in both 8th and 9th grade (Neild & Balfanz, 2006).

In trying to identify the final 20% of students who would fail to complete high school, the researchers discovered that it was difficult to find strong predictors for students who were not considered at risk in 8th and 9th grade. Despite examining test scores, school attendance and credits earned in 10th through 12th grade, and having a baby (for female students), they were only able to determine one factor that gave on-track students at least a 75% chance of not completing high school – an out-of-home juvenile justice placement (Neild & Balfanz, 2006). The work of Neild and Balfanz has led to the development of the “Everyone Graduates Center” at Johns Hopkins University and has been replicated (with small changes) in other urban school districts around the country (Mac Iver & Messel, 2013; Mac Iver, 2011; Neild, Balfanz, & Herzog, 2007).

Researchers from the Everyone Graduates Center are currently partnering with these districts to implement early warning systems with tiered interventions based on the indicators they have identified. Results from early pilots appear to be positive (Mac Iver & Mac Iver, 2009)

The University of Chicago Consortium on Chicago School Research

Another potentially promising approach to affecting positive change in graduation rates is the use of the on-track indicator developed by the Consortium on Chicago School Research (CCSR) at the University of Chicago (Allensworth, 2013). This dichotomous indicator denotes if a student has enough credits and has failed no more than one semester of a core course at the end of 9th grade. Using this information from 9th grade

alone, researchers have been able to predict 80 percent of graduates in the Chicago Public Schools. On-track freshmen are almost 4 times as likely to graduate on time as their peers (Allensworth, 2005). After developing and providing simple reports to school staff that include a student's GPA, attendance, course failures, and test scores at each quarter, the district has seen the graduation rate increase from 64 to 82 percent (Roderick, Kelley-Kemple, Johnson, & Beechum, 2014).

This line of research began in the mid 1990s from studies exploring the transition from elementary school to high school. In examining data from Chicago Public Schools, Melissa Roderick and Eric Camburn found that almost half of all 9th graders failed at least one core course in the first semester of high school (Allensworth & Easton, 2005). Perhaps most significantly, they noted that eighth grade achievement test scores did not strictly determine failure rates. Their work spurred another researcher at the CCSR, Shazia Miller, to begin to develop a statistical indicator of students' progress toward graduation. In doing so, she became the "inventor" of the on-track indicator (Allensworth & Easton, 2005). Miller found that attendance rates, grade point averages, the total number of credits earned, and the number of Fs received at the end of the first semester of freshman year were all significantly correlated with graduation. Number of credits earned and the number of Fs in core courses were eventually chosen as the two factors that made up the on-track indicator (Allensworth & Easton, 2005). This decision appears to have been made without a significant theoretical or empirical influence. Rather, it was a pragmatic decision made based on logistical realities within the high schools under study. The indicator became a widely reported metric within the Chicago Public Schools (CPS); however, its utility in predicting graduation was not examined for

another five years.

Elaine Allensworth and John Easton (2005) reported the first in depth examination of the evidence between being on-track according to the indicator in the freshman year and the likelihood of graduating four years later. They refined the definition of on-track as having the number of credits needed to be promoted to tenth grade at the end of ninth grade and having no more than one semester F in a core subject (English, math, science, or social studies) (Allensworth & Easton, 2005). Using this metric with a cohort of CPS students from the class of 2003, they discovered that those who were on-track at the end of their freshman year were almost 4 times more likely to graduate than those students who were not on-track. The researchers further substantiated Miller's work by showing that the relationship between being on-track and graduating remained very strong after accounting for individual differences in 8th grade achievement scores, race/ethnicity, gender, socioeconomic status, and age at entrance of high school. In the era of accountability via test results rather than course performance and intense focus on student background characteristics as risk factors, Allensworth and Easton were able to show that schools could better identify students needing help by using the on-track indicator. Despite significant findings in this report, meaningful questions remained. The indicator could not be calculated until the end of a student's freshman year. Could other data be utilized to predict future graduation earlier in freshmen year? Why were students off-track? Could high schools influence the factors that impact on-track or off-track status?

Two years later, Allensworth and Easton (2007) addressed these questions in their report *What Matters for Staying On-Track and Graduating in Chicago Public Schools: A*

Close Look at Course Grades, Failures, and Attendance in the Freshman Year. In it, they provided a more nuanced examination of the factors that contribute to course performance. Specifically, they investigated the individual predictive power of course failures (not just for core courses), grade point average (GPA), and absences. These factors were chosen as likely to impact course performance and readily available at the end of first semester of freshman year. An examination of distribution data for these indicators revealed that a sizable number of students in CPS struggled to meet minimum standards. More than half of all freshmen failed a course, the average freshman GPA in CPS was below a C, and 40 percent of freshmen missed more than 4 weeks of school their first year (Allensworth & Easton, 2007).

The on-track indicator, GPA, and number of semester course failures all correctly identified graduates and non-graduates 80 percent of the time. GPA was the most accurate indicator for identifying non-graduates. Unsurprisingly, absences were slightly less predictive (able to accurately predict 77 percent of the time) than the other indicators, as it does not distinguish between students who attend school but perform poorly and those who do well academically (Allensworth & Easton, 2007). However, the authors noted that absences could be collected earlier in the school year than any of the other indicators and that even moderate levels of absences were cause for concern. In the 2000-2001 cohort they examined, only 63 percent of students who missed one week or more of school freshmen year graduated in four years. This is in marked contrast to the 87 percent of students who missed less than a week of school and were able to graduate (Allensworth & Easton, 2007). As well as asserting the importance of timely accessibility, the authors emphasized having data that provides specific information that

can be used to develop appropriate interventions. While the on-track indicator again proved to be highly predictive of graduation and meaningful as an easily understood metric, Allensworth and Easton note in their report that it is a “blunt instrument.” Course grades and failure rates on the other hand, were equally predictive and more relevant for determining how to intervene with a struggling student (Allensworth & Easton, 2007).

Using the information from Allensworth and Easton’s 2007 report, Chicago Public Schools (CPS) began a major initiative in 2007 to promote the use of data to identify and intervene with students who were at risk of being off-track during their freshmen year (Roderick, Kelly-Kemple, Johnson, & Beechum, 2014). An essential part of this initiative was the development of monthly data reports that allowed administrators and teachers to identify at risk students in real time. Unlike many graduation interventions, the schools were given a great deal of flexibility in how they used the data (Roderick et al., 2014). The impact of this initiative is reported to be substantial. Between 2007 and 2013 the percentage of students who were deemed to be on-track in CPS rose from 57 to 82 percent. The improvements were seen across all ethnic, gender, and socioeconomic status lines (Roderick et al., 2014).

As with all scholarly work, critics raised several important considerations to consider in evaluating the true impact of the CPS on-track initiative. To address the concerns, researchers at the CCSR examined a subset of 20 schools that produced substantial gains in on-track rates in 2008 and 2009. This allowed sufficient time to pass so that graduation outcomes for these students would be available (Roderick et al., 2014). These schools were then compared their 2004-2006 baseline data.

First addressed were concerns that improvements in ninth grade on-track status

would not necessarily lead to higher graduation rates. However, Roderick and colleagues were able to show that the schools with increased on-track rates had corresponding increases in graduation rates four years later. Among the schools that made on-track gains in 2008, graduation rates increased from 8 to 20 percentage points. The 2009 cohort had an average graduation rate increase of 13 percentage points (Roderick et al., 2014). Next, they confirmed that on-track increases were observed among all ethnicities, genders, and achievement levels and that improvements in on-track rates continued in subsequent cohorts. Finally the researchers explored the possibility that on-track and subsequent graduation rate gains were a result of lowered expectations. They examined whether teachers were giving students a “D” rather than a “F” so that the students would still be considered on-track and if students were graduating with lower test scores. The results of these analyses were heartening. The team discovered that grades improved at all ends of the achievement spectrum. The percentage of freshmen with “Bs” or higher increased by 10 percent and the portion of students with “Fs” or “Ds” decreased by 12 percent. Finally, despite more students graduating (and many with weaker incoming skills), it was determined that ACT scores did not significantly differ from what they were before the on-track improvements (Roderick et al., 2014). The results of this study point to significant positive graduation gains in CPS.

The CCSR and SCOS research teams were able to demonstrate that eighth and ninth grade course failures, GPA, attendance, and on-track status are highly predictive of whether students are likely to graduate for several general urban populations. However, there was a lack of evidence about whether these indicators could be used in the same way for specific populations. In 2012 a team from the CCSR addressed this issue as it

relates to the English Language Learner (ELL) population in CPS (Gwynne, Pareja, Ehrlich, & Allensworth, 2012). They followed a cohort of students who were freshmen in the 2004-2005 school year and followed them for 5 years. The resulting report focuses primarily on Hispanic students since they were the largest group of ELLs in 9th grade; however, they also examined white and Asian ELLs. Ultimately they determined that course performance indicators were highly predictive of graduation for ELLs. On-track status was more predictive than English language proficiency level, or whether students had experienced interruptions in their education, two ELL-specific indicators they examined (Gwynne et al., 2012). While all ELL students who were on-track were 2.5 to 3.5 times more likely to graduate, of note is that new ELLs (identified as needing ELL services in 6th grade or later) and long-term ELLs (first identified as need ELL services prior to 6th grade and continued to qualify for services in 9th grade) had lower high school graduation rates than other students with the same on-track status. Also concerning is their finding that despite similar patterns of course performance, Hispanic ELLs graduated at far lower rates than white and Asian ELLs (Gwynne et al., 2012). Additional research is needed to determine the efficacy of using on-track and other early indicators to predict graduation for specific populations.

Latino Students in the Suburban Context

The studies conducted by researchers at Johns Hopkins and the University of Chicago suggest a promising approach to increasing graduation rates in urban schools across the country. However, they have not been validated outside of the urban education setting. The percentage of Latino students attending suburban schools has nearly doubled in recent years from 11 percent in 1993-94 to 20 percent in 2006-2007 (Fry, 2009).

Traditionally this group of students has graduated at lower rates than their Caucasian, Asian, and African American peers (U.S. Department of Education, 2014). While there is a limited body of research that addresses curbing Latino youth drop out rates that dates back to 1998, largely missing from this literature is the examination of the intersection of ethnicity and school location (Gandara, Gutierrez, & O'Hara, 2001; Rumberger & Thomas, 2000; Secada et al., 1998). Where this intersection is considered, the focus is generally on Latino students who attend urban schools (Balfanz & Legters, 2004; Fry, 2009).

The Hispanic Dropout Project (HDP) was funded by the Office of the U.S. Under Secretary of Education and the Office of Bilingual Education and Minority Language Affairs, with the goal to develop recommendations at local, state, and federal levels that would increase public awareness of Hispanic dropout issues and that would be pertinent to policy development (Secada et al., 1998). Its scope was large and included reviewing relevant educational literature, holding open hearings in 10 cities, and visiting school and other sites across the country that were implementing practices that appeared to be promising in Latino education and dropout prevention. The results of this investigation, unsurprisingly, suggested that school effectiveness impacted Latino graduation rates. In particular, the authors note that having personalized student programs, respectful treatment of students and their families, and a diverse teaching workforce that includes staff familiar with Spanish and Hispanic cultures led to more positive outcomes for Latino students (Secada et al., 1998; Secada, 1999). Secada notes in his 1999 article that “reporters almost always began their questioning of HDP members by asking what it was about Hispanic students -- their culture, families, or backgrounds -- that led to their

dropping out of school; seldom, if ever, did they ask about the social conditions under which Hispanics were being taught” (p. 94). Much has been made of factors that are relatively stable and internal that may influence Latino youths decision to leave high school without a diploma; there continues to be a decided lack of research focused on factors that are malleable and directly influenced by school environments, staff, and families (Ream & Rumberger, 2008; Woolley, 2009).

CHAPTER THREE

METHODS

The purpose of this study was to investigate early indicators that predict on time graduation from high school for Latino students attending a suburban school district in the Midwest. First semester freshmen year attendance, discipline, academic, and demographic data for a cohort of first-time 9th graders will be examined to determine the strongest predictors of graduation within four years. A secondary purpose of this study was to examine if variables that may be particularly meaningful for a Latino student population (home language and participation in ESL programming) significantly added to the predictive power of the developed model. Finally, the predictive strength of the CCSR on-track indicator for this cohort was determined and the influence of adding ESL program participation and home language to the model explored (Allensworth & Easton, 2005; Allensworth & Easton, 2007; Roderick et al., 2014). This chapter describes in detail the methods that were used to collect and analyze the research questions detailed in the first chapter. It is divided into six sections: research design, variables, setting, participants, procedures, and data analysis.

Research Design

This quantitative study utilized a correlational design. In the applied behavioral sciences correlational research is a common occurrence, as it is often difficult or impossible to manipulate variables (Voigt, 2006). Archived student data for a cohort of

Latino first-time 9th graders from the class of 2013 were examined at two points in time. This cohort was chosen, as it was the most recent group for which four complete years of data was available in the suburban school district under study. The study was predictive in nature, as first semester freshmen year academic, attendance, discipline, and demographic data (independent variables) was utilized to predict if students would graduate from high school on time four years later (criterion variable).

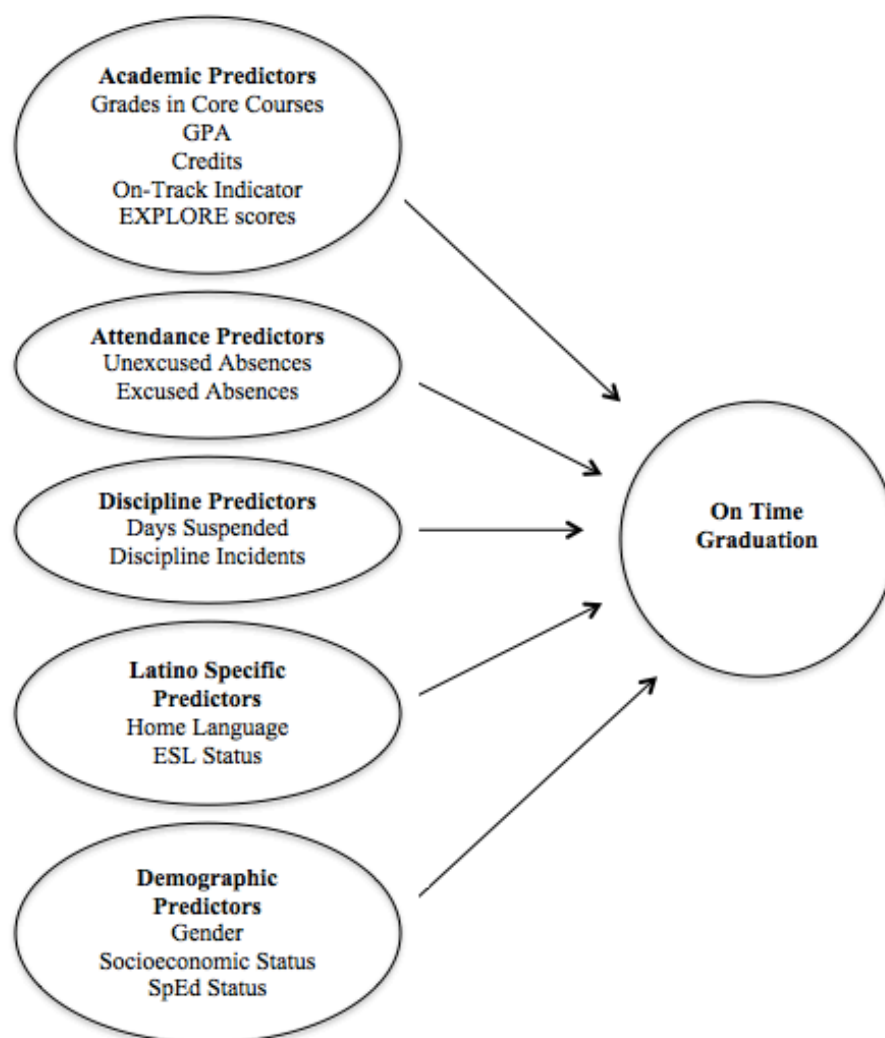


Figure 1. Prediction Model

Variables

The variables utilized in this study were chosen based on research support for their ability to predict high school graduation status outlined in the previous chapter, the likelihood that they would be easily available in most high schools, and their ability to be influenced by school staff. The 18 predictor variables fell into four categories: demographics (gender, socioeconomic status, and special education status), academic (grades in core classes, GPA, credits, EXPLORE reading and math scores, and the CCSR's on-track indicator), attendance (excused and unexcused absences), discipline (days suspended and discipline incidents), and variables that were thought to be particularly important for Latino students (home language and ESL status). The single criterion, or outcome, variable was on time graduation status. The variables are described in detail below.

Demographic Variables

Students are classified as either male or female in the school district's student information system (SIS). Each student was classified as either Male = 0, or Female = 1 in the dataset. Socioeconomic status (SES) was determined based on whether or not a student qualified for free or reduced lunches (FRL). Students who qualified were listed as FRL Yes = 1 and students who did not qualify were classified as FRL No = 0. Finally, students who received special education services during their freshman year were coded as Sped Yes = 1 and those who did not SpEd No = 0.

Academic, Attendance, and Discipline Variables

Details regarding the academic, attendance, and discipline variables can be found in Table 1. With the exception of grades in core courses and discipline incidents, all of

the variables were treated as continuous and needed no other coding. Grades for English, math, science, and social science classes were each assigned a numeric value as follows: A = 4.0, B = 3.0, C = 2.0, D = 1.0, and F = 0. The discipline incident data needed to be cleaned using the protocol described below in order for it to be meaningful for this study. Rather than being listed by student ID, this data was organized by infractions. As a result, multiple infractions were often listed for a single discipline incident. For instance, a student may have disrupted a classroom, threatened a teacher, and used inappropriate language with the security guard who was sent to bring him or her to the dean's office. Due to inconsistencies between deans and teachers, this incident could be coded as a single infraction using the most severe behavior (threatening a teacher), or as two infractions, or three infractions. In order to account for this inconsistency, student ID and date was used to ensure that in instances in which there were multiple infractions listed for a single student on a particular date, it only was counted as one discipline incident.

The CCSR (Allensworth, 2004) on-track indicator is a dichotomous variable. To be considered on-track, students must have earned 5 full year credits and received no more than 1 semester F in a core course (English, math, science, social science) (Allensworth, 2004). As 5 credits is the requirement in the district under study to be considered as having sophomore status, the same criteria were employed. Each student was classified as either on-track = 1, or off-track = 0.

Table 1. Academic, Attendance, and Discipline Predictor Variables

Academic Predictors	
GPA	This unadjusted number is calculated by the district through using the semester grades of all of the student's classes.
Grades in Core Courses	First semester freshman year grades in English, math, science, and social science grades were assigned a numerical value (A = 4.0, B = 3.0, C = 2.0, D = 1.0, and F = 0).
Credits	Typically a 0.5 credit is earned for each semester a student takes a course. For instance, a full year of English would result in earning 1.0 credits. A student must earn 5 credits freshman year to be considered a sophomore the following year.
EXPLORE Reading Score	This standardized assessment is administered to 9th grade students by the district during the fall semester. It is designed to measure college and career readiness in the area of reading. Scores on this variable range from 1-25.
EXPLORE Math Score	This standardized assessment is administered to 9th grade students by the district during the fall semester. It is designed to measure college and career readiness in the area of math. Scores on this variable range from 1-25.
Attendance Predictors	
Excused Absences	The daily excused absences are calculated at the end of each day through aggregating period attendance data. This data is reported in half-day increments.
Unexcused Absences	The daily unexcused absences are calculated at the end of each day through aggregating period attendance data. This data is reported in half-day increments.
Discipline Predictors	
Suspensions	The number of days that a student is absent from school due to being suspended in or out of school for a full or half day.
Discipline Incidents	The number of incidents reported to the dean's offices that are determined to violate the district's discipline policy. These referrals range from minor to major offences and may or may not result in formal consequences.

Latino Specific Variables

Two variables were included due to their potential importance to a Latino student population. The student's home language is recorded in the district's student information system when she or he is enrolled in the district. The alphanumeric codes were initially each assigned a number. However, it was eventually collapsed into two categories (Spanish and other), as there were not enough students who spoke a language at home other than Spanish and English to justify additional categories; the variable was coded as Other = 0, or Spanish = 1. Participation in the district's ESL program is listed as either Yes or No in the database. Each student was classified as either in the program Yes = 1, or not in the program No = 0.

Criterion Variable

To determine the criterion variable (on time graduation from high school), the 2012-2013 student information records of students who entered 9th grade for the first time during the first semester of the 2009-2010 school year were examined. In the district under study, a minimum of 23.25 academic credits are required for graduation. In addition to the requirement, the school district mandates that 4 credits must be earned in English, 3 credits in mathematics, social sciences, and science, and 2 credits from an elective area (e.g. fine arts, applied arts and technology, foreign language). Physical education or health is required each semester. Finally, students must pass a civics exam to earn a diploma. Graduation status was treated as a dichotomous indicator. To determine graduation status in 2013, the researcher used two data points housed in the district's SIS. To be considered as having graduated on time, students must have an enrollment status listed at "graduated" and the year of graduation listed had to be 2013 or

earlier. If these two conditions were met, the student record included a graduation status indicator that was listed as “yes” = 1, if either of the conditions was not met, the graduation status for the student record was “no” = 0.

Setting

This study was conducted at three high schools in one suburban school district located in the Midwestern United States. According to the most recent data provided on the publically available Illinois Interactive School Report Card, approximately 20 percent of students in the district identify as Hispanic. See the Table 2 below for additional race/ethnicity data.

Table 2. School District and State Ethnicity Percentages

Category	Percentage of the District Population	Percentage of the State Population
White	60.4	49.9
Black	2.9	17.5
Hispanic	20.2	24.6
Asian	14.2	4.5
American Indian	0.7	0.3
Multiracial	1.5	3.1

About 27 percent of students in the district are considered to be low income by the state, meaning that they are “from families receiving public aid, living in institutions for neglected or delinquent children, being supported in foster homes with public funds, or eligible to receive free or reduced-price lunches” (Illinois Interactive School Report Card, n.d.). In 2013, about 88 percent of students who begin in the district as freshmen went on

to graduate in four years. The four-year graduation rate for Hispanic students in the district was 76 percent. See Table 3 for additional graduation rate information.

Table 3. School District and State Four-Year Graduation Rates

Category	District	State
All Students	88	83
Hispanic Students	76	76

Compared to the state, White and Asian students are overrepresented in this district, a lower percentage of students are considered low income, and a higher percentage of students graduate in four years. However, the graduation rate of Hispanic students in this district (76 percent) mirrors that of the state (76 percent). Also of note is that the resources available in this district exceed what is typical within the state. For instance, about 94 percent of teachers within the district have a master's degree (compared to the state average of about 38 percent) and the average teacher salary is about 1.7 times greater than the state average. While these statistics paint a picture of a privileged student population, this is a misleading oversimplification. For instance, in one of the three schools the percentage of Hispanic students exceeds that of the state. In another school the large Asian population, typically not considered an "at risk" group, makes up about a third of the school's population and includes many students who have recently immigrated to the United States from places like India, Iraq, and Jordan. The percentage of students who are considered low income in this school (46) is almost as high as the average percentage within the state (50).

Participants and Sample Size

The participants in this study included all new freshmen students who entered the

district under study in the fall of 2009 who were listed as Hispanic in the district's student information system. The state requires that school districts collect student race/ethnicity data using seven standardized categories: White, Black, Hispanic, Native American, Asian, and Multiracial. Excluded from this cohort were any students who had previously attended a high school in or out of the district and students who transferred into the district in the spring semester.

According to recent data provided on the publically available Illinois Interactive School Report Card 6,394 students are enrolled in the district under study. Approximately 20% of those students are Hispanic. Using this information, a rough estimate of the sample size of this study can be calculated ($6,394 * .2 = 1,278.8$). A single graduating class cohort was utilized in this research; therefore, the total number of Hispanic students in the district (1,278) should be divided by 4, resulting in approximately 319 students. After exporting and cleaning the data, 317 students were included in the analysis.

Procedures

Before undertaking this investigation, permission to access and analyze data from the district's student information system (SIS) for this study was obtained from the superintendent. In addition, approval was obtained from Loyola University Chicago's Institutional Review Board (IRB). The researcher was currently employed by the district under study and as such, had access to the information housed in the district's SIS. Whenever a researcher holds a dual role, it is important to examine the ethical considerations surrounding how each role impacts the other. Importantly, her role within the district did not include providing direct services to students. She did not hold any

decision-making power for individual student course grades, behavioral consequences, or graduation attainment. While she was involved in making decisions concerning which students were recommended for additional academic and behavioral interventions, when these decisions were made for the cohort under study, the researcher was not functioning in a dual role. At the commencement of this study the vast majority of the participants were likely no longer enrolled in the school district. The researcher ensured that her dual role did not impact the services she provided to the district. The scope of the research was communicated to the district superintendent before the investigation began and the results were shared with district administrators at its conclusion.

Once approvals were granted, the researcher exported a database from the district's SIS, Aspen, into an excel template. The database contained records for any student who was listed as having 2013 as his or her original date of graduation. No identifying information (e.g. name, parent/guardian, address) beyond the student identification number assigned by the school district was exported from the district's SIS. While this number is traceable to a student name and record within the school district, it requires access to district level student records to discover individual student identifying information. Initially the researcher utilized the student ID number to connect data from multiple sources (e.g. course grades, attendance, discipline incidents) to a single student in excel. Once the data was linked, the student ID number was removed by the researcher and replaced with researcher assigned ascending numbers. All data for this study was kept completely confidential. The researcher kept the exported dataset with replaced ID numbers on her password-protected computer.

The archival database records that were exported included the following fields: (a) student ID, (b) original year of graduation, (c) enrollment status, (d) year of graduation, (e) entrance date (f) ethnicity, (f) gender, (g) free and reduced lunch status, (h) home language, (i) ESL program participation, (j) GPA (2 fields), (k) total credits (2 fields), (l) English grade (2 fields), (m) math grade (2 fields), (n) social science grade (2 fields), (o) science grade (2 fields), (p) excused absences (2 fields), (q) unexcused absences (2 fields), (r) days suspended (2 fields), (s) discipline incidents (2 fields), (t) EXPLORE reading, (u) EXPLORE math. These variables are described in detail in the Table 1. Where it is noted that record has 2 fields, that record had a semester 1 and a separate semester 2 value. All alphanumeric data were changed to numerical to allow for SPSS statistical analysis. As noted above, the discipline incident data needed extensive cleaning using the protocol described in the variables section.

Data Analysis

Data analysis involved the use of descriptive statistics, univariate analysis, and multivariate analysis. Percentages, means, and distributions were initially calculated and examined to better describe the population under study. Next, univariate analyses were conducted to explore the relationship between each separate independent variable and the criterion variable (on time graduation). The initial univariate analyses were conducted to examine group difference between students who did and did not graduate on time. The group differences for the categorical variables were performed using a series of chi-square tests (Field, 2013). For the continuous variables, a series of independent-samples t-tests were employed. When the homogeneity of variances assumption was not met, the Welch approximate t was used as the test statistic (Stevens, 1999). Effect sizes were then

calculated to determine the practical significance of the findings (Cohen, 1988).

After examining group differences, separate univariate logistic regressions were calculated to examine the predictive power of each of the independent variables. As noted by Pampel (2000), the use of logistic regression is appropriate when the criterion variable is dichotomous and the predictor variable is continuous or categorical. This type of analysis does not require an equal distribution of the predictor variables and allows for a mix of continuous, discrete, and dichotomous variables. Tabachnik and Fidell (2007) also note that logistic regression can be especially useful when the distribution of responses on the dependent variable is expected to be nonlinear with one or more of the independent variables. In logistic regression, the value of the predicted variable is transformed from its original metric to a probability of the predicted effect occurring.

Before performing the multivariate analyses, the possibility of multicollinearity was examined. Tolerance and Variance Inflation Factor (VIF) values for each variable were obtained. Tolerance values less than .1 and VIF values greater than 10 are considered problematic (Field, 2005). All of the values were found to be within the acceptable range.

Initially, eight variables that were available at the end of the first semester and that were able to be influenced by school staff were entered at the same time into a logistic regression model. Only two variables continued to be significant after accounting for the effects of the other variables. The model was then rerun using only the two significant variables and referred to as model 1. Next, variables that may be especially important to Latino students (home language and/or ESL program participation) were added to model 1 to determine if any or both of them added

significantly to the predictive power of the model. The resulting model was referred to as model 2. Finally, the CCSR's on-track indicator and the variables that may be especially important to Latino students (home language and/or ESL program participation) were entered at the same time in a logistic regression model. The resulting model (using on-track and ESL program participation) was referred to as model 3. This analysis was conducted using SPSS statistical software.

CHAPTER FOUR

RESULTS

The purpose of this study was to investigate early indicators that predict on time graduation from high school for Latino students attending a suburban school district in Illinois. Demographic, attendance, discipline, and academic data were examined for 317 first-time 9th graders during the 2009-2010 school year to determine the strongest predictors of graduation within four years. This chapter describes in detail the results of the analyses utilized to examine the research questions detailed in chapter one. First, the data was explored using descriptive statistics. Second, chi-square (categorical variables) and independent-samples t-tests (continuous variables) were used to compare students who did and did not graduate on time in 2013 on the basis of each independent variable. Third, the individual ability of each of the independent variables to correctly predict graduation status was calculated using logistic regression. Fourth, multicollinearity was explored and ruled out. Fifth, logistic regression was used to develop a model to predict graduation status using first semester academic, behavior, and attendance data. Sixth, the ESL status and home language variables were added to the model. Finally, logistic regression was utilized to develop a model to predict graduation status using three variables: on-track, home language, and ESL status. As noted in the previous chapter, the use of logistic regression is appropriate when the criterion variable is dichotomous (graduated on time or did not) and the predictor variable is continuous or categorical

(Pampel, 2000). The results are presented below in three sections: descriptive statistics, univariate analyses, and multivariate analyses.

Descriptive Statistics

Of the 317 students included in this study, 87 (27.4 percent) students did not graduate in four years, resulting in a graduation rate of 72.6 percent. This is slightly lower than the district's publicly reported four-year graduation rate for Hispanic students (76 percent) and in stark contrast to the overall four-year graduation rate for the district of 88 percent (Illinois School Report Card, 2013). Table 4 presents descriptive statistics for the categorical independent variables. Results indicate an almost equal number of male (49.5 percent) and female students (50.5 percent) in the study. Of note is that for the majority of the variables, the data for these variables mirror that of the district as a whole. About 29 percent of the students in this study qualified for free and reduced lunch compared to 27 percent of all students in the district in 2013. Almost 15 percent of the 317 students investigated in this study were students with disabilities compared to almost 14 percent of all students in the district (Illinois School Report Card, 2013). ESL program participation, however, did not mirror that of the district; over 10 percent of the Latino students in the current study participated in the ESL program as freshman compared to 4 percent of students in the district as a whole (Illinois School Report Card, 2013).

Table 4. Description of Categorical Independent Variables (n=317)

Variable	Frequency	%
Gender	157	49.5
Male	160	50.5
Female		
Socioeconomic Status		
Yes Free and Reduced Lunch	91	28.7
No Free and Reduced Lunch	226	71.3
Special Education		
Yes	46	14.5
No	271	85.5
Language at Home		
Spanish	254	80.1
Other	63	19.9
ESL Program		
Yes	34	10.7
No	283	89.3
On-Track to Graduate		
No	49	15.5
Yes	268	84.5

Table 5 presents descriptive statistics for the continuous independent variables. The definition for each of these variables is described in detail in Table 1 in the previous chapter. It should be noted that the following variables represent values for the first semester of 9th grade: unexcused absences, excused absences, discipline incidents, days suspended, English grade, math grade, science grade, and social science grade. A mean score of about 2.0 for English, math, science, and social science suggest that on average, the students in this analysis obtained a grade of C in each of the classes. The distribution of credits, math grades, and EXPLORE math scores was negatively skewed, suggesting

more scores at the high end of the range than the low end. Unexcused absences, excused absences, discipline incidents, days suspended, and EXPLORE reading scores were positively skewed, suggesting that there were more scores at the low end of the range of scores. The mean scores for EXPLORE Reading (13.88) and EXPLORE Math (15.23) were both within the average range based on national norms.

Table 5. Description of Continuous Variables

Variable	N	Min	Max	Mean	SD
GPA	317	1.0	4.0	2.50	0.59
Credits	317	0.50	8.50	6.07	1.18
Unexcused Absences*	317	0	10.0	0.16	0.70
Excused Absences*	317	0	35.5	2.48	3.75
Discipline Incidents*	317	0	18.0	1.59	3.32
Days Suspended*	317	0	12.0	0.23	1.18
EXPLORE Reading	300	0	25.0	13.88	3.69
EXPLORE Math	300	0	25.0	15.23	3.48
English Grade*	317	0	4.0	2.28	1.11
Math Grade*	317	0	4.0	2.17	1.19
Social Science Grade*	290	0	4.0	2.26	1.24
Science Grade*	313	0	4.0	2.01	1.06

*Represents data from first semester

Univariate Analyses

Before examining the combined effects of the variables on graduation status, each variable was examined separately. Students who graduated on time in 2013 were

compared to students who did not graduate on time on the basis of each categorical variable using crosstabs and chi-square analysis. Only participation in the ESL program, $\chi^2(1) = 12.43$, $p < .001$, and on track status, $\chi^2(1) = 61.66$, $p < .001$, resulted in statistically significant group differences.

Table 6. Group Comparisons by Graduation Status for Categorical Variables

Variables	Graduate		χ^2	p
	Yes F (%)	No F (%)		
Gender				
Male	109 (69.4)	48 (30.6)	1.53	.216
Female	121 (75.6)	39 (24.4)		
SES				
Yes FRL	61 (67.0)	30 (33.0)	1.96	.162
No FRL	169 (74.8)	57 (25.2)		
SpEd				
Yes	29 (63.0)	17 (37.0)	2.45	.118
No	201 (74.2)	70 (25.8)		
Home Language				
Spanish	185 (72.8)	69 (27.2)	0.05	.823
Other	45 (71.4)	18 (28.6)		
ESL Program				
Yes	16 (47.1)	18 (52.9)	12.43	< .001
No	214 (75.6)	69 (24.4)		
On-Track				
No	13 (26.5)	36 (73.5)	61.66	< .001
Yes	217 (81.0)	51 (19.0)		

Of the students who were in an ESL program their freshman year, 47.1 percent graduated on time. In contrast, 75.6 percent of students who were not in an ESL program graduated on time. Only 26.5 percent of students who were off-track graduated on time, whereas 81

percent of on-track students were able to graduate on time. Results are summarized in Table 6.

Graduates and students who did not graduate were next compared based on the continuous variables: GPA, credits, unexcused absences, excused absences, discipline incidents, days suspended, EXPLORE reading score, EXPLORE math score, English grade, math grade, social science grade, and science grade. The homogeneity of variance assumption was met for GPA (*Levene's F* = 1.28, *p* = .26), EXPLORE math (*Levene's F* = .13, *p* = .72), English grade (*Levene's F* = 2.70, *p* = .10), and Science grade (*Levene's F* = .49, *p* = .49). The homogeneity of variance assumption was not met for credits (*Levene's F* = 61.37, *p* < .01), unexcused absences (*Levene's F* = 64.90, *p* < .01), excused absences (*Levene's F* = 18.18, *p* < .01), discipline incidents (*Levene's F* = 53.92, *p* < .01), days suspended (*Levene's F* = 38.59, *p* < .01), EXPLORE reading (*Levene's F* = 14.65, *p* < .01), math grade (*Levene's F* = 7.55, *p* = .01), and social science grade (*Levene's F* = 5.78, *p* = .02).

Independent-samples t-tests revealed that students who graduated had higher GPAs, more credits, fewer unexcused and excused absences, higher EXPLORE reading and math scores, fewer discipline incidents and days suspended, and higher English, math, social science, and science grades than students who did not graduate. All of the group differences were statistically significant at the .01 level. Mean difference effect sizes were calculated to examine the practical significance of the findings. The results are summarized in Table 7.

Table 7. Group Comparisons by Graduation Status for Continuous Variables

Variable	Graduated		Did Not Graduate		t ^a	ES
	M	SD	M	SD		
GPA	2.67	.53	2.07	.53	8.90*	1.13
Credits	6.43	.73	5.14	1.57	7.36*	1.05
Unexcused Absences	.04	.18	.47	1.27	3.17*	.47
Excused Absences	1.99	2.54	3.76	5.68	2.80*	.40
Discipline Incidents	1.10	2.47	2.89	4.67	3.39*	.48
Days Suspended	.09	.86	.60	1.72	2.65*	.38
EXPLORE Reading	14.57	3.78	11.81	2.45	7.29*	.87
EXPLORE Math	15.79	3.35	13.57	3.35	4.96*	.66
English Grade	2.51	1.01	1.66	1.12	6.56*	.80
Math Grade	2.43	1.07	1.49	1.24	6.21*	.81
Social Science Grade	2.50	1.12	1.64	1.32	5.14*	.70
Science Grade	2.20	1.01	1.48	1.02	5.58*	.71

ES = Cohen's B Effect Size, .20 = small, .50 medium, > .80 = large

^a Welch approximate t when the homogeneity of variances assumption was not met

* p < .01

Finally, each variable was examined independently using logistic regression to determine its individual predictive power. Separate logistic regression analysis of each of the independent variables resulted in significant Chi-square and Wald values for all of the variables except for gender, SES, SpEd, and home language. All of the other variables were found to significantly predict graduation status.

The following is a brief explanation to aid in the interpretation of the results of the logistic regressions that are summarized in Table 8. In explaining the definition of the odds ratio, it is first helpful to acknowledge that the meaning of odds in this case is different from its everyday meaning. Below is an example using the on-track variable to illustrate how odds ratios are calculated. Among students who were on-track, 217 students graduated on time and 51 did not. Therefore, the odds of on-track students graduating on time is $217/51 = 4.25$. Among students who were off-track, 13 students graduated on time and 36 did not. The odds of off-track students graduating on time is $13/36 = 0.36$. The odds ratio is $4.25/0.36 = 11.80$. (Of note, the slight difference between this result and that in the table is due to rounding.) The odds of an on-track student graduating on time is 11.80 times higher than the odds of an off-track student graduating on time (Pampel, 2000).

An important consideration to take into account when interpreting odds ratios is that odds are different from probability in that a probability value can range from 0 to 1, whereas odds ratios can range from 0 to infinity. If the odds value is greater than 1, this indicates that as the predictor increases, the odds of the outcome (on time graduation) occurring increases. An odds ratio less than 1 indicates that as the predictor increases, the odds of the outcome occurring decreases (Pampel, 2000). Another way to think of this is that the odds ratio shows the ratio of odds for a one-unit increase in the independent variable. However, as the equation determining the odds is multiplicative rather than additive, increases have a multiplicative rather than additive effect (Pampel, 2000). For example, the odds ratio for credits, 3.36, indicates that a 1-point increase in credits multiplies the odds of on time graduation by 3.36. If the odds of graduation for

someone with 2 credits equals 11.29, the odds of graduation for someone with 3 credits equals $11.29 * 3.36$ or 37.93.

Another way that odds ratios are commonly reported is to calculate the percentage increase or decrease due to a one-unit change in the independent variable. This is calculated by subtracting 1 from the odds ratio and multiplying the result by 100 (Pampel, 2000). Using the unexcused absences variable as an example, the percentage decrease in the odds of graduating on time due to one additional unexcused absence = $(0.11 - 1) * 100 = 89\%$. In other words, an additional unexcused absence decreases the odds of on time graduation by 89 percent.

While odds ratios can be helpful in interpreting the effects of independent variables on an outcome, it should be noted that in most instances, they cannot be directly compared to each other (Pampel, 2000). The size of the effect of the odds depends on the unit of measurement of the independent variable so the odds ratios for variables measured in different units are not able to be directly compared. The percentage of correct predictions, however, is a metric that can be utilized to compare variables and indicates the percentage of students for which the variable correctly predicted the outcome.

Table 8. Independent Odds Ratios and Correct Classification Percentage for Independent Variables

Predictor	Odds Ratio	95% C.I. for O.R.	Percentage of Correct Predictions
GPA	9.96*	5.23 – 18.96	80.4
Credits	3.36*	2.37 – 4.76	80.4
On-Track	11.78*	5.83 – 23.82	79.8
Unexcused Absences	.11*	.04 - .27	77.6
Math Grade	2.01*	1.60 – 2.54	77.6
Social Science Grade	1.80*	1.43 – 2.27	76.6
English Grade	2.13*	1.65 – 2.74	76.0
EXPLORE Reading	1.31*	1.19 – 1.46	75.7
EXPLORE Math	1.21*	1.11 – 1.32	75.5
Discipline Incidents	.87*	.80 - .93	75.1
Days Suspended	.67*	.50 - .91	73.8
Science Grade	1.98*	1.52 – 2.57	73.8
Excused Absences	.88*	.82 - .95	73.2
ESL Program	.29*	.14 - .59	73.2
Gender	.73	.45 – 1.20	72.6
SES	.69	.40 – 1.17	72.6
SpEd	.59	.31 – 1.15	72.6
Home Language	1.07	.58 – 1.98	72.6

* $p < .01$

Multivariate Analyses

Due to a large number of significant correlations between the independent variables, the possibility of multicollinearity was formally explored. Table 9 presents Tolerance and Variance Inflation Factor (VIF) values for each variable. Tolerance values less than .1 and VIF values greater than 10 are considered problematic (Field, 2005). All of the values were found to be within the acceptable range.

Table 9. Tolerance and Variance Inflation Factor Values for Independent Variables

Variable	Tolerance	VIF
Gender	.817	1.223
SES	.896	1.116
SpEd	.681	1.469
Language at Home	.863	1.159
ESL Program	.804	1.244
On-Track	.390	2.562
GPA	.380	2.631
Credits	.320	3.126
Unexcused Absences	.606	1.650
Excused Absences	.640	1.562
Discipline Incidents	.613	1.630
Days Suspended	.713	1.402
EXPLORE Reading	.476	2.099
EXPLORE Math	.501	1.998
English Grade	.452	2.214
Math Grade	.444	2.252
Social Science Grade	.402	2.488
Science Grade	.441	2.269

Model 1: Predicting Graduation Using Semester One Academic, Attendance, and Discipline Data

Eight variables (unexcused absences, excused absences, discipline incidents, days suspended, English grade, math grade, social science grade, and science grade) were initially examined together to determine which would continue to be significant predictors of on time graduation after accounting for the impact of other variables in the

model. These variables were selected due to their availability early in the school year and the fact that they are able to be influenced by school staff. Out of the 8 independent variables, only unexcused absences and English grade had significant Wald values and therefore, met the criteria to be included in the model to predict graduation. The model was then rerun with only unexcused absences and English grade included. The resulting model was statistically significant, $\chi^2(2) = 60.13$, $p < .01$, correctly classified 78.2% of the students, and accounted for 25% of the variance in graduation. The goodness-of-fit test was not statistically significant, $\chi^2(6) = 4.06$, $p = .67$, indicating that the model fit the data. Inspection of the odds ratios revealed that the odds of graduation was 85% less for an additional unexcused absence and 85% greater for an increase in one letter grade in English. Results are summarized in Table 7.

Table 10. Final Logistic Regression Model for Graduation Using Semester One Unexcused Absences and English Grade

Predictor	B	SE	Wald	Sig.	Odds Ratio	95% C.I. for O.R.
Unexcused Absences	-1.896	.502	14.266	< .001	.150	.056 - .402
English Grade	.613	.137	19.973	< .001	1.846	1.411 – 2.415
CONSTANT	-.081	.317	.065	.799	.922	

Model 2: Predicting Graduation Using Unexcused Absences, English Grade, and ESL Status

The second research question in this study centers on determining if variables that may be particularly important to Latino students (home language and ESL program participation) provide additional predictive power to the initially developed model. To explore this question, the variables language and ESL status were added to the model

above to determine if either or both significantly added to the predictive power of the model. Only ESL status contributed significantly to the overall model. Table 8 depicts the final prediction model after including ESL status. The model was statistically significant, $\chi^2(3) = 69.28$, $p < .01$, correctly classified 79.2% of the students, and accounted for 28.4% of the variance in graduation. The goodness-of-fit test was not statistically significant, $\chi^2(6) = .93$, $p = .99$, indicating that the model fit the data. Inspection of the odds ratios revealed that the odds of graduating was higher for students with fewer unexcused absences, higher English grades, those who were not in the ESL program.

Table 11. Final Logistic Regression Model for Graduation Using Semester One Unexcused Absences, English Grade, and ESL Status

Predictor	B	SE	Wald	Sig.	Odds Ratio	95% C.I. for O.R.
Unexcused Absences	-1.998	.510	15.373	< .001	.136	.050 - .368
English Grade	.584	.140	17.376	< .001	1.793	1.363 – 2.360
ESL	-1.253	.409	9.384	.002	.286	.128 - .637
CONSTANT	-1.100	.473	5.404	.020	.333	

Model 3: Predicting Graduation Using On-Track and ESL Status

The third research question in this study examined the use of the CCSR's on-track indicator. As noted in the univariate analyses section, on track status was determined to be a significant predictor of graduation. The model using the on-track indicator alone was statistically significant, $\chi^2(1) = 55.02$, $p < .01$, correctly classified 79.8% of the students, and accounted for 23% of the variance in graduation. The odds of graduating are 11.78 times as large for students who are on-track as for students who are off-track. However,

as ESL status significantly added to the predictive power of the first model, it was determined that it should be added to the on-track model to see if it significantly added to the predictive power of on-track. Table 9 depicts the final prediction model after including ESL status. The model was statistically significant, $\chi^2(2) = 67.41, p < .01$, correctly classified 79.8% of the students, and accounted for 27.7% of the variance in graduation. The goodness-of-fit test was not statistically significant, $\chi^2(1) = .05, p = .83$, indicating that the model fit the data. Inspection of the odds ratios revealed that the odds of graduating were higher for students who were on-track and not in the ESL program their freshman year.

Table 12. Final Logistic Regression Model for On-Track and ESL Status

Predictor	B	SE	Wald	Sig.	Odds Ratio	95% C.I. for O.R.
On-Track	2.551	.368	48.155	< .001	12.82	6.24 – 26.353
ESL	-1.445	.403	12.853	< .001	.236	.107 - .519
CONSTANT	-.895	.328	7.449	.006	.409	

Summary

Overall, alterable variables (academics, behavior, attendance) were better predictors of on time graduation for this cohort of Latino students attending suburban high schools than static demographic variables. When controlling for the effects of other variables and each other, English grade and unexcused absences were the strongest predictors of which Latino students would graduate on time within a suburban high school context. The on-track indicator was also a strong predictor. Whether or not a student was in an ESL program their freshman year provided additional predictive power

to the English grade and unexcused absences model as well as to the on-track indicator, suggesting that using these models with students in ESL may underestimate the number of students at risk.

CHAPTER FIVE

DISCUSSION

This study investigated the ability to predict whether Latino high school students would or would not graduate on time in a suburban school district in the Midwest. Demographic, attendance, discipline, and academic data were examined for 317 first-time 9th graders during the 2009-2010 school year to determine the strongest predictors of graduation within four years. This chapter expands on the results presented in the previous chapter, providing context and practical implications. It is divided into six sections. The first three sections provide conclusions related to the three research questions presented in the previous chapters. The fourth section offers implications for schools, the fifth, limitations of the study, and the final section details directions for future research.

Question One Conclusions

The initial question in this study examined whether and to what degree academic, attendance, and discipline variables during 9th grade combined to predict on time graduation for Latino students. In addressing this question, the researcher first examined the separate predictive power of the evaluated variables. In summary, each academic, attendance, and discipline variable described in detail in chapter 3 was found to predict graduation to varying degrees. The variables that were not found to be predictive were individual student variables such as gender, socioeconomic status, special education

status, and the language spoken in the student's home. These demographic variables are often cited as reasons why students do not graduate, which is challenging for schools to address because they are typically stable over time and very difficult, and in some cases impossible, to be altered by the available supports within schools (Bowers, Sprott, & Taff, 2013; Jerald, 2007). The results of this study, however, suggest that the experiences Latino students have in school greatly impact whether or not they graduate; these are aspects of students' lives over which schools have some control. For instance, schools have the ability to develop high quality, engaging, and culturally relevant curriculums. Schools can adopt policies that keep students engaged and give them a voice in the school community. Interventions and supports can be put into place to identify students who may need extra help and provide it to them as early as possible. All of these actions can positively impact a student's academic performance, attendance, and behavior (Jerald, 2007; Stout & Christenson, 2009).

High school credits and graduate point average (GPA) at the end of freshman year were found to be the strongest predictors of graduation, each individually predicted the graduation status of 80.4% of the Latino students in the study. This is not a surprising result, as passing grades lead to earning credits, which in turn are the currency of graduation. It is important to note that while these variables are strong predictors, they are not typically calculated until the end of a school year. Schools could choose to calculate earned credits and GPA at the end of the first semester of freshman year. This would take additional time and resources, but may be useful in identifying students at risk of not graduating. The predictive power of GPA and credits at the end of first semester

freshman year should be studied to determine if their usefulness outweighs the additional resources districts would need to spend.

Unexcused absences on the other hand, can be determined much earlier in the school year and was also found to be a strong predictor, correctly identifying the graduation status of 77.6% of the Latino students. This result supports the work of Allensworth and Easton (2007) who found that absences were able to accurately predict the graduation status of 77% of the students in their study. Of note is that the odds of graduating on time are 89% lower for students with one unexcused absence. From a prediction standpoint, attendance data is uniquely valuable in that it is calculated in real time. A teacher marks a student absent the very day he or she did not attend. Grades and behavior reports, on the other hand, take time to process and report. Grades are usually only reliably entered at specific marking periods (e.g., every 8 weeks, every quarter, etc.). Behavior reports can take weeks to be reported since many require multiple staff members and conversations to determine the infraction and consequence, not to mention the time that it takes to have the information recorded into a database.

From an intervention standpoint, it is important to examine the meaning or meanings behind an unexcused absence. Many researchers interpret school attendance as an indicator of school engagement (Furlong & Christenson, 2008). Unexcused absences in particular (rather than excused absences) may be an indicator of a lack of connection with school, as students make the choice to not attend. The meaning assigned to an unexcused absence may not simply be a matter of instructional minutes lost, but may also provide an indication that a student does not have strong adult or peer relationships at school and may not personally identify with the goals and ideals of the school (Center for

Disease Control and Prevention, 2009; Jerald, 2007). Unexcused absences may also indicate a lack of communication and connection between schools and families. If guardians are not aware of or comfortable with sending a note or calling in to excuse their child's absence, an excused absence may end up being coded by the school as an unexcused one. Language may also play a key role. If school staff members do not speak or read Spanish, families may be less likely to attempt to excuse their student's absence. This connects back to the earlier work of Secada and colleagues and their 1998 report in which they recommend personalized student programs, respectful treatment of students and their families, and a diverse teaching workforce that includes staff familiar with Spanish and Hispanic cultures (Center for Disease Control and Prevention, 2009; Secada, 1999).

One particularly promising program for addressing dropout of Latino students is Achievement for Latinos through Academic Success (ALAS) (Gándara, Larson, Mehan, & Rumberger, 1998; Jerald, 2007; Larson & Rumberger, 1995). It will be described in greater detail in the following section on implications for schools, but of note is that student attendance played a large role in the intervention. It was monitored every period of the day and parents were contacted daily about any cut classes. ALAS counselors ensured that students and families knew that regular attendance was important and expected, they helped families negotiate any obstacles to regularly attending school, and required students to make up missed time (Gándara, Larson, Mehan, & Rumberger, 1998; Jerald, 2007; Larson & Rumberger, 1995). Students who participated in the program were half as likely to have excessive absences at the end of ninth grade and less likely to have dropped out in 10th and 11th grade (Gándara, Larson, Mehan, & Rumberger, 1998;

Jerald, 2007; Larson & Rumberger, 1995). It appears that for Latino students, school engagement may be particularly important.

Test scores are frequently cited as strong predictors of graduation, particularly for high school students. While test scores were also shown to be strong predictors of graduation for the Latino students in this study (EXPLORE Reading scores correctly predicted the graduation status of 75.7% of students and EXPLORE Math scores correctly predicted the graduation status of 75.5% of students), it should be noted that unexcused absences and grades in core classes were stronger predictors. This result is meaningful for several reasons. First, these test scores represent the learning that a student has obtained before entering high school (the EXPLORE test is typically administered in the fall of a student's freshmen year). This result suggests that for the Latino students in this study, the experiences they have in their high school (as represented by unexcused absences and core grades) are a stronger predictor of graduation than their previous learning experiences. This is a welcome result, as high schools are not typically able to greatly impact instructional decisions made in elementary and middle schools. Second, standardized tests of this nature are thought to measure more stable academic traits rather than be sensitive to growth in learning. If grades are a better dynamic indication of learning, it is heartening to consider that they are likely better predictors than standardized test scores. Of course, it is important to note that grades are not progress monitoring tools and to be true monitors of student progress, the skills that they monitor would have to be fully defined. For instance, many grades measure a student's willingness to comply with teacher demands rather than mastery of specific academic skills. Also, unlike progress monitoring measures, grades are not

standardized and examined for reliability and validity (Fuchs & Fuchs, 2001).

Finally, it can be difficult to get timely access to the results of standardized tests such as the EXPLORE assessment. Grades and unexcused absences are better predictors, more readily available, easily interpreted, and alterable. This finding should challenge us to question our emphasis on high stakes standardized testing (Allensworth, Gwynne, Moore, & de la Torre, 2014, Jerald, 2007).

After examining the separate predictive power of each variable, the researcher sought to examine the collective predictive power of alterable variables that were available early in the school year. Unexcused absences and grade in English appeared to be the strongest predictors when controlling for the effects of other variables that are available early in the year (e.g., excused absences, discipline incidents, suspensions, math grade, social science grade, science grade). Using only unexcused absences and English grade after the first semester of 9th grade, the graduation status of 78.2% of the students was able to be correctly determined. The odds of graduation was 85% less for an additional unexcused absence and 85% greater for an increase in one letter grade in English. This finding supports the work of Neild and Balfanz (2006) who found that attendance and course failures were strong predictors of dropping out of urban high schools. Of note is that each of the variables examined in this model was significantly correlated with the other variables. One explanation for the resulting model is that the unexcused absences variable indicates school engagement and connectedness as described in the previous paragraph and that the English grade variable is an indication of a student's academic functioning. While each of the core course grades was a significant predictor of graduation status, after controlling for the effects of each other, English

grade was the only significant predictor. English grades usually are a reflection of a student's ability to write and read. These skills are applied to learn content in other courses, but are perhaps represented in their purest form in a student's English class grade. Of course academic performance and school engagement can also often be interwoven. As Jerald (2007) notes,

students who do not “participate” enough in school—show up, pay attention, and follow the rules—are more likely to fail their classes. On the other hand, academic failure—caused either by low skills or low effort—can cause students to feel alienated from school, leading to even greater withdrawal and lack of participation over time” (First, Educational Experiences section, para. 7).

The fact that both an academic and school engagement variable (English grade and unexcused absences) were predictive of graduation after controlling for the effects of all of the other variables and each other, suggests that while interconnected, for the suburban Latino students in this study, each has a distinct effect.

Question Two Conclusions

The second research question addressed in this study examined how the inclusion of home language and/or ESL program participation impacted the predictive model described above. These variables are collected by school districts, but are not always examined by schools. As they may be of particular importance to Latino students, it was determined that they should be examined in this study.

It was somewhat surprising that whether or not a student speaks Spanish at home was found to not be a significant predictor of graduation. Having limited English proficiency is often cited as a risk factor for dropping out of high school and Long Term English Language Learners are also cited as graduating at lower rates (Jerald, 2007); however, in this study what mattered was not whether or not the student spoke Spanish at

home, but if they were in an ESL program. Again, what students experienced in their school had a strong impact. Whether or not a student was in the ESL program during their freshman year was found to be a significant predictor of graduation; when examined alone, it correctly predicted graduation status for 73.2% of Latino students. Students in ESL appeared to be significantly less likely to graduate on time than Latino students who were not in an ESL program during their freshman year of high school. This finding raises difficult questions about the purpose of ESL, ESL curriculums, and the transition from ESL to general curriculum that will be discussed further below.

Also notable is that ESL status was found to be a significant predictor of graduation status, even after controlling for unexcused absences and English grade. This suggests that students who were in ESL in 9th grade, attended school, and had good grades in English were still at increased risk of not graduating on time. One possible explanation is that ESL students may tend to come to school and complete the work that their teachers assign, but that their skills may not be at a level that allows them to successfully transition into the general curriculum. Whenever students are in a sheltered program (such as special education or ESL), it is important to examine the amount of access that students get to the general curriculum. Particularly for English language learners, the integration of content and language teaching is critical. It is only through supports that allow students to access content that is aligned with the general curriculum, thereby continuing to increase their content knowledge and access the general curriculum, that students will be able to excel academically (Echevarría, 2012). One model that has a research base for addressing both access to content and language acquisition is the Sheltered Instruction Observation Protocol (SIOP) Model. While it

originated as solely an observation protocol, it has since expanded into a full instructional model that provides teachers a structure for planning and implementing effective lessons (Echevarría, 2012). It is centered on 8 components: lesson preparation, building background, comprehensible input, strategies, interaction, practice and application, lesson delivery, and review and assessment. Within these 8 components are 30 features that structure the lesson planning and provide the basis for classroom observation (Echevarría, 2012). Most of the features encompass best practices in teaching. For instance, one of the features under lesson preparation is that teachers must clearly post a language and a content objective for each lesson so that both the teacher and the students are aware of the focus of the day. Under building background, one of the features is explicit instruction of academic vocabulary (Echevarría, 2012). This is something that both Deshler (2009) and Kamil and colleagues (2011) posit is a key component to adolescent literacy instruction. The comprehensible input component includes using visual tools that provide structure to guide practice that sound very much like Deshler's content enhancement routines and the strategies features echo his Strategic Instruction Model (SIM) learning strategies (Deshler, 2009; Echevarría, 2012). A key feature of the interaction component is having the teacher talk less and the students more. Torgesen and colleagues (2007) at the Center on Instruction, Deshler (2009) at the University of Kansas, and Kamil and colleagues (2011) at the U.S. Department of Education all agree that extended discussion of subject matter is of great importance in the development of adolescent literacy. As long as teachers utilize content objectives that are aligned with those of the general curriculum, the SIOP model provides students with supports and access. This is key, as the less access provided to students, the more

difficult the transition out of the sheltered program. A less academic focused explanation for the increased risk of dropping out for students in this study who were in the ESL program, is that the school engagement that students feel while in a sheltered ESL program is lost when they transition out, increasing their risk of not graduating on time. Creating culturally relevant curriculum and culturally sensitive staff members outside of ESL programs may also be a key component to ensuring the successful graduation of ESL students (Ortiz, 2006). This is obviously a finding that warrants further investigation and research.

Question Three Conclusions

The third question addressed in this study examined the Consortium on Chicago School Research's on-track indicator to determine if it was a strong predictor of graduation for Latino students in a suburban setting (Allensworth, 2004). The results of this study reveal the on-track indicator to be a strong predictor for Latino students in a suburban setting. It was able to correctly predict the graduation status of 79.8% of the students in this study. Only GPA and credits were stronger predictors. This validates the research of the Consortium on Chicago School Research (Allensworth & Easton, 2007; Roderick et al., 2014). However, limitations in the utility of the on-track indicator must be considered. Just as credits and GPA cannot be calculated early in the year, the on-track indicator can only be calculated after the full year of 9th grade has passed. This cuts the amount of time school teams have to intervene with a student by 25%. Also, as noted by Allensworth and Easton (2007), the on-track indicator serves as a "blunt instrument" and does not lend itself to helping school teams develop and assign specific interventions. Conversely, unexcused absences and English grades can be determined much earlier in

the school year, can potentially serve as a monitor of a student's progress throughout the year, and are more likely to aid school teams in determining appropriate interventions for students.

Another noteworthy finding from this study is that ESL status added significantly to the predictive power of the on-track indicator. This suggests that utilizing the on-track indicator on its own as a predictor of graduation for students in ESL may underestimate the number of students at risk and strengthens concerns raised by Gwynne and colleagues at the Consortium on Chicago School Research in their 2012 report on use of the on-track indicator with ELL students. As noted in a previous chapter, they ultimately determined that the on-track indicator was a good predictor for ELL students; however, they also noted that new ELLs (identified as needing ELL services in 6th grade or later) and long-term ELLs (first identified as needing ELL services prior to 6th grade and continued to qualify for services in 9th grade) had lower high school graduation rates than other students with the same on-track status and that despite similar patterns of course performance, Hispanic ELLs graduated at far lower rates than white and Asian ELLs. This along with the results of this study and the fact that according to the National Center for Education Statistics (NCES), the 4-year adjusted cohort graduation rate for students with limited English proficiency in 2012 was 59 percent, below that of any other demographic group including students with disabilities, suggest that this is an area of great need (Stetser & Stillwell, 2014). As noted above, predictors of graduation and effective interventions for ESL students is a subject in desperate need of further study.

Implications for Schools

The overarching takeaway from this study for schools is that the variables that can be influenced by school supports predicted whether or not Latino students would graduate on time more than any static demographic variable. What we do or do not provide students in high school matters. Also many Latino students at risk of not graduating can be identified in the first semester of 9th grade. This allows schools to identify and intervene with students early in their high school experience. That being said, many schools struggle with being overwhelmed with managing and utilizing data, as well as in determining how to intervene with students. To aid school staff members in focusing on the most significant data to identify and intervene with students, it may be important to determine the strongest predictors for a particular school, district, or disaggregated group of students within the district (Jerald, 2007). If resources are not available to determine predictors for a specific school, the results from this study suggest that for Latino students in suburban high schools particular focus may want to be given to reducing unexcused absences and increasing English grades.

In order to effectively ensure that Latino students in suburban schools graduate from high school on time, schools must take an integrated prevention and intervention approach (Jerald, 2007). It may be helpful for schools to first examine what percentage of their Latino and ELL students graduate on time using a 4-year longitudinal cohort graduation rate method. This information should be readily available, as it must be reported to the state and federal departments of education (Stetser & Stillwell, 2014). Using a multi-tier system of supports (MTSS) approach, 80% of Latino and ESL students should be graduating on time (Metcalf, 2013). If they are not, prevention practices that

impact all Latino and ESL students (and likely all students in the school) should be considered and put into place. Data like English grades and unexcused absences could be examined for the entire cohort of Latino and ESL students to help determine which specific school-wide factors should be addressed. Some suggestions include: ensuring that all students and their families are treated respectfully and engaged to participate meaningfully in the school community, that the school includes staff familiar with Spanish and Hispanic cultures, that attendance and discipline policies strengthen the connection between the school and students rather than exclude them, that challenging and engaging high quality instructional practices are in place, and that culturally relevant instructional materials are utilized (Bohanon, Fenning, Hicks, Weber, Thier, Aikins, & Irvin, 2012; Center for Disease Control and Prevention, 2009; Deschler, 2007; Jerald, 2007; Kamil et al., 2011; Marzano, 2012; McIntosh, Moniz, Craft, Golby, & Steinwand-Deschambeault, 2014; Ortiz, 2006; Secada, 1999; Torgesen et al., 2007).

As Tier 1 (universal instruction for all Latino students) is examined, it will be important for schools to develop an early warning system to help determine which students will need additional supports, or interventions (Allensworth & Easton, 2007; Jerald, 2006; Metcalf, 2013; Neild & Balfanz, 2006; Roderick et al., 2014). As noted above, predictors that are alterable by school staff and that may lead to the identification of effective interventions should be prioritized (Jerald, 2006). Using this information, students who are predicted to be at risk of not graduating can be referred into programs that address the needs of specific groups or students (or Tier 2) (Metcalf, 2013). Tier 2 interventions are focused on specific academic, behavioral, or social-emotional skill development. Several programs that have strong research showing positive or potentially

positive effects in reducing dropout rates in groups of students combine the teaching of these skills (What Works Clearing House, 2015).

The first, Achievement for Latinos through Academic Success (ALAS), was specifically developed to address the needs of a low-income Latino population in California. It utilized counselors who provided comprehensive and coordinated supports to students and parents, thereby providing a bridge between the school and families and consisted of three key components (Larson & Rumberger, 1995; Gándara et al. 1998). First, student attendance was closely monitored (on a daily basis) and parents were contacted immediately about any missed periods or school days. The counselors ensured that students and families understood the importance of attending school, helped them address any barriers to regular school attendance, and had students make up any missed instructional time. They also aided teachers in developing a system to frequently communicate with parents regarding each student's behavior, classwork, and homework performance. The second component involved teaching a ten-step problem-solving strategy to every student for 10 weeks and providing 2 years of follow-up coaching. The students were encouraged to use their behavior, attendance, and academic data to choose a problem to solve and employ a strategy to address the issue. The problem-solving plan was then discussed with the student's family and communicated to his or her teacher (Larson & Rumberger, 1995; Gándara et al. 1998). The final component was providing parents with direct instruction and modeling on how to participate in their child's schooling and how to manage adolescent behavior. The counselors connected families with any needed social services and provided bonding opportunities for students to help them feel that adults in their school were interested and invested in them. ALAS was

implemented from 1990 to 1995 in junior high schools and have some very positive results (Larson & Rumberger, 1995; Gándara et al. 1998). The final year of the program (9th grade) students were half as likely to have excessive absences or received failing grades, less likely to have fallen behind in credits, and less likely to have dropped out of school than comparable students who had not participated in the program. Students continued to be less likely to drop out in 10th and 11th grade, however, the authors note that by 12th grade no differences were found between students who did and did not participate in the program. They suggest that the intervention needs to be sustained to keep students who are at high risk enrolled in school (Larson & Rumberger, 1995; Gándara et al. 1998). Of note, is that despite positive findings, ALAS has not been implemented beyond the initial project, which concluded in 1995. It does incorporate many of the features of effective practices with Latino students that have been discussed above and it would be a potentially effective program to adapt for high school age students.

Another promising approach that has been implemented widely and intensely examined is Check & Connect (Jerald, 2007; What Works Clearinghouse, 2015). Its purpose is to address school engagement, reduce the risk of dropping out, and utilizes data from alterable variables (Stout & Christenson, 2009). As described by Stout and Christenson (2009), the Check & Connect intervention involves building relationships and routinely monitoring alterable indicators such as attendance, academic performance, and behavior. It consists of four key features: the presence of a mentor who works with students and families for a minimum of two years, regularly checking on a student's educational progress and school functioning, intervening early to maintain a student's

connection to school and learning, and partnering with families (Stout & Christenson, 2009). The What Works Clearinghouse found that “Check & Connect” has positive effects on staying in school (What Works Clearinghouse, 2015). In addition, schools should ensure that a tier one Positive Behavior Interventions and Supports (PBIS) systemic approach is in place. Though often thought of as a school-wide approach to addressing behavior, PBIS also addresses school climate and primes staff and students to potentially have positive interactions (Bohanon, et al, 2012). Of note, is that PBIS must be implemented with particular attention paid to ensuring respect and understanding of student cultural norms (McIntosh et al., 2014).

Finally, as noted in the previous paragraphs, schools should be aware that using traditional predictors of graduation success for students in ESL might underestimate students at risk of not graduating. Schools may want to conduct separate analyses to determine risk factors unique to this population, as well as focusing on the transition for students from ESL into the general curriculum. Particular attention should be focused on ensuring that the skills taught in the ESL curriculum are aligned with the skills taught in the general curriculum (Echevarría, 2012).

Limitations

This study examined the predictors of graduation for a single cohort of Latino students enrolled in a suburban school district in the Midwest. The school district’s demographics mirrored that of other suburban school districts in the area, but had a higher population of white and affluent students, as well as more resources than that of the state. The district’s reported four-year graduation rate for Hispanic students was the same as the state average. As the population in this study attended school in a highly

resourced suburban district, the results of the study may not be generalizable to less resourced suburban districts. Also, while there is no indication that this particular cohort of students was unique from other cohorts, the generalizability of the results would be stronger if more cohorts were included in the study. This would increase the overall sample size, as well as increase the sample size for ESL students. The small number of ESL students included in this cohort, make it difficult to determine the strength of the results for that group of students.

Another limitation of this study was that students who were outplaced within the first semester of their freshman year were not included in the cohort. This decision was made since outplaced students would not be responding to the curriculum and environment of the schools being studied. However, as students of color are often overrepresented in cohorts of students with disabilities, particularly those classified as having emotional disturbance, it may be that a significant number of Latino students are being placed in alternative learning settings outside of the district and therefore not included in this study.

Finally it should be noted that the results of this research study are only as accurate as the data used in the analysis. Accurate data in schools require teachers and staff members to agree on common definitions (e.g., how much class must a student miss before he or she is marked absent) and that they reliably record data in the district's student information system. This process is rife with potential for mistakes and inconsistencies. As school districts begin to recognize the potential of commonly recorded student data to be used as a tool for identification and intervention rather than as a static recording of past behaviors, perhaps more resources will be dedicated to ensuring

that the data is collected in a timely, consistent, and accurate fashion. We are already beginning to see this occurring in districts that allow parents to log in to the district's student information system to check grades at any point in the school year. If a teacher has not entered in completed assignments and it appears that the student has a low score in the class, parents are contacting school officials to demand that grades are updated on a frequent basis.

Directions for Future Research

This study represents only a small step toward understanding how to identify and prevent Latino students from dropping out of suburban high schools. In moving forward with future research, the first step would be to replicate this research within the district under study with other cohorts of Latino students to determine if the predictors identified remain the strongest predictors and to determine if the same level of accuracy in predicting the graduation status of Latino students can be achieved. The study could then be replicated in other school districts. It would be particularly important to determine if the predictors are the same in less resourced suburban school districts.

The utility of the on-track indicator should continue to be examined for Latino students in other suburban school districts, as well as in rural school districts with a significant Latino population. As the popularity of the on-track indicator grows, it is imperative that its utility is validated with wider and more diverse populations and settings. It is also important to continue to place emphasis on predictors that are available earlier in the school year.

While identifying those at increased risk of not graduating is certainly an important first step, ultimately it is our ability to intervene with these students that will

impact graduation grades. The impact of taking a MTSS approach to increase graduation rates for Latino students in suburban settings must be evaluated. This will be an intense undertaking as it include examining the impact of curricular revisions, providing access to the general curriculum, developing proactive attendance policies, and increasing student and family connections to school. Particular attention should be given to the use of SIOP, ALAS, and Check & Connect in suburban high schools with Latino students.

The final and perhaps most important area of need for future research is examining predictors of graduation for students in ESL. In addition to ensuring that a larger sample size of ESL students be utilized than that in this study, it may be important to examine the experience of ESL students throughout the four years of high school rather than just at the beginning and the end. For instance, it is important to determine if the increased risk of not graduating on time holds for students who spend their entire high school experience within the ESL program, or if it is the transition out of ESL that places students at increased risk.

Summary

From 1990 to 2012, Hispanic students have consistently had the highest status dropout rates of any ethnic group (Fry, 2009; U.S. Department of Education, 2014). At the same time the percentage of Latino students attending suburban schools has nearly doubled (Fry, 2009; U.S. Department of Education, 2014). The long-term consequences of not graduating high school for both individuals and society at large are staggering, as are the benefits to the nation of a well-educated workforce. Despite numerous political proclamations and hundreds of research articles, increasing high school graduation rates

remains a challenge. This study expands the current literature on high school graduation rates by examining predictors of graduation for Latino students learning in a suburban setting, an increasing and under-researched population. Overall, alterable variables (academics, behavior, attendance) had the strongest predictive power. When controlling for the effects of other variables and each other, English grade and unexcused absences were the strongest predictors of which Latino students would graduate on time within a suburban high school context. The on-track indicator was also a strong predictor. Whether or not a student was in an ESL program their freshman year provided additional predictive power to the English grade and unexcused absences model as well as to the on-track indicator, suggesting that using these models with students in ESL may underestimate the number of students at risk.

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