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ACCEPTANCE

This dissertation, FILLING GAPS IN THE SCHOOLHOUSE FLOOR: THE DIFFERENTIAL EFFECTS OF GRADUATION-TARGETED INTERVENTION SERVICES ON 11TH GRADE ACADEMIC ACHIEVEMENT IN 2008-2009, by JESSICA ATKINS BROOME, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education, Georgia State University.

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ABSTRACT

FILLING GAPS IN THE SCHOOLHOUSE FLOOR: THE DIFFERENTIAL EFFECTS OF GRADUATION-TARGETED INTERVENTION SERVICES ON 11TH GRADE ACADEMIC ACHIEVEMENT IN 2008-2009

by

Jessica Atkins Broome

This study aimed to explore the effectiveness of graduation coach services in reducing student risk factors for dropping out of high school and increasing student academic performance, a strong correlate of student persistence to high school graduation (Battin-Pearson et al., 2000). The study employed a quasiexperimental nonequivalent control group design utilizing student risk ratio and individualized Georgia High School Graduation Test (GHSGT) scores in English/language arts and mathematics as measures to compare students who received the services of a graduation coach to those who did not. The sample for this study included 39,326 Georgia students continuously enrolled in the 11th grade during the 2008 – 2009 school year and characterized as at risk for high school noncompletion by virtue of possessing a student risk ratio greater than zero. Of these students, 9,076 (23.08%) were selected as caseload students to receive the intervention and support services of a graduation coach (GaDOE, 2009c).

To assess the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity, the researcher conducted a series of general linear model (GLM) multivariate repeated measures analyses. Risk ratios for students served by a graduation coach were found to be significantly lower in

May 2009 than in August 2008. Differences in student risk ratios existed regionally across the state regardless of graduation coach caseload status. While analyses related to the differential effects of graduation coach service provision revealed no significant difference in the student risk ratio metric according to gender, they did reflect a significant difference in the student risk ratio metric according to graduation coach caseload status and ethnicity. Regression analyses determined that student risk ratio may account for 12.5 percent of the variance in student GHSGT mathematics scores and 9.6 percent of the variance in student GHSGT English/language arts scores for first-time 11th graders. Adding student caseload status into the equation increases the variance accounted for to 12.9 percent in mathematics and 10.4 percent in English/language arts.

FILLING GAPS IN THE SCHOOLHOUSE FLOOR: THE DIFFERENTIAL EFFECTS OF GRADUATION-TARGETED INTERVENTION SERVICES ON 11TH GRADE ACADEMIC ACHIEVEMENT IN 2008-2009

by
Jessica Atkins Broome

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ABBREVIATIONS

AYP	Adequate Yearly Progress
CISGA	Communities In Schools of Georgia
EOCT	End Of Course Test
FTE	Full-time Equivalent
GaDOE	Georgia Department of Education
GDC	Georgia Department of Corrections
GHSGT	Georgia High School Graduation Test
GPS	Georgia Performance Standards
NCLB	No Child Left Behind
WMS	Graduation Coach Work Management System

CHAPTER 1

INTRODUCTION

Rationale

"Serving high-risk students is the urgent unfinished agenda for American education."
Ernest L. Boyer, 1983

According to the Alliance for Excellent Education (2008), nearly 7,000 students drop out of U.S. public high schools every day, resulting in approximately 1.2 million students annually who do not graduate from high school on time with their classmates. Without a high school diploma, these individuals become more likely than their graduate counterparts to spend their lives sporadically unemployed, requiring government assistance, or rotating into and out of the prison system (Belfield & Levin, 2007; Bridgeland, Dilulio, & Morison, 2006). Further, these dropouts and their children are more likely to experience higher rates of poverty and more frequent and severe health problems (Belfanz & Letgers, 2004; Levin, Belfield, Muenning, & Rouse, 2007). Additionally, nearly half of all the nation's minority students, whose parent populations are expected to increase by 10 percent by the year 2020, fail to graduate at all (Diplomas Count, 2008).

Not surprisingly, research suggests that the most readily apparent result of an individual's decision to drop out of school is economic (Anyon, 2005; Belfield & Levin, 2007; Bureau of Labor Statistics, 2007). Over the course of a lifetime, a high school dropout can expect to earn roughly $300,000 less than a high school graduate and more

than one million dollars less than a college graduate (Doland, 2001). The impact of a high school dropout on the U.S. economy as a whole, however, is potentially even greater. Levin, Belfield, Muenning, and Rouse (2007) note that if the number of high school dropouts among 20-year-olds were cut in half, the country's economy could potentially profit from more than 45 billion dollars over the lifetime of these individuals as a result of supplementary tax revenues and reduced spending for public health, crime, and welfare.

Carnevale (2008) suggests that individuals who are not equipped with the knowledge and skill sets necessary to obtain and keep high wage, high demand jobs are often denied full social inclusion and are subject to being "drawn into cultures, political movements, and economic activities that are a threat to mainstream American life" (p. 29). As such, high school dropouts are eight times more likely than high school graduates to be incarcerated in their lifetimes; in fact, nationally, 30 percent of federal inmates, 40 percent of state prison inmates, and 50 percent of individuals on death row are high school dropouts (SREB, 2005). In Georgia, these figures are even higher, with 80 percent of Georgia inmates neglecting to hold a high school diploma in 2006 (GDC, 2007).

Even when not incarcerated, dropouts are less likely to contribute positively to their local communities (Rumberger, 2001; Teachman, Paasch, & Carver, 1996; Wehlage, 1989). Because educational attainment correlates significantly with degree and regularity of involvement in civic-related leadership and activities, individuals with minimal educational experience are often disengaged from their communities while those with higher levels of educational attainment are traditionally more civically connected. According to the National Conference on Citizenship (2007), high school dropouts, who

represent only three percent of actively engaged U.S. citizens, are four times less likely to volunteer than college graduates and two times less likely to vote or participate in community service activities.

While no single risk factor can serve as an indicator of an individual's potential to withdraw from school, dropout prediction power increases when a combination of multiple risk factors related to a student's personal, family, school, and community history are considered in tandem (Cotton, 2001; Epstein et al., 1997; Goldschmidt & Wang, 1999; Hammond, Linton, Smink, & Drew, 2007). Demographic characteristics including race (Battin-Pearson et al., 2000; Ekstrom, Goertz, Pollack, & Rock, 1986; Teachman, Paasch, & Carver, 1996), gender (Battin-Pearson et al., 2000; Goldschmidt & Wang, 1999), immigration status (Rumberger, 1995), socioeconomic status (Coleman et al., 1966; Duke, 2000; Neuman & Celano, 2001), and limited cognitive or other abilities (Lehr et al., 2004; Lloyd, 1978; Schargel, 2004; Wagner et al., 1993; Wehlage & Rutter, 1986) have been shown to serve as effective predictors of high school completion. In addition to demographic characteristics, personal experiences unrelated to school can impact a student's decision regarding whether to persist to graduation. When an adolescent is required to take on early adult responsibilities, for example, becoming a teen parent, gaining employment to assist with family expenses, or serving as a primary caregiver for younger siblings, his likelihood of becoming a high school graduate is significantly diminished (Gleason & Dynarski, 2002; Jordan, Lara, & McPartland, 1994; Rosenthal, 1998; Rumberger, 2001). Similarly, student characteristics such as low self-esteem, participation in a high-risk peer group, poor academic performance, disengagement from school, and social misbehavior correlate significantly with high

school dropout (Alexander, Entwisle, & Kabbani, 2001; Cairns, Cairns, & Neckerman, 1989; Rosenthal, 1998).

By addressing personal and academic risk factors, as well as targeting more expansive societal, economic, cultural, and political factors that serve to impact a child's scholarly decisions, educational stakeholders can significantly enhance a student's chances of remaining in school and on track to graduate (Battin-Pearson et al., 2000; Coleman, 1988, 1994; Ensminger & Slusarcick, 1992; Lloyd, 1978; Schargel, 2004). However, research suggests that the success of dropout prevention efforts depends greatly upon the types of strategies implemented, making it essential that selected approaches have been proven effective for the identified risk factors of those being targeted (Bloom, Gardenhire-Crooks, & Mandsager, 2009; Cotton, 2001; Dynarski et al, 2008; Lehr et al., 2004). While evidence-based programs, school reform efforts, and policy interventions that have shown promise to reduce school dropout may differ in their specific components, a 2007 study by the National Dropout Prevention Network and Communities in Schools found that most share common features and suggest similar general strategies for educators and policymakers motivated to reduce dropout rates. After an extensive review of current literature in the field of dropout prevention coupled with an in-depth 44-study analysis of primary individual and family risk factors for school dropout, researchers identified key evidence-based services and strategies associated with exemplary dropout prevention programs throughout the United States. To qualify as exemplary, a dropout prevention program must have a) been currently in operation at the time of the study; b) been ranked as a top tier program by at least two sources; c) had no major revisions since the ranking of the program; d) possessed

consistent, positive external evaluation outcomes; and e) targeted K-12 school populations only (Hammond, Linton, Smink, & Drew, 2007). Table 1 outlines the common strategies and consistent services of the study's identified exemplary dropout prevention programs designed to address key risk factors or conditions that significantly increase the likelihood of school dropout. Table 2 lists the exemplary, evidence-based programs identified by the National Dropout Prevention Center and Communities in Schools in their 2007 study.

In April of 2007, the Center for Public Education published a similar overview of research regarding dropout prevention and intervention programs developed over the past twenty years that have demonstrated promising student outcomes in the area of dropout prevention. According to the Center's report, the most effective programs integrate multiple strategies and interventions rather than relying on a single method of support. Essential elements of effectual intervention programs noted in the report include a) highly personalized supports and services; b) strong relationships with adult counselors who offer a great deal of attention to students; c) systematic strategies to monitor and address "alterable" student risk factors; d) formal coaching in specific problem-solving strategies; e) substantial communication with and support for parents; and f) connections between school, family, and community services that support student educational growth as a primary focus for at-risk students (Craig, 2007). Findings of the Center's report were consistent with those of a 2008 study by the National Center for Education Evaluation and Regional Assistance (NCEERA) illustrating best practices of dropout prevention programs that meet the evidence standards of the U.S. Department of

Table 1

Descriptions of National Dropout Prevention Center and Communities in Schools' Identified Evidence-Based Dropout Prevention Services/Strategies

Service/Strategy Category	Description
Academic Support	Academic remediation, support, tutoring, experiential learning, and skills enhancement programs that employ research-based instructional methods to increase student engagement, academic performance, and connections to school and learning
Afterschool	Rewarding, challenging, and relevant activities provided in a structured, positive environment outside of regular school hours in an effort to reduce delinquency by way of reinforcing socialization and positive behavior skills
Behavioral Interventions	Individualized interventions designed to decrease a specific behavior by shaping and/or reinforcing a desired alternative replacement behavior and tracking student changes over time
Career Development	Provision of social, personal, vocational, and employment opportunities to assist youth in achieving economic success, avoiding involvement in criminal activity, and increasing social and educational functioning
Case Management	Coordination of services designed to link youth and their families to resources or services such as job, social, mental or personal health, or financial management counseling
Conflict Resolution/ Anger Management	Counseling designed to encourage nonviolent dispute resolution, teach decision-making skills to better manage conflict, and assist students in seeking out acceptable solutions to disputes through negotiation, mediation, arbitration, community conferencing, and peer mediation
Family Engagement	Services that encompass a broad range of events designed to involve families in their children's lives and education
Family Strengthening	Educating parents on specific parenting, management, and communication skills designed to train parents how to better assist their child academically
Gang Prevention/ Intervention	Programs designed to prevent youth from joining gangs and/or intercede with existing gang members during crisis conflict situations
Life Skills Development	Services designed to increase student communication, leadership, conflict resolution, decision-making, critical thinking, assertiveness, peer selection self-improvement, stress reduction, consumer awareness, and peer resistance skills
Mental Health Services	Student counseling services related to substance abuse
Mentoring	Services that promote the development of caring, supportive, and prolonged adult-student relationships
School/Classroom Environment	Services designed to reduce or eliminate problem behaviors, modify authority structures, or provide greater flexibility with respect to rules, norms, class or grade size, instruction, and rewards/punishments
Structured Extracurricular Activities	Recreation, sports, creative/performing arts, and/or community service programs designed to engage students in positive school-related experiences
Service-Learning	Programs that provide opportunities to integrate community service activities into classroom curricula
Substance Abuse Prevention	Services designed to reduce the use of illegal drugs, alcohol, or steroids by educating youth about their negative effects
Teen Parent Support	Programs that provide pre-post natal care, parenting skills, financial management, or other types of training/services designed to assist teen parents in staying in school and developing family life
Truancy Prevention	Programs designed to promote regular school attendance through parental involvement, law enforcement, mentors, court alternatives, or related strategies.

Table 2

National Dropout Prevention Center and Communities in Schools' Identified Exemplary Dropout Prevention Programs

Program	*Prevention/Intervention	**Intervention
Across Ages	X	
Adolescent Transitions Program	X	
Advancement Via Individual Determination (AVID)	X	
Big Brothers/Big Sisters	X	
Brief Strategic Family Therapy	X	
Career Academy	X	
Check and Connect	X	X
Children of Divorce Intervention Program	X	
Coca-Cola Valued Youth Program	X	
Coping Power		X
Families and Schools Together	X	
Fast Track	X	
Functional Family Therapy	X	X
Helping the Noncompliant Child	X	X
LA's BEST	X	
Linking Interests of Families and Teachers	X	
Multidimensional Family Therapy	X	X
Nurse-Family Partnership	X	
Parenting Wisely	X	
Preventive Treatment Program		X
Project GRAD	X	
Quantum Opportunities	X	
Schools and Families Educating Children (SAFE Children)	X	
School Transition Environment Program (STEP)	X	
Skills, Opportunities, and Recognition (SOAR)	X	
Strengthening Families Program	X	
Success For All (SFA)	X	
The Incredible Years	X	X

*Prevention/intervention programs are designed for youth identified as being at greater risk for dropping out of school or developing antisocial behavior.
**Intervention programs are designed for youth already exhibiting early sighs of leaving school or antisocial behavior.

Education's What Works Clearinghouse, a federal research division that regularly publishes reports on the effectiveness of intervention programs for students perceived to be on the path toward school dropout (Dynarski et al., 2008). Additional evidence-based program findings of the NCEERA report include the development and implementation of a strategic diagnostic plan for identifying individual students at high risk for dropping out of school, assigning adult advocates to high-risk students, providing targeted academic support and enrichment to improve academic performance, implementing

programs centered on improving student classroom behavior and social skills, creating personalized learning environments that foster a sense of belonging, and engaging at-risk students through challenging and relevant instruction and an introduction to postsecondary options (Dynarski et al., 2008).

Combining evidence-based strategies from effective dropout prevention and intervention programs across the nation, Georgia's Graduation Coach Initiative offers schools a full-time intervention specialist dedicated to identifying students who show early warning signs of not graduating and working with these students to develop personal, academic, and career achievement plans to assist them in successfully navigating the road to graduation (GaDOE, 2008a, 2009a). The program integrates research related to a) identification of and support for students at risk of dropping out before or during high school (Alexander, Entwisle, & Kabbani, 2001; Battin-Pearson et al., 2000; Bridgeland, Dilulio, & Morison, 2006; Hammond, Linton, Smink, & Drew, 2007); b) personal, academic, and career advisement (Bloom, Gardenhire-Crooks, & Mandsager, 2009; Grossman & Garry, 1997; Pringle, Anderson, Rubenstein, & Russo, 1993); c) implementation of intervention and remediation programs for academically at-risk students (Belfantz & Letgers, 2004; Jordan, Lara, & McPartland, 1994; Kannapel & Clements, 2005; NASSP, 2004); and d) development of effective transitions, community education, and parental involvement programs (Abrams & Haney, 2004; Catalano & Hawkins, 1995; Cotton, 2001; Epstein et al., 1997; Rothstein, 2005)

Purpose of the Study

This study investigates the student-level impact of graduation-targeted intervention services implemented by Georgia high school graduation coaches. Research questions include the following:

1. What are the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity?
2. What is the relationship between graduation coach service provision (caseload students versus non-caseload students) and academic achievement as measured by student outcomes on the English/language arts and mathematics components of the Georgia High School Graduation Test (GHSGT) when controlling for student risk ratio?

Significance of the Study

Appropriate methods for calculating graduation rate have long been a point of contention among educational leaders in the United States (Belfanz & Letgers, 2004; GOSA, 2008; Pipho & Flakus-Mosquedo, 1984; Tuma & Gifford, 1990). Too often, faulty record keeping has led to poor quality high school graduation and dropout data, limiting many states in their capacity to accurately account for students and their progression through high school (Lehr et al., 2004; NGA, 2005; O'Neal, 2007; Swanson & Chaplin, 2003). Georgia is one of thirty-two states that currently calculates student graduation rate via the National Center for Education Statistics' leaver method. Often referred to as a departure-classification index, this calculation method, which does not recognize certificates of attendance or special education diplomas, defines a graduate as any student who exits high school in four years with a regular diploma (GOSA, 2008).

Table 3 offers a description of the formulas for calculating graduation rate that are currently approved by the United States Department of Education under *No Child Left Behind* federal legislation (GOSA, 2008; USDOE, 2002).

Table 3

Federally Approved Methods for Calculating Graduation Rate in the United States

e Formula	# of States Using the Formula as of 2008	Description
Leaver Rate	32	Percent of students leaving high school with a standard high school diploma expressed as a proportion of all those documented leaving with a diploma or other completion credential or as a dropout.
Cohort Rate	16	Percent of students from an entering 9th grade cohort who graduate with a standard diploma within four years. Method can account for transfers and students retained in grade. Student data may be tracked on a statewide or local basis.
Composite Rate	1	Proportion of students estimated to remain in high school until grade 12 and receive a diploma. The rate for a given year is calculated by multiplying together (1) the rate of persistence between grades 9 and 12 and (2) the percent of completers who receive a diploma rather than another credential.
Persistence Rate	1	Percent of students who remain in school from grade 9 through grade 12. Rate is calculated using information on (1) the percent of students not dropping out at specific grade levels or (2) the percent of students estimated to be promoted from grade to grade. This method does not measure high school completion.
Completion Rate	1	Number of diploma recipients divided by an approximation of the starting 9th grade class. Method cannot fully account for entering cohort membership, net transfer, and grade retention.

Until recently, the lack of a unique statewide student identifier limited Georgia in its ability to track individual students across all four years of high school. As a result, the state's current graduation rate represents a proxy calculation that estimates the percentage of students who enter ninth grade and graduate four years later. In 2005, 50 of the nation's governors and 12 national organizations signed an agreement to adopt a more accurate and consistent measure for calculating state high school graduation rate. Beginning with the graduating class of 2012, Georgia, in concert with 39 other states, will utilize the cohort method, which considers the percentage of ninth grade students

who graduate with a standard diploma within four years and can better account for student transfer and retention, to calculate graduation rate (GaDOE, 2009).

Regardless of the calculation method used, in 2004 nearly 1,000 U.S. high schools reported a graduation rate of less than 50 percent, and nearly 2,000 reported a typical freshman class that was diminished by 40 percent or more by the cohort's senior year; Georgia was one of 15 states that collectively claimed almost 80 percent of the nation's highest dropout producing schools. Further, Georgia, along with South Carolina, North Carolina, Florida, and Texas, was one of five southern states that jointly housed the greatest number of high schools with weak promotion power (Belfanz & Letgers, 2004). In 2006, Georgia's graduation rate had shown little improvement, with more than 2,000 students leaving school before entering the 8th grade (Governor Sonny Perdue, personal communication).

Public schools today are at a crossroad, becoming increasingly subject to public demand for increased accountability and student achievement largely as a result of state and federal mandates set forth by the *No Child Left Behind Act of 2001* (Diplomas, 2008; GaDOE, 2008a, 2009a; GreatSchools, n.d.; Swanson & Chaplin, 2003; USDOE, 2002). The dual charge, however, of implementing more rigorous graduation and college-readiness standards while at the same time improving state and local graduation rates has left many educational practitioners and policymakers searching for programs that effectively engage students in school and learning, ensure acquisition of academic skills essential for life and work, and result in high rates of school completion. This study aims to explore the effectiveness of graduation coach services in reducing student risk factors

for dropping out of high school and increasing student academic performance, a strong correlate of student persistence to high school graduation (Battin-Pearson et al., 2000).

Theoretical Framework

The guiding framework for this study is Bronfenbrenner's (1979) ecological systems theory, which suggests that a student's interactions and experiences related to school and learning have the potential to profoundly affect his decision regarding whether or not to complete high school. Centering on the relationship between the individual and his social systems, Bronfenbrenner (1979) highlights the essential role of school climate and community in fostering a positive environment for the academic, personal, and social development of learners and suggests that students, particularly those who display factors that would place them at greater risk for dropping out of school, are most successful when they are supported by and engaged in meaningful activities with caring adult role models. Children who are deficient of critical role models within their immediate spheres of influence upon which to base perceptions of traditional adult behavior, Bronfenbrenner offers, are forced to construct their own ideals regarding what adult behavior should look like, often with detrimental consequences.

Key research in the field of dropout prevention supports Bronfenbrenner's premises. Camara (2003), Kannapel and Clements (2005), and Tinto (1987) expound on Bronfenbrenner's theory by adding that student potential for perseverance to graduation from high school increases in environments where expectations are high and are both clearly and frequently expressed; students are regularly offered opportunities for academic, social, and personal support; feedback regarding student performance is monitored and shared with students and key educational stakeholders on an ongoing

basis; and learning is perceived as important and related to real-world, problem-based contexts. Roderick (1993) and Epstein et al. (1997) contend that deliberate attempts to build positive student-school relationships through such efforts as encouraging student participation in school-related activities and fostering caring student-adult connections within the academic community can significantly mitigate an at-risk student's tendency for high school dropout. Likewise, Griffin (2002), Darling-Hammond (1999), Cotton (2001), and Henderson and Berla (1994) argue that while students who develop strong student-school relationships are more likely to be academically successful in school and, thus, more likely to effectually earn a high school diploma, those students who lack positive student-school relationships often struggle academically and become frustrated with school, resulting in a devaluation of education and a subsequent adoption of oppositional, truant, and withdrawal behaviors.

Terms and Definitions

The following terms and definitions are provided to offer a more concise explanation of language used in this study. Each of the terms below will receive greater attention throughout the dissertation.

Academic Support and Advisement – Defined as assistance provided to students who experience scholastic difficulty, academic support and advisement includes such intervention services as providing credit recovery options, one-on-one or group academic advisement, review/preparation courses, targeted academic tutoring, and extra academic help opportunities (Battin-Pearson et al., 2000; Goldschmidt & Wang, 1999).

Adequate Yearly Progress (AYP) – A cornerstone of the federal *No Child Left Behind* Act of 2001, AYP for high schools is a measure of year-to-year student

achievement on statewide assessments that requires all subgroups to meet or exceed state-established annual objectives for English/language arts, mathematics, and graduation rate (GaDOE, 2009b; USDOE, 2002).

At risk – At risk is a term used in association with students who, due to one or more external factors, have a greater probability of struggling to achieve personally and/or academically (Hammond, Linton, Smink, & Drew, 2007).

Attendance – Attendance refers to the regularity with which a child is present at school. In Georgia, students are considered to be at risk with respect to school attendance if they are present in school for fewer than 92 percent of days for which they are enrolled (GOSA, 2009).

Credit Recovery – Credit recovery refers to opportunities for a student to retake a class or master individual course requirements in order to earn credit toward high school graduation (GaDOE, 2009b).

Economically Disadvantaged – Economically disadvantaged is a term used in association with students who are members of households that meet the income eligibility guidelines for free or reduced-priced meals (GaDOE, 2009a).

End Of Course Tests (EOCT) – Administered at the conclusion of a high school course of study in mathematics, science, social studies, or English/language arts, Georgia EOCT are designed to serve as diagnostic tools to assist students in identifying areas of promise and need in their learning and improving performance in their high school courses and on state and national assessments. Additionally, EOCT provide data with which to assess the effectiveness of classroom instruction at the school and district levels (GaDOE, n.d.a.).

Family and Community Involvement – Family and community involvement refers to the extent to which parents and community members serve as critical stakeholders in student achievement and school improvement initiatives (Schargel, 2004).

Georgia High School Graduation Tests (GHSGT) – Administered during the spring of a student's junior year of high school and designed to measure mastery of the skills and knowledge described in the Georgia Performance Standards (GPS), students who seek a high school diploma in the state of Georgia must pass all five GHSGT, which cover curricula in English/language arts, writing, mathematics, science, and social studies (GaDOE, n.d.b.).

Graduation Requirements – Graduation requirements are defined as the compulsory course work, credits, and standardized testing needed to complete high school. Graduation requirements in the state of Georgia are developed on a local level with recommendations from the Georgia Department of Education (GaDOE, 2004).

High School Graduation Rate – In the state of Georgia, high school graduation rate refers to the rate at which students complete high school with a regular diploma. A student who receives a GED or other state-issued credential is not counted as a graduate (GaDOE, 2009b; Swanson & Chaplin, 2003).

High School Dropout Rate – In the state of Georgia, high school dropout rate is a calculation of the number of students exiting school with a dropout-associated withdrawal code divided by the number of students that attended school in a given academic year. Students may be assigned a dropout code if they exit school prior to graduation as a result of marriage, expulsion, financial hardship, incarceration, military

enlistment, enrollment in adult educational services, pregnancy, long-term truancy, serious illness, or an unknown factor (GaDOE, 2009a, 2009b).

Mentoring – Mentoring refers to the offering of personal, academic, or emotional support to students in an effort to assist in program completion, confidence building, or transition to further education or the workforce (Goldschmidt & Wang, 1999).

Personal Development and Social Support – Personal development and social support refers to the process of guiding students through maturation and interpersonal experiences and includes providing such services as life skills and enrichment programming, anger and conflict management, and service learning (Hammond, Linton, Smink, & Drew, 2007).

Postsecondary Preparation – Postsecondary preparation refers to the act of engaging students in activities such as college and career exploration and planning, school-to-work skill development, and job shadowing in an effort to ready them for life after high school (Rumberger, 2001).

Research-based – Research-based is used to refer to strategies and practices that have been proven by educational research to make a statistically significant difference in overall and disaggregated student achievement results (Lehr et al., 2004).

Transitions Program – Transition program refers to any district- or school-level program designed to ease student transition from building to building or grade-level to grade-level where different teachers, administrators, rules, and cultures exist (GaDOE, 2009a).

Truant – Truant refers to any child subject to compulsory attendance mandates who during the school calendar year accumulates more than five days of unexcused absence from school (GaDOE, 2009b).

Student Risk Ratio – Student risk ratio is a metric ranging from zero to one, with zero indicating a student who exhibits no academic risk for high school noncompletion and one indicating a student who presents risk on all factors considered. All Georgia students with a risk ratio value greater than zero are classified as at risk, with graduation coaches targeting those students in their schools who possess higher risk ratios and greatest personal need to receive intensive caseload support. Student risk ratio at the high school level is comprised of a student's rate of attendance for the previous school year, credit deficiency status, retention status, and performance on each GHSGT and End Of Course Test (EOCT) assessment respectively. Student risk ratio at the middle school level is comprised of a student's attendance for the previous school year, retention status, and performance on each Georgia Middle Grades Criterion Referenced Competency Test respectively (GaDOE, 2008a, 2009a).

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

In light of state and federal demand for more rigorous graduation and college-readiness standards and improved graduation rates, increased interest has emerged among national, state, and local leaders regarding the most effective ways to provide additional support to struggling students. In Georgia, graduation rate serves as a key criterion for high schools striving to meet and exceed federal *No Child Left Behind* mandates for Adequate Yearly Progress (AYP), a fact that has only reinforced the impetus to investigate innovative strategies for assisting more students to graduate (GOSA, 2008, 2009; GaDOE, 2009a). While the state of Georgia employs multiple school improvement efforts focused on this charge including targeted support for low-performing schools (NASSP, 2004; NGA, 2005; NSSE, 2004; USDOE, 2008), state-mandated implementation of standards-based curricula (Carr & Harris, 2001; Levine & Lezotte, 1990; Marzano, Pickering, & Pollock, 2001), and rigorous proficiency and graduation requirements (Adelman, 1999; ADP, 2004, 2007; Education Trust, 2004; Pine, 1985; Tuma & Gifford, 1990), Georgia's Graduation Coach Initiative is by far its most recognized attempt to identify and provide intervention services to students at risk of dropping out of school (GaDOE, 2008a, 2009a; O'Neal, 2007). Established in 2006, the initiative offers funding to employ a full-time graduation coach in each Georgia

high school and middle school. In 2008-2009, more than 800 graduation coaches served Georgia's middle and high schools, offering comprehensive prevention and intervention services to support the personal and academic needs of nearly 100,000 Georgia students at risk of failing to graduate (GaDOE, 2009a). This literature review investigates the roles of Georgia's graduation coaches through the lenses of both ecological systems (Bronfenbrenner, 1979) and social capital theories (Coleman, 1988, 1994; Putnam, 2000) in an attempt to understand the potential ways that graduation coach service provision may impact a student's beliefs, values, resources, behaviors, and, ultimately, decision regarding whether or not to complete high school.

What Is a Graduation Coach?

Designed to address the unique needs of the state's at-risk student populations, Georgia's graduation coaches are charged with profiling students who are at risk for dropping out or not graduating from high school and matching those youth with appropriate resources and systems of support in an effort to increase state and local graduation rates, decrease state and local dropout rates, and prepare more students to leave high school ready for college and/or the workforce (GaDOE, 2009a). Specifically, the work of Georgia's graduation coaches lies in four primary areas: a) identification of and support for students at risk of dropping out before or during high school (Alexander, Entwisle, & Horsey, 1997; Barro & Kolstad, 1987; Elliot & Voss, 1974; Ingels et al., 2002); b) personal, academic, and career advisement (Berk, 2000; Ferguson, 2008; Grossman & Garry, 1997; Howard & Johnson, 2002; Schorr, 1998); c) implementation of intervention and remediation programs for academically at-risk students (Ekstrom, Goertz, Pollack, & Rock, 1986; Griffin, 2002; Hammond, Linton, Smink, & Drew, 2007;

Wehlage et al., 1989); and d) development of effective transitions, community education, and parental involvement programs (Abrams & Haney, 2004; Deal & Peterson, 1999; Epstein et al., 1997; Schmidt, 2007). Each of these areas is strongly grounded in ecological systems theory, which highlights as a critical component of positive child development the importance of bi-directional interaction between adolescents, particularly those who display factors that would place them at risk, and caring adults (Bronfenbrenner, 1979).

Due to the considerable amounts of time students spend in school, educational environments are often rich with opportunities for youth to engage in positive interaction with adults outside their immediate families. Such positive adult connections aid children in developing cognitively and emotionally, encouraging them to broaden their spheres of influence in constructive ways (Darling-Hammond, 1999; Epstein et al., 2007; Graber et al., 2006; Henderson & Berla, 1994; Nisbett, 2009). In order for strong child-adult relationships to flourish, Bronfenbrenner (1990) asserts that such associations must meet two primary criteria. First, the child must be exposed to regular long-term interaction with adults who hold a vested interest in his personal, social, emotional, and academic development; further, the adult must be willing to offer the child unconditional support, regardless of his past or current behaviors and circumstances. Second, the child-adult relationship must be one of joint exchange and mutual respect and compromise. Under these conditions, shared interpersonal interaction has the potential to not only build a child's confidence and skill with respect to progressing to more trusting and complex relationships with others, particularly other adults, but also to improve a child's self-concept and capacity to explore and grow developmentally (Armijo et al., 1994; Howard

& Johnson, 2002; Nisbett, 2009; Perry, Steele, & Hilliard, 2003; WOSPI, 2002). Without appropriate access to regular interaction with positive adult role models, Bronfenbrenner warns that children are apt to seek affirmation via inappropriate means. In an educational setting, such deficiency can manifest itself in anti-social behavior, lack of self-discipline, and inability to provide self-direction personally, emotionally, or academically (Addison, 1992; Darling-Hammond, 1999). It is, therefore, the primary role of the graduation coach to develop opportunities for at-risk students to experience academic success and effective child-adult interactions both through direct support and through the coordinated efforts of counselors, teachers, school administrators, and community stakeholders (GaDOE, 2009a; Hammond, Linton, Smink, & Drew, 2007).

Bronfenbrenner's Ecological Systems Theory

Developed in 1979, Urie Bronfenbrenner's ecological systems theory asserts that in order to understand human development, one must take into account the dynamic environmental systems within which humans live and operate. Centering his theory on the notion that human growth and development is not isolated but influenced by the interaction between the individual and his broader social systems, Bronfenbrenner argues that the developing individual must learn to navigate relations between not one, but four environmental systems: the macrosystem, the exosystem, the mesosystem, and the microsystem (Craig & Baucum, 2002).

The Macrosystem

The broadest of Bronfenbrenner's structural systems, the macrosystem represents the "economic, political, cultural, and social forces" that serve to govern how individuals are treated, what they are taught, and which goals and attributes they consider to be

important (Meyers, Varkey, & Aguirre, 2002, p. 259). Arguably the most significant of the structural systems due to its global capacity to effect relational interaction across all other systems, the macrosystem encompasses widely reflected ethnic and cultural norms, values, beliefs, customs, and ideologies. As a result, it possesses the facility to profoundly affect the personal, social, and moral development of adolescents by impacting the types of experiences they encounter in their homes, schools, neighborhoods, and other social contexts (Shaffer, 2006). Components of the macrosystem including personal factors such as ethnicity, socioeconomic status, and cultural and religious mores and societal factors such as the individual-level impact of economic change and globalization have the authority to influence aspects of a student's home environment, social schema, parental involvement, and personal and communal expectations with respect to education (Berk, 2000). For example, the educational beliefs, attitudes, and values of a child's parents and others within his spheres of influence have been shown to profoundly impact a child's own academic goals and aspirations, as well as the likelihood that he will successfully complete high school (Alexander, Entwisle, & Kabbani, 2001; Ensminger & Slusarcick, 1992; Henderson & Berla, 1994; Tinto, 1987). Parental educational attainment level is one of the most consistent family background factors examined in relation to student high school completion. A child's chances of exiting school prior to graduation dramatically increase in households where one or more of the child's parents or siblings dropped out of high school (Catalano & Hawkins, 1995; Elliot & Voss, 1974; Gleason & Dynarski, 2002; Hammond, Linton, Smink, & Drew, 2007; Kaufman, Bradbury, & Owings, 1992). Likewise, communal and school cultures that neglect to promote policies and practices valuing scholarly activity, learner engagement, content relevancy, and real-world learning

experiences for all students, regardless of their race, gender, cognitive ability, or socioeconomic status, run the risk of fostering an educational atmosphere that students are willing to abandon (APA, 2009; Bridgeland, Dilulio, & Morrison, 2006; Miller, Ross, & Sturgis, 2005; Obasohan and Kortering, 1999).

At the macrosystem level, graduation coaches work to combat family, school, and community culture issues that may hinder a student's chances of achieving educational success (GaDOE, 2009a). Because substandard academic performance and attendance rates are primary predictors for high school noncompletion (Alexander, Entwisle, & Horsey, 1997; Ensminger & Slusarcick, 1992; Wagner et al., 1993), graduation coaches work to assist their schools and local communities in the development of cultures that value learning (Hammond, Linton, Smink, & Drew, 2007; Henderson & Berla, 1994; Kaufman, Bradbury, & Owings, 1992; Nisbett, 2009), hold lofty expectations for the scholastic outcomes of all students (Adelman, 1999; ADP 2004, 2007; APA, 2009; Camara, 2003), and celebrate academic achievement (Education Trust, 2004; Kannapel & Clements, 2005; Marzano, Pickering, & Pollock, 2001; SREB, 2005, 2006). In many cases, this involves working with educational stakeholders to investigate their personal and collective beliefs about student learning, educating members of the local community on the potential individual and social impact of high school dropout, addressing with teachers the detrimental effects of questionable grading practices and low-level expectations for the quality of student work, and engaging with their school leadership teams to inform decisions concerning equity and access to resources, support, and rigorous academic standards for all students (Adelman, 1999; APA, 2009; Camara, 2003; Pipho & Flakus-Mosquedo, 1984; Tuma & Gifford, 1990).

The Exosystem

The exosystem is comprised of social and environmental factors that have the potential to indirectly affect a child's personal experiences and, as a result, impact various aspects of his growth and development (Meyers, Varkey, Aguirre, 2002). Such factors may include the occupation of a child's parent or adult role model, the status of a child's participation in an organized sport, club, or civic group, the effects of public policy decisions, and the influence of media (Shaffer, 2006). For instance, participation in athletic, scholastic, or civic activities that foster teamwork, personal efficacy, and self-discipline have been shown to increase a student's commitment to school and potential for persistence to high school graduation (Elliott & Voss, 1974; Ingels et al., 2002; Roderick, 1993; Wagner et al., 1993). Conversely, a parent or sibling who is engaged in illegal activity represents an exosystem factor that may contribute to a child's potential for violent or antisocial behavior and an increased likelihood for school dropout (Berk, 2000; Catalano & Hawkins, 1995; Elliot & Voss, 1974). The job experiences of a child's parent including travel requirements, regularity of opportunities for work, and increased levels of stress have the capacity to affect family life, which, in turn, may impact a child and his experiences, actions, and rituals (Catalano & Hawkins, 1995; Craig & Baucum, 2002; Rosenthal, 1998). Potential for high school dropout, for instance, increases significantly when the quest of a child's parent or guardian to find opportunities for work results in a child's high rate of mobility between schools or in changes to his educational services (Ensminger, Lamkin, & Jacobson, 1996; Gleason & Dynarski, 2002; Lehr et al., 2004; Rumberger, 2001; Teachman, Paasch, & Carver, 1996).

Perhaps one of the most noteworthy exosystem factors with respect to a child's decision regarding whether or not to remain in school is the influence of public policy (Berne & Leanna, 1984; Carey, 2004; Duke, 2000; Ladson-Billings, 2006; Slavin, 2005). In many cases, public policy has come to depict children as not only *at risk* and increasingly subject to threats of poverty and violence, but as *a risk* to the existing social order of society (Allensworth, 2004; Apple, 1996; Apple & Wexler, 1978; Ferguson, 2000). Grossberg (2005) argues that youth are increasingly portrayed in the media as ignorant and reckless, the surveillance, regulations, and disciplinary measures taken against them justified in the name of public safety. He notes that

> in most states in the U.S. at sixteen today, [adolescents] cannot get [their] ears pierced…get a tattoo…buy cigarettes…[or] go to the Mall of America…after 6 PM on a Friday or Saturday without [the presence or expressed consent of] a parent. But, they can be tried, [drafted, or] jailed as an adult. (p. 351)

Within such a climate of harsh discipline and disdain, Grossberg suggests that it has become easier to put young people in jail than to provide the education, services, and care they need to face the challenges of a complex and demanding society. Arguing that public policy has long been employed as a vehicle to drive society's "war on youth" (p. 349), Grossberg offers that cuts in the federal government's contribution to education, criticism against local taxes and bond issues to support education, and increased media attention to the failures of public education have led to society's increased acceptance of the incarceration of children in prisons and institutions and the systematic abandonment of their civil liberties.

Like public policy, mass media represent significant factors of influence in the exosystem (Craig & Baucum, 2002; Meyers, Varkey, Aguirre, 2002). As the primary narrative and pedagogical forces of our time, media play a pivotal role in the evolution of

popular culture and its ensuing impact on the making, shaping, and privileging of certain personal and cultural attitudes that can impact aspects of human development (Graber et al., 2006; Rosenthal, 1998; Sax, 2006). Leonard Sax (2006) suggests that American media and popular culture have increasingly served to fuel the academic, moral, and social decline of adolescent boys by reshaping their primary role models and subsequent views of manhood through a “devaluation and disintegration of the masculine ideal” (p. 183). According to Sax, the impact of media imagery as a guide for adolescents seeking to understand appropriate adult behavior has caused many to question whether or not American popular culture is becoming detrimental to the development of today’s youth.

Regardless of gender, many American adolescents struggle with defining gender roles, constructing identity, and developing mature social positions as a result of negative popular culture and media influence (Craig & Baucum, 2002; Graber et al., 2006; Meyers, Varkey, Aguirre, 2002; Sax, 2006). For boys, contemporary media herald the message that no shame should come from lack of motivation or egocentric behavior and that there should be no concern about failing to become what is defined by society as a “real man” (Sax, 2006, p. 163). For girls, media offer that females, as well as their individual and collective aspirations, are valued only for their ability to attract and satisfy the inherent needs of their male counterparts (Graber et al., 2006; Sax, 2006). When considered in concert, Sax contends that the harmful models of adult behavior showcased by the American media have served not only to confuse and alter the perceptions of today’s youth regarding gender roles, but also to initiate a "failure to launch" among many of the nation’s boys (p. 117). Sax argues, for instance, that for generations a desire for money and sex, as well as an understanding that the acquisition of both required work

and acceptance of adult responsibility, led boys to ultimately leave their adolescent days behind to become men. Today, however, the author notes that constant media and cultural messages promise boys access to such aspirations without the expense of responsibility, resulting in an increasing number of American male youth who have come to ask, why grow up?

Graduation coach service provision at the exosystem level seeks to further the notion that children should be viewed as crucial social resources who present, for any healthy society, important ethical and political considerations about the quality of public life, the allocation of social resources, and the role of the state as a guardian of public interests (GaDOE, 2009a). As the criminalization of young people finds its way into the classroom and various other aspects of social life, graduation coaches work to educate school and community stakeholders about the importance of investing in youth as part of a broader commitment to a more substantive democracy, sharing effective strategies for increasing student engagement in school and brokering the support services of parent groups, community justice programs, religious organizations, and social service agencies in an effort to meet the individual and collective needs of their school's at-risk populations (Epstein et al., 1997; Hammond, Linton, Smink, & Drew, 2007; Henderson & Berla, 1994; Rothstein, 2005; WOSPI, 2002). At the school level, this work may represent efforts to implement local and school-based policies that promote increased attendance, character development, school safety, and opportunities for job shadowing and service learning and that seek to discontinue unconstructive policies such as zero tolerance academic and discipline systems, which often serve to create negative and disengaging educational environments that encourage augmented dropout rates (GaDOE,

2008a, 2009a; Graber et al., 2006; Miller, Ross, & Sturgis, 2005; Perry, Steele, & Hilliard, 2003).

The Mesosystem

Comprised of associations that develop across an individual's primary environments, the mesosystem encompasses relational interactions among family, school, home, church, community, neighborhood, and other contexts that have the potential to directly influence an individual's behaviors, attitudes, and values (Berk, 2000). Critical to a child's educational development is the mesosystemic relationship between home and school (Alexander, Entwisle, & Kabbani, 2001; Catalano & Hawkins, 1995; Graber et al., 2006; Henderson & Berla, 1994). Parents who are disconnected from educational issues, who avoid participation in school-related activities and organizations, and who engage in only limited contact with school personnel regarding their child's behavior and academic performance place their children at greater risk for school dropout (Goldschmidt & Wang, 1999; Kaufman, Bradbury, & Owings, 1992; Teachman, Paasch, & Carver, 1996). Rumberger (1995) contends that students whose parents neglect to contact their child's school or teacher prior to his 8th grade school year to inquire about his academic performance are appreciably more at risk for high school noncompletion. Likewise, Jimerson, Egeland, Sroufe, and Carlson (2000) find parental involvement in grade six to be a prime predictor of school dropout by age nineteen.

Other home-school relational factors have shown a potential to influence a child's educational outcomes. Early adult responsibilities such as parenting (Cairns, Cairns, & Neckerman, 1989; Gleason & Dynarski, 2002; Rumberger, 2001), acquiring and maintaining a job to assist with family expenses (Jordan, Lara, & McPartland, 1994), or

taking on the care of younger siblings (Rosenthal, 1998) can impact a student's decision to complete high school, especially when such responsibilities demand more than 20 hours a week of a student's time (Barro & Kolstad, 1987; Goldschmidt & Wang, 1999; Wehlage & Rutter, 1986). Further, a family's socioeconomic status, whether measured via parental education, income, or occupational level, is a strong predictor for child's likelihood for high school completion (Battin-Pearson et al., 2000; Lehr et al., 2004; Rumberger, 2001; Schargel, 2004), as is the level of household stress that can result from changes in a family's structure due to a residential move, financial or health problems, death, divorce, or remarriage (Alexander, Entwisle, & Kabbani, 2001; Catalano & Hawkins, 1995; Ensminger, Lamkin, & Jacobsen, 1996; Rosenthal, 1998).

Whether it be relocating to a new city, dealing with the loss of a loved one, or adjusting to a transition from one school building or grade level to another, many students experience challenges accommodating to changes in their personal, social, or academic structures (Gleason & Dynarski, 2002; Rumberger, 2001; Teachman, Paasch, & Carver, 1996). To combat these challenges, Georgia's middle and high school graduation coaches work in partnership with administrators, teachers, counselors, and community stakeholders to develop and maintain functional transition and parental involvement programs designed to ease the conversion of students from elementary to middle school, middle to high school, and high school to college and/or the workforce (GaDOE, 2008a, 2009a; Gleason & Dynarski, 2002; Kaufman, Bradbury, & Owings, 1992; Teachman, Paasch, & Carver, 1996).

Particularly in times of change, positive interpersonal interaction with caring adults can assist a child in relating and adjusting to modifications in various aspects of his

mesosystem, the skills and confidence encouraged by such interactions serving to increase the child's facility to effectively explore and grow from his experiences (APA, 2009; Berk, 2000; Bronfenbrenner, 1979; Cairns, Cairns, & Neckerman, 1989). As student and family advocates, graduation coaches assist in mediating conflicts, bridging communication gaps, brokering services, and negotiating bureaucracies among home, school, and community agencies (Cotton, 2001; Epstein et al., 1997; Henderson & Berla, 1994; WOSPI, 2002). Case management allows the graduation coach to link students and families to appropriate services targeted toward their individual needs. Drawing upon the resources of pre-established community service networks to arrange for required services that fall beyond the scope of the school, pre-referral counseling and family outreach activities facilitated by the graduation coach help students and their families feel welcome within the school setting and educated regarding the assistive services options that the school stands ready to broker or provide (Abrams & Haney, 2004; APA, 2009; Armijo et al., 1994; Dynarski et al., 2008; Grossman & Garry, 1997).

The Microsystem

Defined by elements that include, characterize, and define the environments that are familiar to and identifiable by an individual, the microsystem includes the principal structures, such as one's home, family, friends, neighborhood, school, and social organizations, with which the individual has the most direct contact and from which he is most likely to be influenced (Berk, 2000; Meyers, Varkey, Aguirre, 2002; Schaffer, 2006). According to Bronfenbrenner (1979), relationships at this primary level have bi-directional influence, with individuals or groups interacting and directly affecting the beliefs, values, and actions of others who coexist within the microsystem. For example,

while a child's peer groups may exert influence on his attitudes, thoughts, and behaviors, the child, in a similar manner, holds the power to affect the acts, ideals, and views of his peer groups. Likewise, while adults have the capacity to directly affect the behaviors of children, biologically- and socially-influenced child characteristics can, too, shape the conduct of adults, including that of a child's parents, teachers, and other primary and secondary stakeholders. As result of these bi-directional influences, an individual is far from passive with respect to construction of his microsystemic elements (Addison, 1992; Bronfenbrenner, 1990; Craig & Baucum, 2002; Graber et al., 2006).

Students at risk of dropping out often have significant personal, family, and social microsystem barriers that interfere with their ability to attend and excel academically in school (Alexander, Entwisle, & Kabbani, 2001; Dynarski et al., 2008; Rumberger, 2004; Kaufman, Bradbury, & Owings, 1992). Antisocial behaviors including aggression, substance abuse, and participation in illegal activities have been linked to school dropout in middle and high school students (Battin-Pearson et al., 2000; Ekstrom, Goertz, Pollack, & Rock, 1986; Wehlage & Rutter, 1986), as have early engagement in sexual activity, low self-esteem, and involvement with an at-risk peer group (Cairns, Cairns, & Neckerman, 1989; Catalano & Hawkins, 1995; Elliott & Voss, 1974; Rosenthal, 1998). Likewise, a student's educational experiences, most notably his academic performance and engagement in school, have been shown to impact markedly his probability of graduating from high school (Bloom, Gardenhire-Crooks, & Mandsager, 2009; Ensminger & Slusarcick, 1992; Rumberger, 2001; Wagner et al., 1993).

Whether measured via formative or summative outcomes at the local, state, or national level, student academic performance is considered to be a reliable predictor for

high school completion, with its impact beginning to emerge as early as elementary school (Alexander, Entwisle, & Kabbani, 2001; Lloyd, 1978; Nisbett, 2009) and continuing to grow throughout a student's progression through middle (Battin-Pearson et al., 2000; Gleason & Dynarksi, 2002; Ingels et al., 2002) and high school (Alexander, Entwisle, & Kabbani, 2001; Ekstrom et al., 1986; Elliot & Voss, 1974). Substandard academic performance is among the primary determinants cited by dropouts for their leaving school prior to graduation (Bridgeland, Dilulio, & Morison, 2006; Ekstrom et al., 1986; Jordan et al., 1994). Retention, which has been found to increase student dropout probability at any grade level and incrementally with multiple instances, is a key factor related to school performance (Cairns, Cairns, & Neckerman, 1989; Gleason & Dynarski, 2002; Janosz, LeBlanc, Boulerice, & Tremblay, 1997, 2000; Rumberger, 2001). At higher risk for retention and, ultimately, high school noncompletion are students with disabilities, who are particularly vulnerable to multiple risk factors, especially in the area of academic performance (Lehr et al., 2004; Lloyd, 1978; Wehlage & Rutter, 1996). A national study of high school students found those with disabilities to fall, on average, three years behind grade level in both reading and mathematics, exhibiting lower grade point averages than their counterparts without disabilities and holding a higher probability for having failed a course or being credit deficient at the high school level (Wagner et al., 1993).

Highly related to a student's academic performance and, thus, his likelihood for persistence to graduation is his level of overall engagement in school (Alexander, Entwisle, & Horsey, 1997; Ferguson, 2008; Roderick, 1993; Rumberger, 2001). Whether a cause or result of poor scholastic achievement, disengagement from school, be it

academic, behavioral, psychological, or social, is a leading indicator for early withdrawal from the educational setting (Bloom, Gardenhire-Crooks, & Mandsager, 2009; Hammond, Linton, Smink, & Drew, 2007; Perry, Steele, & Hilliard, 2003). Student academic disengagement from school can often be gauged according to absenteeism (Alexander, Entwisle, & Horsey, 1997; Bridgeland, Dilulio, & Morrison, 2006; Wagner et al., 1993), truancy in individual courses (Ekstrom, Goertz, Pollack, & Rock, 1986; Wehlage & Rutter, 1986), and lack of preparedness for class or individual assignments (Kaufman, Bradbury, & Owings, 1992). Behavioral indicators such as delinquency or misconduct can also reflect disengagement and result in increasing a student's disconnection from school when such behaviors begin to result in disciplinary action (Alexander, Entwisle, & Kabbani, 2001; Perry, Steele, & Hilliard, 2003; Wehlage & Rutter, 1986). Behavioral problems in both middle (Gleason & Dynarski, 2002; Kaufman, Bradbury & Owings, 1992) and high school (Alexander, Entwisle, & Kabbani, 2001; Ekstrom, Goertz, Pollack, & Rock, 1986; Wehlage & Rutter, 1986) have been consistently linked to school dropout, with several studies targeting misbehavior as an indicator for school dropout as early as the first grade (Alexander, Entwisle, & Horsey, 1997; Ensminger & Slusarcick, 1992; Jimerson, Egeland, Sroufe, & Carlson, 2000). Psychological disengagement, which can manifest itself in low educational aspirations, uncertainty regarding high school completion, or hesitation in planning for postsecondary education or work beyond high school, has also been shown to significantly enhance the likelihood that a student will drop out of school prior to acquiring a diploma (Gleason & Dynarski, 2002; Kaufman, Bradbury, & Owings, 1992). Surveys of high school dropouts reveal psychological disengagement from school to have been a prime factor in their

decision to ultimately leave school, with dropouts noting that they often "felt they didn't belong" (Hammond, Linton, Smink, & Drew, 2007, p. 13), had problems getting along with their teachers, or simply did not enjoy being in school (Bloom, Gardenhire-Crooks, & Mandsager, 2009; Ekstrom, Goertz, Pollack, & Rock, 1986; Jordan, Lara, & McPartland, 1994). Likewise, social disengagement from school can result from a lack of involvement in school-related activities and organizations (Elliot & Voss, 1974; Ingels et al., 2002; Roderick, 1993), poor social skills (Jimerson, Egeland, Sroufe, & Carlson, 2000), or an association with an at-risk peer group (Cairns, Cairns, & Neckerman, 1989). Ultimately, a student's progression through various stages of academic, behavioral, psychological, and social disengagement from school prior to his eventual decision to withdraw reveals school dropout to be a developmental process rather than a single event (Hammond, Linton, Smink, & Drew, 2007). In fact, Bridgeland, Dilulio, and Morrison (2006) found students often beginning to feel alienated from school up to three years prior to their decision to drop out, with 71 percent of dropouts surveyed losing interest in school in the 9th or 10th grade and a majority beginning to miss class regularly over the course of the year they dropped out: "Students described a pattern of refusing to wake up, missing school, skipping class, and taking three-hour lunches — and each absence made them less willing to go back" (p. 8).

Research suggests that students who develop ongoing relationships with caring adults in an educational setting feel a greater sense of school membership, engagement, and involvement (Bridgeland, Dilulio, & Morison, 2006; Hammond, Linton, Smink, & Drew, 2007; Roderick, 1993; Wehlage, 1989; Wehlage et al., 1989). Positive adult-student relationships have been associated with improved student achievement,

communication, and social skills and decreased instances of student misconduct, absenteeism, and school dropout (Grossman & Garry, 1997; Nisbett, 2009; Pringle, Anderson, Rubenstein, & Russo, 1993; Sipe, 1996; Smith, Oaks, & Rosenberg, 1991). As such, the principal work of Georgia's graduation coaches at the microsystem level lies in identification of and support for students at risk of dropping out before or during high school; personal, academic, and career advisement; and implementation of intervention and remediation programs for academically at-risk students (GaDOE, 2009a).

Research has long associated dropping out of school with a number of individual factors, including demographic characteristics such as race or ethnicity (Battin-Pearson et al., 2000; Ekstrom, Goertz, Pollack, & Rock, 1986; Teachman, Paasch, & Carver, 1996), gender (Goldschmidt & Wang, 1999; Rumberger, 2001), immigration status (Rumberger, 1995), socioeconomic status (Coleman et al., 1966; Duke, 2002; Edmonds, 1979; Neuman & Celano, 2001), limited cognitive or other abilities (Lehr et al., 2004; Schargel, 2004; Wagner et al., 1993; Wehlage & Rutter, 1986), and personal experiences both related and unrelated to school (Cairns, Cairns, & Neckerman, 1989; Jordan, Lara, & McPartland, 1994; Putnam, 2000). However, consensus supports that the highest levels of predictive power for school dropout results from a combination of individual, family, school, and community factors considered in concert (Dynarski et al., 2008; Hammond, Linton, Smink, & Drew, 2007; Hawkins, Catalano, & Miller, 1992; Rumberger, 2001). Since the program's inception in the fall of 2006, the service caseloads of Georgia's high school graduation coaches have been comprised of students whose characteristics meet those defined by the National Dropout Prevention Center's profile for at-risk students (GaDOE, 2008a, 2009a). These characteristics include a history of school failure,

retention, or credit deficiency; substandard academic achievement; failure of one or more state-mandated assessments; high instances of truancy, behavioral problems, or school suspension; disengagement from school and/or lack of extracurricular involvement; categorization in a specialized student subgroup such as economically disadvantaged (ED), English language learner (ELL), or student with disabilities (SWD); and other various social and personal factors (Barro & Kolstad, 1987; Griffin, 2002; Hammond, Linton, Smink, & Drew, 2007; Miller, Ross, & Sturgis, 2005).

To enable graduation coaches to make more consistent, data-driven decisions regarding which intervention services to deliver and to whom, the Georgia Department of Education introduced in the fall of 2007 an online system designed to assist in the identification of students at risk of dropping out of school or otherwise not earning a high school diploma. The Graduation Coach Work Management System (WMS) provides a candidate roster detailing the academic at-risk criteria and unique risk ratio calculation for each student in a graduation coach's school population. At the high school level, a student's risk ratio provides a consolidated measure of the degree to which he may be academically at risk of not graduating by considering a student's rate of attendance for the previous school year, credit deficiency status, retention status, and performance on each GHSGT and End Of Course Test (EOCT) assessment respectively (GaDOE, 2008a, 2009a). Research strongly supports these criteria as primary predictors of a student's academic performance and, as a result, his likelihood of completing high school (Alexander, Entwisle, & Kabbani, 2001; Bridgeland, Dilulio, & Morison, 2006; Goldschmidt & Wang, 1999; Janosz, LeBlanc, Boulerice, & Tremblay, 1997, 2000; Jimerson, Egeland, Sroufe, & Carlson, 2000).

The risk ratio, in conjunction with student referrals designed to identify personal risk factors for high school noncompletion, aids the graduation coach in not only identifying more successfully those students with the greatest potential to benefit from intervention services, but also in recognizing pervasive needs within a school, prioritizing assistance and structuring service levels based on co-occurrence of multiple risk factors, and cataloging progress in working with at-risk and whole school student populations (GaDOE, 2008a, 2009a). A more detailed description of the risk ratio metric and its calculation is offered in Chapter three.

As an advocate and primary support mechanism for students at risk for high school dropout, each high school graduation coach works to assist students on his caseload in addressing the unique academic, personal, and emotional challenges that serve as barriers to their growth as scholars and individuals. Driven by the specific needs of a given school and its at-risk population, the work of the graduation coach may vary slightly according to site and region; however, the general scope of graduation coach service provision at the microsystem level includes modeling positive and respectful behavior; offering guidance, stability, and assistance in making intelligent personal and educational choices; garnering family and community support; and collaborating with school leadership, teachers, and other student support staff to acquire resources, broker extra help, and address the individual and collective challenges faced by the at-risk students on his caseload (Epstein et al., 1997; GaDOE, 2008a, 2009a; Grossman & Garry, 1997).

Frequently, students who exhibit risk factors for high school noncompletion require the consistent personal attention, encouragement, and support of adult role

models in order to achieve and maintain success in school and life (Grossman & Garry, 1997; McPartland & Nettles, 1991; Pringle, Anderson, Rubenstein, & Russo, 1993; Sipe, 1996). Graduation coaches advise their caseload students on issues of personal development, social support, and post secondary preparation, offering services related to behavior and discipline management, life skills training, leadership and character development, service learning, skill development, job shadowing, and career planning (Armijo et al., 1994; Cotton, 2001; Howard & Johnson, 2002; Lehr et al., 2004). They assist students in undertaking career, personality, and interest exploration inventories in an effort to investigate and plan their options for the future (ADP, 2007; Bloom, Gardenhire-Crooks, & Mandsager, 2009; SREB, 2005, 2006). Additionally, graduation coaches provide academic advisement services to the students on their caseloads, addressing issues of chronic truancy, intellectual disengagement, and lackluster academic performance (Griffin, 2002; Hammond, Linton, Smink, & Drew, 2007; Smith, Oaks, & Rosenberg, 1991). Working to proactively combat issues related to scheduling, discipline, and classroom support, graduation coaches conference with teachers, communicate with parents and students, and provide one-on-one and peer academic mentoring sessions in an effort to tender targeted support and foster in at-risk students a sense of belonging that many do not regularly experience in school (GaDOE, 2008a, 2009a ; Levine & Lezotte, 1990; Miller, Ross, & Sturgis, 2005; NGA, 2005 Roderick, 1993).

Because an individual's academic performance has been found to significantly impact his chances for high school completion (Bridgeland, Dilulio, & Morison, 2006; Ekstrom, Goertz, Pollack, & Rock, 1986; Jordan, Lara, & McPartland, 1994; Rumberger, 2001; Wagner et al., 1993), academic intervention and remediation programs designed to

assist students in recovering credit, improving academic performance, and re-engaging at-risk children in school are a critical part of the work of Georgia's graduation coaches (GaDOE, 2009a). Graduation coaches arrange opportunities for their caseload students to engage in credit recovery courses, general academic tutoring, and preparatory/remediation support sessions for both individual subject courses and state-level content area assessments. Designed to offer personalized attention and specialized instructional support at each student's emergent learning level, these extra help opportunities, which generally take place in one-on-one or small group settings during the school day, after school, on the weekend, or as part of a summer enrichment program, provide a safe environment for struggling students to learn, receive assistance and encouragement, and develop the self-confidence they need to persist in challenging courses. Most significant, however, is the power of such support structures to offset cycles of academic frustration and enrich scholarly experiences for students who have often become discouraged about learning and dissatisfied with school (GaDOE, 2008a, 2009a; Hammond, Linton, Smink, & Drew, 2007; Marzano, Pickering, & Pollock, 2001; NASSP, 2004).

Social Capital Theory

While Bronfenbrenner's ecological systems theory establishes the significance of context and environment in human life experiences, it fails to fully account for the various ways that interactions between an individual and his environment can serve to impact human behavioral outcomes. Social capital theory, while not specifically part of the theoretical framework for this study, complements Bronfenbrenner's model by providing a structure for moving beyond a simple recognition of the entrenched

relationship between an individual and his environment to examining the ways that personal and communal values, beliefs, power structures, and resources can serve to shape, influence, and control human behavior (Baron, Field, & Schuller, 2000; Lin, 2001; Morrow & Torres, 1995; Putnam, 2000; Schorr, 1988, 1994). Research suggests that programs designed to foster social capital have the potential to benefit youth, especially those who are at-risk for high school dropout, because they offer strategies and resources that enhance a wide range of positive personal and social outcomes (Eccles & Gootman, 2002; Erikson, 1968; Frank & Yasumoto, 1998; Furstenberg & Huges, 1995). A narrowly- focused program, such as one that promotes drug avoidance strategies, may teach participants a set of specific skills that are useful in the context of avoiding certain risky behaviors. However, such strategies and skills alone are unlikely to be useful for youth in solving other problems they face, such as finding meaningful employment. In contrast, a program that adds to an individual's stock of social capital by building civic skills and assisting in the development of well-articulated, broadly-based social networks may hold more real-world relevancy and better equip adolescents for solving all manner of problems they may face in the future. Resources and skills acquired as a result of such comprehensive programs can then work synergistically to help participants achieve positive developmental outcomes, broaden their horizons, imagine a more positive future for themselves, and successfully reach their goals.

Central to social capital theory is the idea that "relationships matter" and that social networks are valuable assets that, when utilized effectively, can foster community building and social commitment (Field, 2003, p. 1). However, according to Beem (1999), the concept of social capital is highly dependent upon trust:

> Trust between individuals thus becomes trust between strangers and trust of a broad fabric of social institutions; ultimately, [this trust fosters the development of] a shared set of values, virtues, and expectations within society as a whole. (p. 20)

Within such an environment of mutual trust, social capital resources are an inherent and valued byproduct of individual-systems interaction (Beem, 1999; Field, 2003). For example, communities with high levels of social capital are generally cleaner, healthier, safer, and more civically active, with lower rates of crime, poverty, and residential mobility and higher rates of educational attainment (Bronfenbrenner, 1979, 1990; GDC, 2007; National, 2007; McKinsey & Company, 2009; SREB, 2005). Likewise, individuals who possess strong and trusting family, school, peer, and community connections are more apt to establish and retain positive character traits that are highly valued by society (Alexander, Entwisle, & Kabbani, 2001; Carnevale, 2008; Henderson, 1995; Putnam, 2000).

Education is an important investment in both human and social capital that possesses the potential to benefit both the community and the individual (Alliance, 2008; Befield & Levin, 2007; Diplomas Count, 2008; Doland, 2001). From an economic perspective, Carneiro and Heckman (2002) offer that, as of the 1990s, the mean individual rate of return per year of schooling is greater than 10 percent and may be as high as 17 to 20 percent, regardless of one's race, gender, or ability level. This equates to an estimated earnings difference between a dropout and a high school graduate of approximately $9,000 per year and more than $300,000 over the course of a lifetime (Belfield & Levin, 2007; Doland, 2001; Levin, Belfield, Muennig, & Rouse, 2007). When the societal cost of crime, health care, and government subsidies are taken into consideration, the public benefit of educational investment may be equal to or greater

than the private benefit (Cohen, 1998; Levin, Belfield, Muennig, & Rouse, 2007). McKinsey & Company (2009) offer that, for the U.S. economy as a whole, closing the educational achievement gap between the United States and higher-performing world nations such as Finland and Korea could mean a gross domestic product increase of between $1.3 trillion and $2.3 trillion annually. Income and taxable gains, however, represent only a subsection of the private and communal advantage that can be gleaned from education. Communities composed of individuals with high educational attainment levels are more apt to benefit from lower crime figures, better health, and enhanced rates of economic growth, employment, and civic engagement (Befield & Levin, 2007; Bureau, 2007; Ensminger, Lamkin, & Jacobson, 1996; Henderson, 1995).

Taken together, ecological systems theory and social capital theory provide a unified guiding framework for the work of Georgia's graduation coaches. Investing heavily in the social capital of the individual student and the community at large, graduation coaches assist in building the strong and trusting family, school, peer, and community connections that research supports are critical in shaping a child's beliefs regarding the importance of scholarship and, ultimately, persistence to high school graduation (Camara, 2003; Darling-Hammond, 1999; Epstein et al., 1997; Kannapel & Clements, 2005; WOSPI, 2002). In addition to their role as conduits for providing students the supportive and developmental resources they need to find success in school, graduation coaches strive to shape and enhance broader social beliefs and attitudes with respect to the value of education, celebrating the successes of their students and educating school, family, and community stakeholders regarding the most appropriate ways to assist these students in becoming productive and valued members of society (Alexander,

Entwisle, & Kabbani, 2001; GaDOE, 2008a, 2009a; Kaufman, Bradbury, & Owings, 1992; Nisbett, 2009).

CHAPTER 3

METHODS

Research Questions

The purpose of this study is to investigate the student-level impact of graduation-targeted intervention services implemented by Georgia high school graduation coaches. Specifically, the study aims to address the following research questions:

1. What are the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity?
2. What is the relationship between graduation coach service provision (caseload students versus non-caseload students) and academic achievement as measured by student outcomes on the English/language arts and mathematics components of the Georgia High School Graduation Test (GHSGT) when controlling for student risk ratio?

Research Design

This study employs a quasiexperimental nonequivalent control group design utilizing student risk ratio and individualized GHSGT scores in English/language arts and mathematics as measures to compare students who received the services of a graduation coach to those who did not. Often employed as a tool to measure group reaction to a given treatment or experience, the nonequivalent control group design compares

nonrandomly assigned groups to determine how an independent variable may serve to impact a desired outcome (Rossi & Freeman, 1993). Because subject selection in this research design is not random, causal inferences are more difficult to support, and threats to internal validity, especially history and selection, are heightened. For the purposes of this study, preexisting graduation coach caseload and noncaseload student groups are compared. The effects of selection differences are minimized by controlling for the variances accounted for by risk ratio measures (Wholey, Hatry, & Newcomer, 2004).

Instruments

The study employs two instruments as measures of student achievement: student GHSGT scores in English/language arts and mathematics and student risk ratio.

Georgia High School Graduation Test

Required of Georgia high school students since the first operational tests of English/language arts and mathematics were administered in the Spring of 1994 (Measurement Incorporated, 1998), the GHSGT assesses student mastery of core academic content and skills in the areas of English/language arts, mathematics, science, and social studies. Students who wish to obtain a high school diploma in the state of Georgia must pass with a minimum of basic proficiency all four GHSGT content area assessments in addition to a requisite Georgia High School Writing Test (GaDOE, 2009b). Each assessment is first administered during a student's 11th grade year, with the Georgia High School Writing Test being offered in the fall and the GHSGT being offered in the spring, to allow for multiple remediation and retest opportunities prior to the spring of his senior year. While students with disabilities (SWD) and English language learners (ELL) are eligible for appropriate testing accommodations as outlined in their respective

Individualized Education Programs, Individualized Accomodation Plans, or ELL Testing Participation Committee Plans, any student unable to take part in or successfully complete with basic proficiency all requirements of the state testing program is eligible only for a Certificate of Performance or a Special Education Diploma. However, students exiting school with a Certificate of Performance or a Special Education Diploma may opt at any time and as often as necessary to attempt an unpassed section of the GHSGT to qualify for a Georgia high school diploma (GaDOE, n.d.b).

In overseeing the development of all state-mandated assessments, including the GHSGT, the Georgia Department of Education adheres to the *Standards for Educational and Psychological Testing* (1999) as instituted by the American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME). Test reliability for the GHSGT is reported via two reliability indices: Cronbach's alpha reliability coefficient (1951) and standard error of measurement (SEM). The 2008 – 2009 school year found many state assessments caught in the transition from Georgia's previously mandated curriculum, the Quality Core Curriculum (QCC), to the state's new curriculum, the Georgia Performance Standards (GPS) (GaDOE, 2009e). Table 4 displays the reliability indices in terms of Chronbach's alpha for the Spring 2008, Fall 2008, and Spring 2009 administrations of the GHSGT in each subject area. Note that variance in mean scores and sample size for the spring and fall administrations are related to the fact that first-time test takers are administered the GHSGT battery each spring while retests only are administered in the fall.

Table 4

Reliability Indices for Spring 2008, Fall 2008, and Spring 2009 Georgia High School Graduation Test Administrations

Subject	Administration	Version	Sample Size	Number of Items	Mean	SD	Alpha	Raw Score SEM
English/ Language Arts	Spring 2008	GPS	93,536	55	42.48	7.45	0.87	2.73
	Fall 2008	GPS	*NA	55	32.73	9.83	0.89	3.25
	Spring 2009	GPS	95,512	55	42.02	8.20	0.89	2.78
Mathematics	Spring 2008	QCC	93,746	65	51.36	10.65	0.93	2.85
	Fall 2008	QCC	*NA	65	37.73	11.88	0.91	3.56
	Spring 2009	QCC	95,566	65	51.10	10.44	0.92	2.89
Science	Spring 2008	GPS	93,405	70	48.10	12.23	0.92	3.49
	Fall 2008	GPS	*NA	70	34.31	10.41	0.86	3.85
	Spring 2009	GPS	95,355	70	47.37	12.34	0.92	3.53
Social Studies	Spring 2008	GPS/QCC	93,358	80	54.38	14.09	0.93	3.74
	Fall 2008	GPS/QCC	*NA	80	37.44	11.49	0.87	4.13
	Spring 2009	GPS/QCC	95,222	80	51.86	14.90	0.93	3.81

(GaDOE, 2008b, 2009e)
*The Georgia Department of Education does not produce a testing brief for retest administrations of the GHSGT.

Alpha and SEM values for the Spring 2008, Fall 2008, and Spring 2009 GHSGT administrations were consistent with previous administrations, suggesting that "GHSGT assessments are sufficiently reliable for their intended purpose" and provide a reliable representation of student academic performance (GaDOE, 2009e, p. 6).

Validity of the GHSGT is ensured by assessing the alignment of test items with subject area curriculum objectives, establishing cut scores derived by a modified Angoff procedure that reflect a minimum content mastery requirement, using the Rasch model (Wright & Linacre, 1993) to equate test editions, and employing differential item functioning (DIF) to determine fairness and bias (Bunch & Klaric, 1997; GaDOE, 2009e). Test designers glean input from Georgia educators in the development, review, and field testing of content descriptors and sample test items to further ensure content alignment and item impartiality. Additionally, the Georgia Department of Education periodically conducts independent content alignment studies and analyses comparing

how the constructs of the GHSGT measures compare with other assessments (GaDOE, 2009e).

Risk Ratio

Developed by researchers at the Georgia Department of Education using the National Dropout Prevention Center's profile of significant academic risk factors for school dropout (Hammond, Linton, Smink, & Drew, 2007), the student risk ratio is a metric ranging from zero to one, with zero indicating a student who exhibits no academic risk for high school noncompletion and one indicating a student who presents risk on all factors considered. All Georgia students with a risk ratio value greater than zero are classified as at risk, with graduation coaches targeting those students in their schools who possess higher risk ratios and greatest personal need to receive intensive caseload support (GaDOE, 2008a, 2009a).

While not expressly a risk criteria for high school dropout, the student risk ratio represents a consolidated measure of the degree to which a student may be academically at risk for high school noncompletion by considering the total number of factors for which a student has been identified as at risk in light of the total number of factors for which he was evaluated. Calculated as $\sum AR / (\sum AR + \sum NAR)$, where $\sum AR$ equals a summation of the factors for which a student has been identified as at risk and $\sum NAR$ equals a summation of the factors for which a student has not been identified as at risk, student risk ratio at the high school level is comprised of a student's rate of attendance for the previous school year, credit deficiency status, retention status, and performance on each GHSGT and End Of Course Test (EOCT) assessment respectively (GaDOE, 2008a, 2009a). Research strongly supports these criteria as primary predictors of a student's

academic performance and, as a result, his likelihood of completing high school (Alexander, Entwisle, & Kabbani, 2001; Battin-Pearson et al., 2000; Bridgeland, Dilulio, & Morison, 2006; Hammond, Linton, Smink, & Drew, 2007; Wehlage & Rutter, 1996).

For the student attendance risk factor determination, an attendance rate of less than 92 percent for the previous school year is used to identify a student as at risk for high school noncompletion. A student is identified as at risk due to credit deficiency if he failed during the previous school year to obtain the Carnegie units necessary to meet district requirements for promotion to the next grade level. At-risk status due to retention is assigned to a student if he has been retained for one or more years since entering school. For each GHSGT and EOCT subject area at-risk determination, a student's maximum performance across all test administrations by subject is evaluated to determine if basic proficiency, the minimal level of performance required to achieve a passing score, has been met. Factors for which a student could not be evaluated are not included in calculation of the risk ratio (GaDOE, 2008a, 2009a). It is important to note that since the GHSGT battery is first administered to students in the spring of the 11th grade year, a student's scores on these assessments are not included as part of his risk ratio calculation until after his first attempt GHSGT results have been recorded. Thus, it is possible for a student to manifest an increase in academic risk for high school dropout at the close of his junior year due solely to failure of multiple GHSGT assessments and the addition of these individual components into his risk ratio calculation.

Since the 2003 – 2004 school year, the state of Georgia has been in the process of transitioning from its previously mandated curriculum, the Quality Core Curriculum (QCC), to the state's new curriculum, the Georgia Performance Standards (GPS). In

order to receive a diploma, students are required to pass GHSGT assessments that correspond to the subject area curricula they engaged in during their tenure in high school (GaDOE, 2009b). Table 5 outlines the required GHSGT version by high school enrollment year.

Table 5

Required Georgia High School Graduation Test Assessment Version by High School Entrance Year

Year Student Entered 9th Grade	Required Assessment			
	ELA	Mathematics	Science	Social Studies
Prior to 2003	QCC	QCC	QCC	QCC
2003 – 2004	Transitional	QCC	Transitional	QCC
2005 – 2006	Transitional	QCC	Transitional	QCC
2006 – 2007	GPS	QCC	GPS	Transitional
2007 – 2008	GPS	QCC	GPS	Transitional
2008 – 2009	GPS	GPS	GPS	GPS

(GaDOE, 2009e)

Students identified as at risk for high school noncompletion due to GHSGT performance have failed to meet basic proficiency on one or more GHSGT subject area assessment (GaDOE, 2008a, 2009a). Table 6 overviews the scale score ranges that determine each test performance level.

Table 6

Performance Level Scale Score Ranges for Georgia High School Graduation Tests

Subject	Version	Below Proficiency	Basic Proficiency	Advanced Proficiency	Honors
English/ Language Arts	QCC/Transitional	400 – 499	500 - 537	538 or above	NA
	GPS	below 200	200 - 234	235 - 274	275 - 350
Mathematics	QCC	400 – 499	500 - 534	535 or above	NA
Science	GPS	below 200	200 - 234	235 - 274	275 - 350
	QCC/Transitional	400 – 499	500 - 530	531 or above	NA
Social Studies	QCC/ Transitional	400 – 499	500 - 525	526 or above	NA

(GaDOE, 2009e)

As with at-risk status for GHSGT, student EOCT at-risk status is separately tracked for each test, and a reported achievement level of Did Not Meet (DNM), which denotes failure on a given assessment, is used to determine student at-risk status (GaDOE, 2008a, 2009a). The state of Georgia requires EOCT content area assessments to be administered to any student enrolled in or receiving credit for Georgia Performance Standards (GPS) courses Mathematics I, Mathematics II, United States History, Economics, Biology, Physical Science, Ninth Grade Literature and Composition, and American Literature and Composition; Quality Core Curriculum (QCC) courses Algebra I and Geometry will continue to require a companion EOCT through the end of the QCC course phase out at the close of the 2010-2011 school year (GaDOE, n.d.a)

For EOCT in Ninth Grade Literature and Composition, American Literature, Biology, Physical Science, U.S. History, and Economics, a scale score of 400 is necessary to meet state standards, and a scale score of 450 or higher is necessary to exceed state standards. It is important to note that the EOCT in Ninth Grade Literature and Composition, American Literature, Biology, and Physical Science were aligned with the Georgia Performance Standards (GPS) beginning with the 2005 – 2006 school year; EOCT in U.S. History and Economics were aligned with the GPS beginning with the 2007 – 2008 school year. With the transition from the QCC to the GPS, both the content and the performance standard for these tests changed; thus the new GPS-based EOCT are not comparable to previous QCC-based tests. For EOCT in Algebra I and Geometry, a scale score of 600 is necessary to meet standard, and a scale score of 630 or higher demonstrates a performance level of exceeds standard. The Algebra I and Geometry

EOCT continue to be aligned to the QCC (GaDOE, n.d.a). Table 7 overviews student performance on the Spring 2008 and Spring 2009 Georgia EOCT by performance level.

Table 7

Performance Level Scale Score Ranges for Georgia End of Course Tests

Subject	Version	Did Not Meet Standard	Meets Standard	Exceeds Standard
9th Grade Literature/ Composition	GPS	below 400	400 – 449	450 or above
American Literature/ Composition	GPS	below 400	400 – 449	450 or above
Biology	GPS	below 400	400 – 449	450 or above
Physical Science	GPS	below 400	400 – 449	450 or above
U.S. History	GPS	below 400	400 – 449	450 or above
Economics	GPS	below 400	400 – 449	450 or above
Algebra I	QCC	below 600	600 – 629	630 or above
Geometry	QCC	below 600	600 – 629	630 or above

(GaDOE, n.d.a)

Description of the Sample

For the purposes of education support and improvement, the Georgia Department of Education assigns each of the state's 182 counties to one of five improvement regions (GaDOE, 2009d). Figure 1 displays Georgia's five school improvement regions by county.

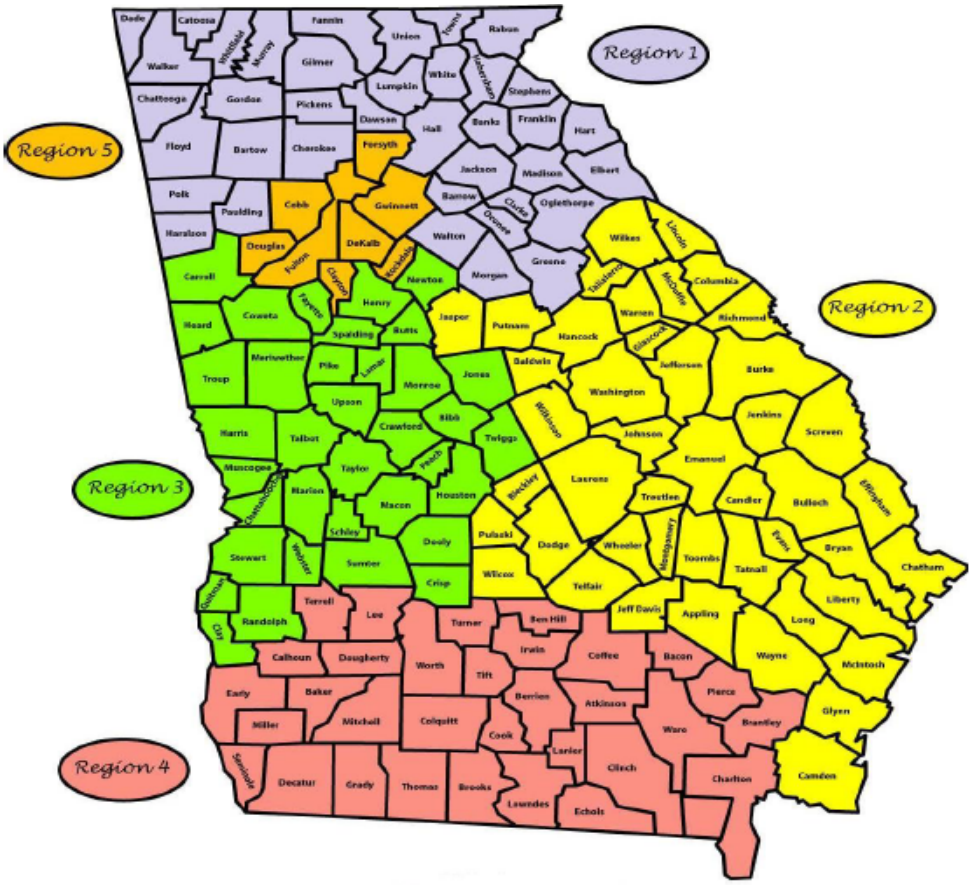

Figure 1. Georgia Department of Education School Improvement Region Map (GaDOE, 2009d)

The sample for this study includes 39,326 Georgia students continuously enrolled in the 11th grade during the 2008 – 2009 school year from the October full-time equivalent (FTE) student count day through the close of the 2008 – 2009 state testing window (October 7, 2008 – April 3, 2009) and characterized as at risk for high school noncompletion by virtue of possessing a student risk ratio greater than zero. Of these students, 9,076 (23.08%) were selected as caseload students to receive the intervention and support services of a graduation coach (GaDOE, 2009c). Table 8 details the gender, ethnicity, and school improvement region of sample as broken down by graduation coach noncaseload and caseload student totals.

Table 8

Gender, Ethnicity, and School Improvement Region of Sample by Graduation Coach Noncaseload and Caseload Students

Variable		Noncaseload		Caseload	
		Number	Percent	Number	Percent
Gender	Male	13,818	45.68%	4,655	51.29%
	Female	16,432	54.32%	4,421	48.71%
Ethnicity	Caucasian	11,321	37.42%	3,438	37.88%
	African American	15,413	50.95%	4,698	51.76%
	Hispanic	2,222	7.35%	676	7.45%
	Multi-racial	641	2.12%	163	1.80%
	American Indian	44	0.15%	16	0.18%
	Asian/Pacific Islander	609	2.01%	85	0.94%
School Improvement Region	Region 1	5,385	17.80%	2,232	24.60%
	Region 2	4,801	15.87%	1,848	20.36%
	Region 3	5,999	19.83%	1,840	20.27%
	Region 4	2,567	8.49%	1,124	12.38%
	Region 5	11,498	38.01%	2,032	22.39%

(GaDOE, 2009c)

Graduation coaches provide services based on the magnitude of a student's personal and academic risk for high school noncompletion. The caseload capacity of a graduation coach is finite, and in many locations, particularly high schools, the number of students identified as at risk exceeds the recommended graduation coach caseload capacity of 80 to 125 students. A variety of data elements reflecting student achievement and enrollment status are collected each year by the Georgia Department of Education. Leveraging this longitudinal data, the Graduation Coach Work Management System (WMS) application applies decision rules to generate a list of candidate students who may benefit from the services provided through the graduation coach program. The candidate roster component of the WMS provides a rank-ordered list of students currently enrolled in a given school who meet one or more at-risk criteria for dropping out or not graduating with a standard high school diploma. The candidate roster conveys not only the academic indicators for which a student was identified as at risk, but also a student's

standing with regard to each of the indicators for which he was evaluated. As a result, graduation coaches may sort or filter their candidate rosters based on detailed student information including individual student assessment scores, percentage of days a student was present at school during the previous school year, student credit deficiency status, and the number of years a student has been retained in order to prioritize assistance, provide tiered support when intervention resources are limited, and make critical determinations, with guidance and monitoring by the Georgia Department of Education, about which students should be included on their caseloads (GaDOE, 2009a). Factors that comprise the student risk ratio at the high school level include rate of attendance for the previous school year, credit deficiency status, retention status, and student performance on each GHSGT and End Of Course Test (EOCT) assessment (GaDOE, 2009a). Table 9 overviews the sample's graduation coach caseload composition by academic at-risk indicator as measured in August of 2008 (GaDOE, 2009c).

Table 9

August 2008 Graduation Coach Caseload Composition by Academic At-Risk Indicator

At-Risk Indicator	# of Caseload Students At Risk	% of Caseload Students At Risk
Attendance	4,260	29.65%
GHSGT – English/Language Arts	2,195	15.28%
GHSGT – Mathematics	2,199	15.30%
GHSGT – Social Studies	2,190	15.24%
GHSGT – Science	2,226	15.49%
EOCT – Math I	2,469	17.18%
EOCT – Math II	3,121	21.72%
EOCT – US History	3,284	22.86%
EOCT – Economics	453	3.15%
EOCT – Biology	3,326	23.15%
EOCT – Physical Science	2,266	15.77%
EOCT – 9th Language/Comp	499	3.47%
EOCT – American Lit/Comp	1,230	8.56%
Credit Deficient Status	3,460	24.08%
Retention Status	2,188	15.23%

(GaDOE, 2009c)

Data Collection

Data for this study, including all data related to student achievement, gender, ethnicity, risk ratio, enrollment status, school improvement region, and graduation coach caseload status, were obtained from the Georgia Department of Education. Because all data were linked to independently state-encoded student identification numbers or obtained via a public access database, informed consent from individual districts, schools, parents, or students for the data to be examined and used in research was not required. Further, the researcher requested no information that might lead to the exposure of individual student identity. Permission from the Internal Review Board at Georgia State University was obtained before proceeding with the study.

Data Analysis

Because the student risk ratio represents a consolidated measure of the degree to which a student may be academically at risk for high school noncompletion (GaDOE, 2008a, 2009a), its importance as an academic equalizer cannot be overstated. For the purposes of this study, repeated measures analyses were used to investigate the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity. Levene's Test for Equality of Variances was employed to determine the equality of population samples. Regression analyses were used to determine the extent to which a student's graduation coach caseload or non-caseload status may be used to explain variation in his scores on the English/language arts and mathematics components of the GHSGT over and above his risk ratio for high school dropout. For the regression analyses, the study sample was limited to students classified as first-time 11th grade students in 2008 – 2009. While students classified as

repeat 11th graders in 2008 – 2009 were assessed in all areas using the state's previously mandated curriculum, the Quality Core Curriculum (QCC), students classified as first-time 11th graders in 2008 – 2009 were assessed using both QCC standards in mathematics and social studies and Georgia Performance Standards (GPS) in English/language arts and science (GaDOE, 2009e). Because assessment content, performance standards, and scoring scales changed with the transition from QCC to GPS, new GPS-based assessment outcomes are not comparable to previous QCC-based assessment outcomes. As a result, only first-time 11th graders were included in the sample for the regression analyses.

Assumptions

This study is subject to several assumptions. First, research results are based on the assumption that reduction in student risk ratio and performance on the Georgia High School Graduation Tests (GHSGT) are valid and reliable measures of student academic achievement. Developed by Georgia educators and curriculum specialists and designed to measure how well a student has mastered the core academic content and skills presented in a specific curriculum or unit of instruction, the GHSGT includes a battery of assessments in the areas of social studies, English/language arts, mathematics, and science; these tests are based on the standards specified in the Georgia Performance Standards (GPS) as established by the Georgia State Board of Education (GaDOE, n.d.b). Student risk ratio provides a consolidated measure to represent the degree to which a student may be academically at risk of high school noncompletion (GaDOE, 2008a, 2009a). The student risk ratio considers the total number of factors for which a student has been identified as academically at risk in light of the total number of factors for which a student was evaluated. Factors that comprise the student risk ratio at the high

school level include rate of attendance for the previous school year, credit deficiency, retention status, and cumulative student performance on each GHSGT and End Of Course Test (EOCT) assessment respectively. Research strongly supports these criteria as primary predictors of a student's academic performance and, as a result, his likelihood of completing high school (Battin-Pearson et al., 2000; Bloom, Gardenhire-Crooks, & Mandsager, 2009; Bridgeland, Dilulio, & Morison, 2006; Hammond, Linton, Smink, & Drew, 2007). For each GHSGT and EOCT subject area risk factor determination, a student's maximum performance across all administrations is evaluated to determine if basic proficiency, the minimal level of performance required to achieve a passing score, has been met. Factors for which a student could not be evaluated are not included in calculation of the risk ratio (GaDOE, 2008a, 2009a).

A second assumption of the study is that students served by a graduation coach are members of the school population who are more at risk for high school dropout than those students who are not served by a graduation coach. While Georgia's graduation coaches coordinate and provide some services to all students in an assigned school, they typically serve and monitor a core set of students known as a caseload. The caseload capacity of a graduation coach is finite, and regularly the number of students identified as at risk exceeds the recommended graduation coach caseload capacity of 80 to 125 students. As a result, the Graduation Coach Work Management System (WMS) was developed to assist coaches in prioritizing assistance, providing tiered support when intervention resources are limited, and selecting students for their caseloads with guidance and monitoring by the Georgia Department of Education (GaDOE, 2009a). By leveraging the state's longitudinal databases, the WMS applies decision rules related to

student-level attendance, retention, credit deficiency, and academic achievement data to generate a list of candidate students who may benefit from the services provided through the graduation coach program. The results of this study are based on the assumption that the students who display a greater number of academic at-risk factors and, as a result, hold higher individual risk ratios are included on the caseload of a graduation coach. In an effort to ensure that Georgia high school students with the greatest academic need receive the services of a graduation coach, the Georgia Department of Education temporarily required graduation coaches to report on a bi-annual basis the students included on their caseloads. However, due to legislative funding changes in the state's Graduation Coach Program, the state only required caseload reporting for the 2007 – 2008 and 2008 – 2009 school years. The sample for this study includes only Georgia students continuously enrolled in the 11th grade during the 2008 – 2009 school year from the October full-time equivalent (FTE) student count day through the close of the state testing window (October 7, 2008 – April 3, 2009).

Finally, as with any ANOVA or regression analysis, assumptions of independence, normality, and homoscedasticity must be met. Several factors, including linearity, outliers, and restriction of range, have the potential to affect correlation coefficients (Berry, 1993; Cohen, Cohen, West, & Aiken, 2003; Kahane, 2001; Miles & Shevlin, 2001; Stevens, 2007). Further, because regression is linear in nature and the correlation coefficient is designed to measure the degree of linear relationship between variables, when nonlinear relationships exist *r* may provide an inaccurate measure of the relationship between variables. While slight deviations from the linearity assumption are not likely to significantly affect the interpretation of regression results, substantial

violations could result in highly flawed, if not unusable, outputs (Kahane, 2001; Miles & Shevlin, 2001; Stevens, 2007; Weisberg, 1985).

Limitations of the Study

This study is subject to several limitations, the first of which involves the student risk ratio metric, which considers only school-related factors including academic performance, retention, course failure, and attendance that may place a student at risk for high school dropout. Personal student characteristics such as disability, behavioral history, engagement in school and civic activities, socioeconomic status, at-risk peer group association, or other less quantifiable personal and social factors are not calculated as part of the student risk ratio. Additionally, any factor for which a student cannot presently be evaluated is excluded from his risk ratio calculation (GaDOE, 2008a, 2009a). For example, since the GHSGT battery is first administered to students in the spring of the 11th grade year, a student's scores on these assessments are not included as part of his risk ratio calculation until after his first attempt GHSGT results have been recorded. Thus, it is possible for a student who has previously manifested no academic risk for high school dropout to become severely academically at risk at the close of his junior year due solely to failure of multiple GHSGT assessments. Further, credit deficiency, one component of the student risk ratio calculation, is a self-reported measure provided to the Georgia Department of Education by the state's 181 school districts. While graduation coaches may report multiple credit recovery options and strategies being successfully used with their caseload students, these successes may not always be reflected in the credit deficient status of individual students due to variations in district promotion and graduation credit requirements. Severely at-risk students, moreover, may

require multiple years of graduation coach service in order to display progress (GaDOE, 2009a).

A second limitation of the study includes its sample. Georgia's high school graduation coaches provide intervention services to academically at-risk students in grades nine through twelve. This study, however, focuses on the potential impact of graduation coach service provision on 11th grade students only.

This study is additionally limited in its capacity to address variance in the statewide qualifications of high school graduation coaches. Currently state policy mandates that individuals seeking employment as a graduation coach possess a minimum of a bachelor's degree and hold Georgia Professional Standards Commission certification as a paraprofessional, teacher, school counselor, school psychologist, school social worker, and/or school leader. Guidance by the Georgia Department of Education suggests that applicants additionally possess a) at least three years of experience in a secondary school setting; b) successful experience in working with secondary students who exhibit personal and academic risk factors; c) a working knowledge of appropriate strategies for transforming student and adult behaviors, beliefs, and habits that place students at greater risk of dropping out of school; d) an ability to communicate effectively with youth, adults, and community stakeholders; e) an ability to analyze, develop, implement, and track intervention plans and strategies; and f) an ability to identify, access, and navigate social services and community resources to address individual and collective student needs (GaDOE, 2009).

A final limitation of the study is the subject-specific nature of its premeasures of student academic ability. For example, while the GHSGT for mathematics assesses a

student's cumulative mathematics ability, individual EOCT assessments in mathematics appraise content mastery unique to a specific course, namely Algebra I and Geometry (GaDOE, n.d.a; GaDOE, n.d.b).

CHAPTER 4

RESULTS

Research Question One

To assess the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity, the researcher conducted a series of general linear model (GLM) multivariate repeated measures analyses. Because variability due to individual subject differences – a key cause of error variance – is removed entirely from the error term in a repeated measures design, Stevens (2002) notes that repeated measures are more precise and powerful than randomized designs. Additionally, since repeated measures is the optimal design to employ when an investigation's concern is with performance trends over time (Bakeman, 2005; Shavelson, 1996; Stevens, 2002, 2007), it is a well-suited analysis design for answering this study's research question one.

School Improvement Region

Differential effects of graduation coach services on student risk ratio across school improvement regions were analyzed utilizing a 2X2X5 multivariate repeated measures analysis of variance (ANOVA) with time (August 2008 student risk ratio premeasure vs. May 2009 student risk ratio postmeasure) as a two-level within-subjects factor and caseload variable (caseload vs. noncaseload) and school improvement region (Region 1 vs. Region 2 vs. Region 3 vs. Region 4 vs. Region 5) as two-level and five-

level between-subjects factors respectively. Levene's Test for Equality of Variances found the variances of the population samples to be unequal (p=.000); as a result, Welch's Test for Equality of Means was applied. Stevens (2002) suggests that when Levene's Test reveals heterogeneity of variances, Welch's Test should be applied to determine if means are significantly different. Wilk's Lambda and Greenhouse-Geisser multivariate test statistics were used for reporting.

Overall, statistically significant decreases in student risk ratios were observed over time, with student risk ratios found to be significantly lower in May 2009 than in August 2008. The ANOVA yielded a significant main effect for time, $F_{(1, 39316)} = 384.752$, $p = .000$, $\eta_p^2 = .010$, and significant interactions between group means for time and caseload variable, $F_{(1, 39316)} = 301.779$, $p = .000$, $\eta_p^2 = .008$, and time and school improvement region, $F_{(4, 39316)} = 20.895$, $p = .000$., $\eta_p^2 = .002$. Figures 2 and 3 display the change from August 2008 to May 2009 in mean student risk ratio values by student caseload status and school improvement region respectively.

No significant interaction was found for the three-way interaction between time, caseload variable, and school improvement region, $F_{(4, 39316)} = 1.876$, $p = .112$, $\eta_p^2 = .000$. Table 10 presents the group mean, standard deviation, and group size for each within- and between-subjects factor. Table 11 displays the results of the ANOVA within-subjects effects for time, caseload variable, and school improvement region.

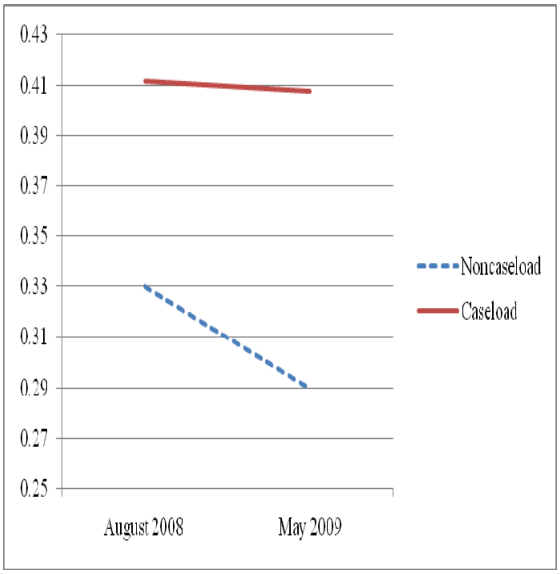

Figure 2. Average change over time in mean student risk ratio by caseload status

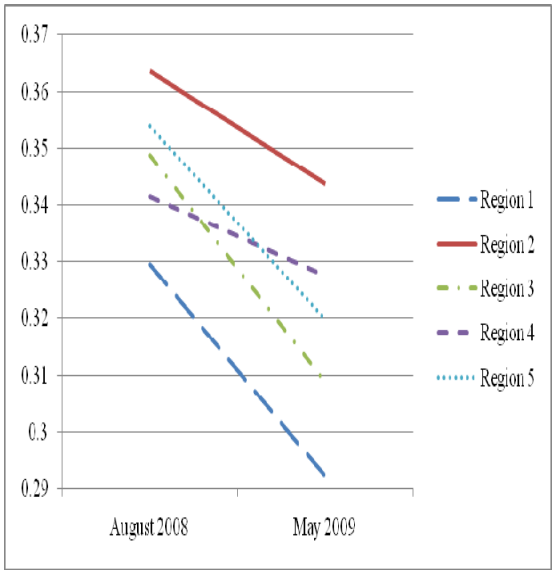

Figure 3. Change over time in mean student risk ratio by school improvement region

Tests of between-subject effects revealed a significant difference in the student risk ratio metric according to a student's graduation coach caseload status, $F_{(1, 39316)} = 2467.666$, $p = .000$, $\eta_p^2 = .059$, and school improvement region, $F_{(4, 39316)} = 77.701$, $p = .000$, $\eta_p^2 = .008$. That is, significantly lower risk ratios were observed for students served by a graduation coach between August 2008 and May 2009 than for those who were not, and differences in student risk ratios existed among school improvement regions regardless of graduation coach caseload status. Significant interactions further illuminated the differential effects of graduation coach services by school improvement region. Tests revealed a significant between-subjects interaction effect between caseload variable and school improvement region, $F_{(4, 39316)} = 11.931$, $p = .000$ $\eta_p^2 = .001$. Table 12 displays the results of the tests of between-subjects effects for caseload variable and school improvement region.

Table 10

Mean Student Risk Ratio for August 2008 and May 2009 by Caseload Variable and School Improvement Region

		Student Risk Ratio August 2008			Student Risk Ratio May 2009		
Caseload Variable	School Improvement Region	Mean	SD	N	Mean	SD	N
Noncaseload	Region 1	.3106	.14848	5,385	.2611	.19312	5,385
	Region 2	.3366	.15877	4,801	.3059	.20938	4,801
	Region 3	.3260	.15490	5,999	.2788	.20088	5,999
	Region 4	.3101	.14379	2,567	.2835	.19992	2,567
	Region 5	.3421	.15651	11,498	.3035	.21575	11,498
	Total	.3297	.15464	30,250	.2897	.20728	30,250
Caseload	Region 1	.3746	.17903	2,232	.3666	.22693	2,232
	Region 2	.4337	.19411	1,848	.4416	.22875	1,848
	Region 3	.4228	.19125	1,840	.4057	.22510	1,840
	Region 4	.4130	.18366	1,124	.4278	.22991	1,124
	Region 5	.4206	.19121	2,032	.4113	.23226	2,032
	Total	.4115	.18920	9,076	.4074	.22999	9,076
Total	Region 1	.3294	.16070	7,617	.2920	.20918	7,617
	Region 2	.3636	.17482	6,649	.3436	.22335	6,649
	Region 3	.3487	.16920	7,839	.3086	.21368	7,839
	Region 4	.3415	.16396	3,691	.3274	.21977	3,691
	Region 5	.3539	.16459	13,530	.3197	.22168	13,530
	Total	.3486	.16686	39,326	.3169	.21843	39,326

Table 11

Analysis of Variance Within-Subjects Effects Summary Table for Time, Caseload Variable, and School Improvement Region

Source	df	F	Sig.	Partial Eta Squared
Time	1	384.752	.000	.010
Time * School Improvement Region	4	20.895	.000	.002
Time * Caseload Variable	1	301.779	.000	.008
Time * School Improvement Region * Caseload Variable	4	1.876	.112	.000

p = .05

Table 12

Between-Subjects Effects Summary Table for Caseload Variable and School Improvement Region

Source	df	F	Sig.	Partial Eta Squared
Intercept	1	113174.746	.000	.742
Caseload Variable	1	2467.666	.000	.059
School Improvement Region	4	77.701	.000	.008
Caseload Variable * School Improvement Region	4	11.931	.000	.001

alpha = .05

To further investigate the differences between group means, a post hoc analysis was conducted using the conservative Scheffe procedure to determine which pair(s) of means were significantly different. Results of the simple main effects analysis found the differential effects of graduation coach services on student risk ratio to be significant ($p < .05$) across all school improvement regions with the exception of regions three and four ($p = .570$) and regions four and five ($p = .969$). The mean difference for region one was significantly lower than all other regions ($p = .000$). Regions three and four and regions four and five were found to be essentially identical. Table 13 details the results of the post hoc analysis for school improvement region.

Table 13

Multiple Comparisons – Post Hoc Analysis for School Improvement Region

(I) SI Region	(J) SI Region	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Region 1	Region 2	-.0429*	.00285	.000	-.0517	-.0341
	Region 3	-.0180*	.00273	.000	-.0264	-.0096
	Region 4	-.0238*	.00340	.000	-.0343	-.0133
	Region 5	-.0261*	.00243	.000	-.0336	-.0186
Region 2	Region 3	.0249*	.00283	.000	.0162	.0337
	Region 4	.0191*	.00348	.000	.0084	.0299
	Region 5	.0168*	.00254	.000	.0090	.0246
Region 3	Region 4	-.0058	.00339	.570	-.0162	.0046
	Region 5	-.0081*	.00241	.022	-.0155	-.0007
Region 4	Region 5	-.0023	.00315	.969	-.0120	.0074

Based on observed means. The error term is Mean Square (Error) = .029. *The mean difference is significant at the .05 level.

Gender

Differential effects of graduation coach services on student risk ratio across student gender were analyzed utilizing a 2X2X2 multivariate repeated measures analysis of variance (ANOVA) with time (August 2008 student risk ratio premeasure vs. May 2009 student risk ratio postmeasure) as a two-level within-subjects factor and caseload variable (caseload vs. noncaseload) and student gender (male vs. female) as two-level between-subjects factors. Levene's Test for Equality of Variances found the variances of the population samples to be unequal (p=.000); as a result, Welch's Test for Equality of Means was applied. Wilk's Lambda and Greenhouse-Geisser multivariate test statistics were used for reporting.

The ANOVA yielded a significant time main effect, $F_{(1, 39322)} = 481.351$, $p = .000$, $\eta_p^2 = .012$, and significant interactions between time and caseload variable, $F_{(1, 39322)} = 316.922$, $p = .000$, $\eta_p^2 = .008$, time and gender, $F_{(1, 39322} = 12.561$, $p = .000$, $\eta_p^2 = .000$, and time, caseload variable, and gender, $F_{(1, 39322)} = 4.763$, $p = .029$, $\eta_p^2 = .000$. Figure 4 below displays the change in mean student risk ratio values from August 2008 to May 2009 by student caseload status and gender.

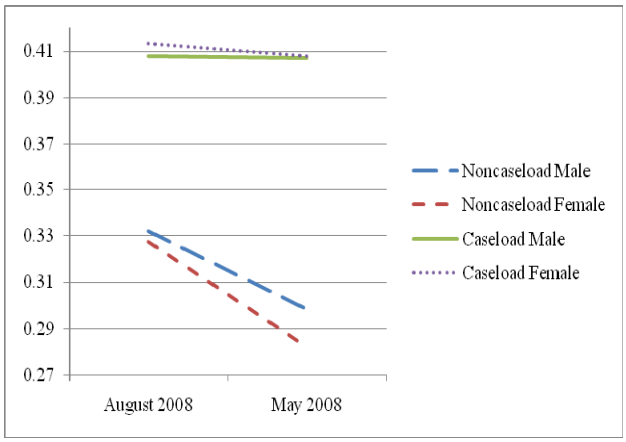

Figure 4. Change over time in mean student risk ratio by student caseload status and gender

Table 14 presents the group mean, standard deviation, and group size for each within- and between-subjects factor. Table 15 displays the results of the ANOVA within-subjects effects for time, caseload variable, and gender.

Table 14

Mean Student Risk Ratio for August 2008 and May 2009 by Caseload Variable and Gender

		Student Risk Ratio August 2008			Student Risk Ratio May 2009		
Caseload Variable	Gender	Mean	SD	N	Mean	SD	N
Noncaseload	Male	.3322	.15856	13,818	.2984	.21452	13,818
	Female	.3276	.15123	16,432	.2824	.20071	16,432
	Total	.3297	.15464	30,250	.2897	.20728	30,250
Caseload	Male	.4079	.19332	4,655	.4070	.23325	4,655
	Female	.4133	.18477	4,421	.4078	.22653	4,421
	Total	.4155	.18920	9,076	.4074	.22999	9,076
Total	Male	.3517	.17133	18,473	.3257	.22439	18,473
	Female	.3458	.16274	20,853	.3090	.21272	20,853
	Total	.3486	.16686	39,326	.3169	.21843	39,326

Table 15

Analysis of Variance Within-Subjects Effects Summary Table for Time, Caseload Variable, and Gender

Source	df	F	Sig.	Partial Eta Squared
Time	1	481.351	.000	.012
Time * Caseload Variable	1	316.922	.000	.008
Time * Gender	1	12.561	.000	.000
Time * Caseload Variable * Gender	1	4.763	.029	.000

p = .05

Tests of between-subject effects revealed a significant difference in the student risk ratio metric according to a student's graduation coach caseload status, $F_{(1, 39322)} = 2363.932$, $p = .000$, $\eta_p^2 = .057$, but not gender, $F_{(1, 39322)} = 3.857$, $p = .050$, $\eta_p^2 = .000$. Tests also showed a significant between-subjects interaction effect between caseload variable and gender, $F_{(1, 39322)} = 9.273$, $p = .002$, $\eta_p^2 = .000$. Change in student risk ratio over time

was essentially equal according to student gender (p = .050). Table 16 displays the results of the tests of between-subjects effects for caseload variable and gender.

Table 16

Between-Subjects Effects Summary Table for Caseload Variable and Gender

Source	df	F	Sig.	Partial Eta Squared
Intercept	1	124156.348	.000	.759
Caseload Variable	1	2363.932	.000	.057
Gender	1	3.857	.050	.000
Caseload Variable * Gender	1	9.273	.002	.000

p = .05

Ethnicity

Differential effects of graduation coach services on student risk ratio across student ethnicity were analyzed utilizing a 2X2X6 multivariate repeated measures analysis of variance (ANOVA) with time (August 2008 student risk ratio premeasure vs. May 2009 student risk ratio postmeasure) as a two-level within-subjects factor and caseload variable (caseload vs. noncaseload) and student ethnicity (Caucasian vs. African American vs. Hispanic vs. multiracial vs. American Indian/Alaskan vs. Asian/Pacific Islander) as two-level and six-level between-subjects factors respectively. Levene's Test for Equality of Variances found the variances of the population samples to be unequal (p=.000); as a result, Welch's Test for Equality of Means was applied. Wilk's Lambda and Greenhouse-Geisser multivariate test statistics were used for reporting.

The ANOVA yielded a significant time main effect, $F_{(1, 39314)} = 58.732$, p = .000, $\eta_p^2 = .001$, and significant interactions between time and caseload variable, $F_{(1, 39314)} = 7.195$, p = .007, $\eta_p^2 = .000$, time and ethnicity, $F_{(5, 39,314)} = 60.898$, p = .000, $\eta_p^2 = .008$, and time, caseload variable, and ethnicity, $F_{(5, 39,314)} = 5.526$, p = .000, $\eta_p^2 = .001$. Figures 5

and 6 below display the change from August 2008 to May 2009 in mean risk ratio values of graduation coach noncaseload and caseload students by ethnicity.

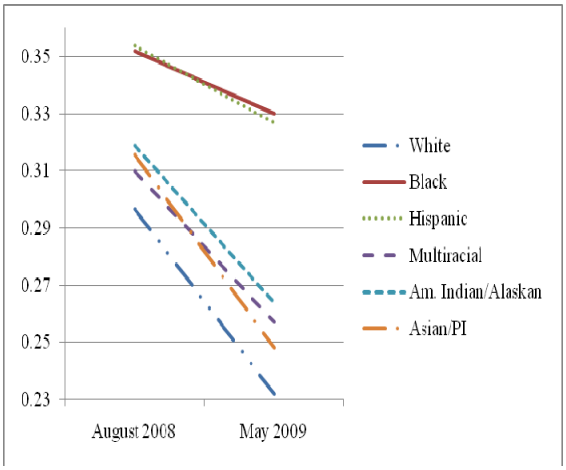

Figure 5. Change over time in mean student risk ratio values of noncaseload students by ethnicity

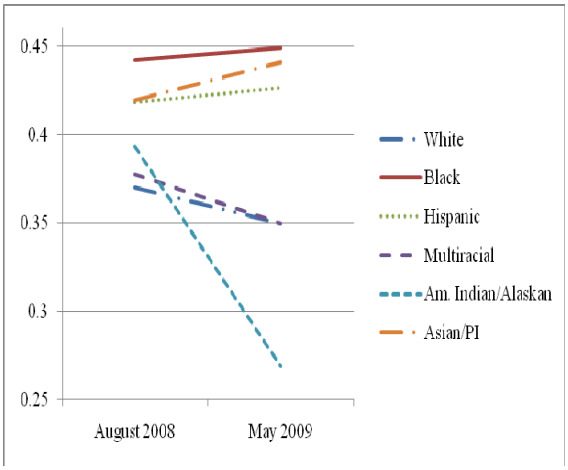

Figure 6. Change over time in mean student risk ratio values of caseload students by ethnicity

Table 17 presents the group mean, standard deviation, and group size for each within- and between-subjects factor. Table 18 displays the results of the ANOVA within-subjects effects for time, caseload variable, and ethnicity.

Tests of between-subject effects revealed a significant difference in the student risk ratio metric according to a student's graduation coach caseload status, $F_{(1, 39314)} = 101.500$, $p = .000$, $\eta_p^2 = .003$, and ethnicity, $F_{(5, 39314)} = 303.531$, $p = .000$, $\eta_p^2 = .037$. Tests also showed a significant between-subjects interaction effect between caseload variable and ethnicity, $F_{(5, 39314)} = 3.988$, $p = .001$, $\eta_p^2 = .001$. Table 19 displays the results of the tests of between-subjects effects for caseload variable and ethnicity.

To further investigate the differences between group means, a post hoc analysis was conducted using the conservative Scheffe procedure to determine which pair(s) of means were significantly different. Results of the simple main effects analysis found a

significant difference ($p < .05$) between the means of Caucasian and African American and Caucasian and Hispanic students, as well as between African American and multiracial, African American and American Indian/Alaskan, and African American and Asian/Pacific Islander students. Additionally, group means for multiracial students differed from those of their Hispanic counterparts, while the group means of Hispanic students differed from those of Asian/Pacific Islander students.

Table 17

Mean Student Risk Ratio for August 2008 and May 2009 by Caseload Variable and Ethnicity

		Student Risk Ratio August 2008			Student Risk Ratio May 2009		
Caseload Variable	Ethnicity	Mean	SD	N	Mean	SD	N
Noncaseload	Caucasian	.2966	.13784	11,321	.2316	.18358	11,321
	African American	.3520	.16067	15,413	.3301	.21290	15,413
	Hispanic	.3539	.16926	2,222	.3272	.21281	2,222
	Multiracial	.3101	.13852	641	.2572	.19528	641
	American Indian/Alaskan	.3188	.13997	44	.2643	.0597	44
	Asian/PI	.3158	.13983	609	.2484	.20108	609
	Total	.3297	.15464	30,350	.2897	.20728	30,250
Caseload	Caucasian	.3701	.17557	3,438	.3496	.22053	3,438
	African American	.4419	.19104	4,698	.4488	.22672	4,698
	Hispanic	.4181	.20242	676	.4263	.23359	676
	Multiracial	.3772	.19464	163	.3498	.23842	163
	American Indian/Alaskan	.3931	.16652	16	.2688	.14587	16
	Asian/PI	.4195	.18333	85	.4412	.22764	85
	Total	.4115	.18920	9,076	.4074	.22999	9,076
Total	Caucasian	.3137	.15072	14,759	.2591	.19916	14,759
	African American	.3730	.17250	20,111	.3578	.22196	20,111
	Hispanic	.3688	.17958	2,898	.3503	.22178	2,898
	Multiracial	.3237	.15383	804	.2760	.20797	804
	American Indian/Alaskan	.3335	.15048	60	.2655	.19061	60
	Asian/PI	.3285	.14962	694	.2720	.21390	694
	Total	.3486	.16686	39,326	.3169	.21843	39,326

No significant difference was found between the group means of Caucasian and multiracial (p = .418), American Indian/Alaskan (p = .996), or Asian/Pacific Islander students (p = .467), between African American and Hispanic students (p = .689), between Hispanic and American Indian/Alaskan students (p = .175), or between multiracial and American Indian/Alaskan (p = 1.000) or Asian/Pacific Islander students (p = 1.000). Table 20 details the results of the post hoc analysis for ethnicity.

Table 18

Analysis of Variance Within-Subjects Effects Summary Table for Time, Caseload Variable, and Ethnicity

Source	df	F	Sig.	Partial Eta Squared
Time	1	58.732	.000	.001
Time * Caseload Variable	1	7.195	.007	.000
Time * Ethnicity	5	60.898	.000	.008
Time * Caseload Variable * Ethnicity	5	5.526	.000	.001

p = .05

Table 19

Between-Subjects Effects Summary Table for Caseload Variable and Ethnicity

Source	df	F	Sig.	Partial Eta Squared
Intercept	1	5726.687	.000	.127
Caseload Variable	1	101.500	.000	.003
Ethnicity	5	303.531	.000	.037
Caseload Variable * Ethnicity	5	3.988	.001	.001

p = .05

Research Question Two

To answer research question two, regression analyses were used to determine the extent to which a student's graduation coach caseload or non-caseload status may be used to explain variation in his scores on the English/language arts and mathematics components of the GHSGT over and above his risk ratio for high school dropout.

Employed frequently in program evaluation and applied research, regression analysis serves as an effectual tool for investigating the potential relationships between and among variables (Berger, 2004; Cohen, Cohen, West, & Aiken, 2003; Stevens, 2002, 2007).

Table 20

Multiple Comparisons—Post Hoc Analysis for Ethnicity

(I) Ethnicity	(J) Ethnicity	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Caucasian	African American	-.0790*	.00180	.000	-.0850	-.0730
	Hispanic	-.0732*	.00338	.000	-.0844	-.0620
	Multiracial	-.0134	.00602	.418	-.0335	.0066
	Am. Indian/Alaskan	-.0131	.02150	.996	-.0847	.0585
	Asian/Pacific Islander	-.0138	.00646	.467	-.0353	.0076
African American	Hispanic	.0058	.00330	.689	-.0052	.0168
	Multiracial	.0655*	.00598	.000	.0457	.0854
	Am. Indian/Alaskan	.0659*	.02149	.094	-.0056	.1374
	Asian/Pacific Islander	.0651*	.00642	.000	.0438	.0865
Hispanic	Multiracial	.0598*	.00663	.000	.0377	.0818
	Am. Indian/Alaskan	.0601	.02168	.175	-.0121	.1322
	Asian/Pacific Islander	.0594*	.00703	.000	.0360	.0827
Multiracial	Am. Indian/Alaskan	.0003	.02225	1.000	-.0737	.0744
	Asian/Pacific Islander	-.0004	.00861	1.000	-.0291	.0283
Am. Indian/Alaskan	Asian/Pacific Islander	-.0007	.02237	1.000	-.0752	.0737

Note: Based on observed means. The error term is Mean Square (Error) = .028. *The mean difference is significant at the .05 level.

Using the square of the correlation coefficient (r^2) to represent the fraction of the variation in one variable that can be explained by another, a simple linear regression analysis can determine the best straight-line relationship between the two variables (Pedhazur, 1997; Weisberg, 1985; Wonnacott & Wonnacott, 1981).

For the regression analyses, the study sample was limited to students classified as first-time 11th grade students in 2008 – 2009. While students classified as repeat 11th graders in 2008 – 2009 were tested in all areas using the state's previously mandated curriculum, the Quality Core Curriculum (QCC), students classified as first-time 11th graders in 2008 – 2009 were tested using both QCC standards in mathematics and social

studies and Georgia Performance Standards (GPS) in English/language arts and science (GaDOE, 2009e). Because assessment content, performance standards, and scoring scales changed with the transition from QCC to GPS, new GPS-based assessment outcomes are not comparable to previous QCC-based assessment outcomes. As a result, only first-time 11th graders were included in the sample. For the purposes of this study, any 11th grade student with a risk ratio value greater than zero who did not possess a recorded GHSGT score in English/language arts or mathematics until after the Spring 2009 GHSGT administration was considered a first-time 11th grader. Likewise, any 11th grade student with a risk ratio value greater than zero who possessed a recorded GHSGT score in English/language arts or mathematics as of May 2008 was considered a repeat 11th grader and excluded from the sample.

Multiple regression was used to determine the extent to which a first-time 11th grade student's graduation coach caseload or non-caseload status may be used to explain variation in his scores on the mathematics and English/language arts components of the GHSGT over and above his risk ratio for high school dropout. For these analyses, May 2009 student GHSGT mathematics and English/language arts scores served as dependent criterion variables while student graduation coach caseload status and risk ratio for August 2008 represented predictor variables. Because it held the highest simple correlation with May 2009 GHSGT student mathematics (-.353) and English/language arts (-.310) scores, the student risk ratio predictor was the first entered into the regression equation for all analyses. The student caseload variable predictor followed with a partial correlation value of -.074, $p = .000$ for the GHSGT mathematics analysis and a partial correlation value of -.093, $p = .000$ for the GHSGT English/ language arts analysis. Table

21 below presents the group mean, standard deviation, group size, and Pearson correlation with May 2009 GHSGT student score values and caseload variable for each dependent and predictor variable in the mathematics and English/language arts analyses respectively.

Table 21

Mean, Standard Deviation, Group Size, and Pearson Correlation for Dependent and Predictor Variables – Regression Analyses for First-Time 11th Grade Students

	GHSGT Mathematics (N = 38,195)				*GHSGT English/Language Arts (N = 38,177)*			
Variable	Mean	SD	*r* with May 2009 GHSGT Value	*r* with Caseload Variable	Mean	SD	*r* with May 2009 GHSGT Value	*r* with Caseload Variable
GHSGT Value May 2009	520.08	19.888	1.000	-.129	220.84	29.034	1.000	-.141
Risk Ratio Value August 2008	.3415	.15790	-.353	.174	.3413	.15780	-.310	.174
Caseload Variable	.21	.407	-.129	1.000	.21	.407	-.141	1.000

Regression analyses determined that student risk ratio may account for 12.5 percent of the variance in student GHSGT mathematics scores for first-time 11th graders. Adding student caseload status into the equation increases the variance accounted for to 12.9 percent. For English/language arts, student risk ratio may explain 9.6 percent of the variance in student GHSGT scores for first-time 11th graders. Adding student caseload status into the equation increases the variance accounted for to 10.4 percent. Table 22 displays the results of the regression analysis explaining variance in GHSGT mathematics and English/language arts scores from risk ratio and graduation coach caseload status for first-time 11th graders.

Table 22

Variance in GHSGT Mathematics and English/Language Arts Scores for First-Time 11th Graders from Risk Ratio and Graduation Coach Caseload Status

			95% Confidence Interval				95% Confidence Interval	
	GHSGT Mathematics				GHSGT English/Language Arts			
Predictor	ΔR^2	B	Lower Bound	Upper Bound	ΔR^2	β	Lower Bound	Upper Bound
Step 1	.125				.096			
Constant			534.811	535.701			239.630	240.949
Risk Ratio Aug. 2008		-.353	-45.629	-43.265		-.310	-58.740	-55.230
Step 2	.005				.008			
Constant			535.006	535.895			239.991	241.307
Risk Ratio Aug. 2008		-.341	-44.113	-41.719		-.294	-55.891	-52.342
Caseload Variable		-.070	-3.885	-2.957		-.089	-7.060	-5.685

CHAPTER 5

DISCUSSION

Summary of Findings

"The future is not the result of choices among alternative paths offered by the present, but a place that is created – created first in mind and will, created next in activity. The future is not some place we are going to, but one we are creating. The paths are not to be found, but made, and the activity of making them changes both the maker and the destination."
John Schaar, 1957

Research question one sought to assess the differential effects of graduation coach services on student risk ratio across school improvement regions, gender, and ethnicity. With respect to the differential effects of graduation coach service provision across school improvement regions, risk ratios for students served by a graduation coach were found to be significantly lower in May 2009 than in August 2008; likewise, significantly lower risk ratios were observed over time for students served by a graduation coach between August 2008 and May 2009 than for those who were not. While no significant interaction was evident among the three variables of time, student graduation coach caseload status, and school improvement region, differences in student risk ratios existed among school improvement regions regardless of graduation coach caseload status. Analyses revealed the differential effects of graduation coach services on student risk ratio to be significant ($p < .05$) across all school improvement regions with the exception of regions three and four ($p = .570$) and regions four and five ($p = .969$), with the mean difference for region one being significantly lower than that of all other regions ($p = .000$).

Analyses related to the differential effects of graduation coach service provision across student gender revealed no significant difference ($p < .05$) in the student risk ratio metric according to gender. Change in student risk ratio over time was essentially equal with regard to student gender ($p = .050$).

Perhaps the most interesting results related to research question one were those associated with the differential effects of graduation coach services on student risk ratio across student ethnicity. Tests of between-subject effects revealed a significant difference in the student risk ratio metric according to a student's graduation coach caseload status and ethnicity. Simple main effects analyses found a significant difference ($p < .05$) between the means of both Caucasian and African American and Caucasian and Hispanic students, as well as between African American and multiracial, African American and American Indian/Alaskan, and African American and Asian/Pacific Islander students. Additionally, group means for multiracial students differed from those of their Hispanic counterparts, while group means of Hispanic students differed from those of Asian/Pacific Islander students. No significant difference was found between the group means of Caucasian and multiracial ($p = .418$), American Indian/Alaskan ($p = .996$), or Asian/Pacific Islander students ($p = .467$), between African American and Hispanic students ($p = .689$), between Hispanic and American Indian/Alaskan students ($p = .175$), or between multiracial and American Indian/Alaskan ($p = 1.000$) or Asian/Pacific Islander students ($p = 1.000$).

While one would have expected an overall increase in student risk ratios, regardless of graduation coach caseload status, due to the introduction of GHSGT scores as individual factors in the student risk ratio for first-time 11th graders, student risk ratios

decreased for all noncaseload students, regardless of ethnicity. For those students served on the caseload of a graduation coach, student risk ratios for African American, Hispanic, and Asian/Pacific Islander students saw an increase from August 2008 to May 2009, while risk ratios for Caucasian, multiracial, and American Indian/Alaskan students decreased over the same time period.

Research question two sought to determine the extent to which a student's graduation coach caseload or non-caseload status may be used to explain variation in his scores on the English/language arts and mathematics components of the GHSGT over and above his risk ratio for high school dropout. Regression analyses determined that student risk ratio may account for 12.5 percent of the variance in student GHSGT mathematics scores for first-time 11th graders. Adding student caseload status into the equation increases the variance accounted for to 12.9 percent. For English/language arts, student risk ratio may explain 9.6 percent of the variance in student GHSGT scores for first-time 11th graders. Adding student caseload status into the equation increases the variance accounted for to 10.4 percent.

Suggestions for Future Research

While the results of this study reveal that the services of a graduation coach have the potential to significantly impact a student's academic performance and overall risk for high school dropout, they also reflect that graduation coach services do not currently address adequately the needs of many of Georgia's at-risk high school students, particularly those who are of African American, Hispanic, or Asian descent. With current conversation in the field of education and dropout prevention centering on closing the achievement gap between ethnicities, this is a practically significant and important

finding. Continued analysis of achievement gap data linked to student ethnicity is key to increasing the likelihood of effective policy choices and educational practice that is beneficial to all students. Further, similar studies integrating student socioeconomic status and family/community value of education as a variables may serve to shed additional light on the differential effects of graduation coach services.

Continuous systematic research on all aspects of Georgia's Graduation Coach Program at both the middle and high school levels is important in order to assess its overall effectiveness. Longitudinally collected data related to both the outcome and impact effects of graduation coach service provision on all student populations may serve to provide more specific documentation regarding the efficacy of such support services on student academic achievement in English/language arts and mathematics and student disposition toward high school completion. Likewise, coupling analyses of student risk ratio and achievement data with meaningful qualitative data, including that which could be gleaned from graduation coach service session logs, stakeholder interviews, and student journals, may prove the best way to promote data-driven adjustments in program implementation and determine which intervention strategies are primarily effective for the state's most highly at-risk student groups. Studies that investigate the differential effects of graduation coach service provision and its relationship to the qualifications, educational level, race, and gender of a graduation coach would be of particular benefit not only to educational leaders and policymakers in the state of Georgia, but to those seeking to replicate the initiative elsewhere. Finally, while this study focused primarily on the impact of graduation coach services on academic factors that may contribute to high school dropout, research supports that personal factors play a significant role in

student decisions related to high school completion (Cairns, Cairns, & Neckerman, 1989; Gleason & Dynarski, 2002; Jordan, Lara, & McPartland, 1994; Rosenthal, 1998; Rumberger, 2001). More study related to the differential effects of graduation coach service provision on both academic and personal risk factors for high school dropout are needed to fully assess the impact of such services on individual and collective student groups.

Implications for Educational Policy

Critical to the success of Georgia's Graduation Coach Program is consistent agreement among school improvement regions, districts, schools, and individual graduation coaches on more standardized criteria by which students are selected to receive the services of a graduation coach. The state of Georgia currently classifies as academically at risk for high school noncompletion all students with a risk ratio value greater than zero. The suggested caseload for a graduation coach, however, is limited to approximately 80 to 125 students, with graduation coaches targeting for their caseloads those students who possess the highest risk ratio values and greatest personal need (GaDOE, 2008a, 2009a). As a result, many at-risk students may not receive the services of a graduation coach due to their enrollment in a school where the demand for targeted assistance exceeds the caseload capacity of a single graduation coach. For example, during the 2007-2008 school year, nearly 92% of Georgia dropouts who were identified as at risk for high school noncompletion but who were not included on the caseload of a graduation coach were enrolled in schools where the total count of at-risk students was greater than 150 (GaDOE, 2008a). Consequently, school size and overall school at-risk

composition are important factors to consider when investigating the potential differential effects of graduation coach services.

In addition to consensus regarding how students are selected for service provision, agreement regarding the roles and responsibilities assigned to graduation coaches must be addressed. Due to state funding restraints, Georgia's Graduation Coach Program was designated a district- rather than a state-level initiative in the fall of 2009. This change in program funding from a grant-based, single-line legislative budget item to a part of the general Quality Basic Education (QBE) formula gave districts significantly greater autonomy over the roles and responsibilities assigned to their graduation coaches. No longer subject to specific program mandates outlined by the Georgia Department of Education, many graduation coaches statewide are now serving in dual roles, resulting in greater variability across districts and regions with respect to the amount of time and resources allocated to at-risk students. Beginning in August of 2009, lack of state-level funding for the program additionally resulted in a moratorium of state-led professional development opportunities related to promising practice in the field of dropout prevention for all graduation coaches. In an effort to provide consistent graduation coach support services throughout the state, policy must govern the amount of time graduation coaches spend with students, the research-based prevention and intervention strategies they implement, and the fidelity with which the program is put into practice.

Since the inception of the Graduation Coach Program, a generous and unprecedented level of financial support from the Georgia General Assembly has made it possible to allocate a graduation coach in every middle school and in high schools across the state with a graduation rate of 95 percent or less (GaDOE, 2009a). However, research

has long shown that challenges related to high school noncompletion vary significantly across schools and systems (APA, 2009; Belfanz & Letgers, 2004; Bridgeland, Dilulio, & Morison, 2006; Schargel, 2004; Wehlage & Rutter, 1986). As a result, the state's Graduation Coach Program could benefit from more tactical approaches in allocating resources to address the graduation and dropout crises in Georgia. Dropout prevention initiatives such as Georgia's Graduation Coach Program presume that intensive support and progress monitoring provided by a caring adult can have a tremendous impact on at-risk students, particularly those served by large schools where adolescents often feel lost in the crowd (Alexander, Entwisle, & Kabbani, 2001; Bridgeland, Dilulio, & Morrison, 2006; Bronfenbrenner, 1979; 1990; Cairns, Cairns, & Neckerman, 1989). The idea that at-risk students benefit from relationships with a graduation coach is a primary assumption of the program. While high school graduation coaches served roughly the same number of students on their caseloads in 2008 – 2009, the empirical need for such support for schools with large student populations is approximately three times greater than for those with small student populations (GaDOE, 2009a). Future policy decisions related to Georgia's Graduation Coach Program must address these discrepancies if the assumption that adult-student relationships are foundational to the program's success is true. Policies and practices that support the allocation of graduation coaches based on school and student need should be considered. Additionally, consideration should be given to redefining the role of graduation coaches in large, high-need schools to include coordination of services and solicitation of greater assistance from faculty, leadership, and community members in order to serve a greater number of students.

While this study revealed the differential effects of graduation coach services to be statistically significant in nearly all analyses conducted, it primarily found effect sizes to be small, with η_p^2 generally ranging from .001 to .037. As a result, policymakers should give careful consideration to the practical significance of program outcomes. Extensive longitudinal study, complete with thorough cost-benefit analyses, is needed to determine the true efficacy of Georgia's Graduation Coach Program. Further, educational leaders and policymakers must recognize that it is highly unlikely that one educational investment type will yield the highest rate of return in all situations (Belfield, 2006; Cairns, Cairns, & Neckerman, 1989; Ensminger & Slusarcick, 1992; Lehr, et al., 2004). In addition to interventions provided to at-risk students as part of the state's Graduation Coach Program, educational stakeholders should consider investments that encourage students to work harder on their own to graduate from high school. Exemplary programs including LifeSkills Training, Project STAR, and Project GRAD (Craig, 2007; Dynarski et al., 2008; Hammond, Linton, Smink, & Drew, 2007) may merit study. Given that much of a graduation coach's work lies in the development of interventions for caseload students with special needs, supplementary support for the state's special education program could allow graduation coaches to focus more singularly on support for struggling and at-risk regular education students. Finally, because an individual's academic performance has been found to significantly impact his chances for high school completion (Ekstrom, Goertz, Pollack, & Rock, 1986; Ensminger & Slusarcick, 1992; Jordan, Lara, & McPartland, 1994; Rumberger, 2001) and because higher-order skills cannot be obtained without a strong foundation of basic skill mastery (Berk, 2000; Marzano, Pickering, & Pollock, 2001; Schaffer, 2006), policy makers should consider, in

concert with academic remediation at the secondary level, investments in policies, programs, and reforms that address early intervention in pre-K through middle grades, which research supports as having a strong positive rate of return (Alexander, Entwisle, & Horsey, 1997; Battin-Pearson et al., 2000; Belfield & Levin, 2007).

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