

INVESTIGATING THE STRUCTURE AND PROCESS OF ACADEMIC EMPHASIS
ON STUDENT ACHIEVEMENT: A MULTI-LEVEL ANALYSIS

A Record of Study

by

JAMES BAKEWELL BARRON

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Chair of Committee,	Roger Goddard
Committee Members,	Linda Skrla
	Terah Venzent Chambers
	Robert M. Capraro
Head of Department,	Fred Nafuko

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ABSTRACT

Academic emphasis is used as a predictor of student achievement in this multi-level analysis controlling for student and campus demographics. Academic emphasis represents a desirable characteristic in a school's overall climate because it embodies the campus' pursuit of academic excellence. Action theory and social cognitive theory are used to explain the influence of social norms of the organization and their relationship to student academic achievement. The study also investigates the degree to which academic emphasis is associated with the environmental social context of the campus.

This study served two purposes. The primary purpose of this study was to determine the relationship between campus level academic emphasis and individual student academic achievement. The multi-level analysis allowed the author to control for student race/ethnicity, gender, socioeconomic and at-risk status as well as the proportion of campus demographics and school size. Secondly, the author conducted a multiple regression analysis to determine the relationship between the level of academic emphasis and the environmental social context of the school.

The samples of 10,464 students from the 97 campuses represent some of the largest and most diverse school districts in Texas. From this sample, the author was able to determine academic emphasis is a positive and significant predictor of academic achievement and dampened the effect of student demographics, socioeconomic and at-risk status. Students in the schools with the highest level of academic emphasis compared to the school schools with the lowest levels of academic emphasis achieved as many as 39 scaled points higher in math and 20 scaled point more in reading.

Furthermore, the multiple regression model used to predict and measure the relationship between the environmental social context of the campus and academic emphasis explained almost 11% of the variance. Academic emphasis is a part of the social context of the school focused on high academic expectations.

DEDICATION

This study is dedicated to the people in my life that have supported and believed in me during my journey. This work is dedicated to my parents, Gay and Roy Barron, who were public school teachers. They instilled in me the importance of an education even when I chose not to adhere to their advice. They never allowed me to quit what I started and expected me to always, always try my hardest. They continue to be the standard by which I judge myself as an educator, parent and person.

This study is also dedicated to my bride, Tera, and daughter, Caitlin. My journey into academia is for these two beautiful ladies. They make me complete. I want Caitlin to know that she should realize her dreams and pursue them regardless of any obstacles. I want her to know and understand that excellence takes dedication, determination, tenaciousness and that mediocrity is not acceptable. She is our Lil' Bit. Lastly, this study is dedicated to my bride. I am a better person, husband and father for and because of her. She has always allowed me to pursue my education and encouraged me to be better than I thought possible. She is my Sunshine. Tera, I Love You.

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CHAPTER I

INTRODUCTION

Over the last several decades public education has come under attack for not meeting the needs of students, having low academic standards, under serving students in the urban school setting, and not preparing students to compete in the global market. Well before Edmunds (1979) called for public education to teach children of poverty at least as well as it taught children of the middle class, the United States Supreme Court recognized the importance of education. In *Brown v. Board of Education* (1954) the court wrote “It (education) is a principle instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment”. Given numerous obstacles an under-educated student faces, it is imperative schools make adjustments to provide a quality education for all children regardless of their school, socio-economic status, race or ethnicity. All schools are tasked with providing a quality education for students based on state and federal standards.

This brings into question, why are some schools successful while others struggle to reach the same standards? Schools have been subjected to numerous reform efforts as a result of studies to determine what contributes to school success or effective schools. Ron Edmunds began the push to find effective schools in response to Coleman, Campbell, Mc Partland, Mood & Weinfeld (1966) and Jensen (1969) who suggested that children of poverty were predestined to poor academic achievement based on their backgrounds. Edmunds (1979) posited that the school’s behavior is crucial in ensuring

the quality of a student's education. While there may be a pervasive belief among the public that a child's background and SES are pivotal in his educational attainment, this does not absolve teachers and administrators from their moral, ethical and professional responsibilities. The primary responsibilities of schools and educators are to provide quality instruction for all children regardless of their backgrounds and to positively impact student achievement. Edmunds determined that effective schools must have strong administrative leaders, a climate of high academic expectations, orderly environment without oppression, and a frequent and systematic monitoring of student academic progress. The findings of Edmunds have been bolstered qualitatively and quantitatively (Bryk, Sebring et al., 2010; Goddard, Sweetland & Hoy, 2000; Hoy & Feldman, 1987; Hoy & Ferguson, 1985; Hoy, Tarter, & Bliss, 1990). Hoy and Feldman (1987) were the first to conceptualize and operationalize the findings of Edmunds (1979) as academic emphasis or academic press. Since their original study, numerous researchers have deployed various constructs and measures of academic emphasis. In each study academic emphasis has been shown to positively influence student achievement (Bryk, Sebring et al., 2010; Goddard, et al., 2000; Hoy & Feldman, 1987; Hoy et al., 1990; Shouse, 1996), organizational commitment (Tsui & Cheng, 1999), student attendance (Phillips, 1997), and social support (Lee & Smith, 1999).

No Child Left Behind Act (NCLB) requires schools and districts to close the receivement gap (Chambers, 2009) between several identified student groups, yet Texas continues to lag. Previous studies have demonstrated high levels of academic emphasis can negate the receivement gap (Bryk, Sebring et al., 2010; Goddard, Sweetland & Hoy,

2000; Hoy & Feldman, 1987; Hoy & Ferguson, 1985; Hoy, Tarter, & Bliss, 1990). Historically in Texas, there has been a recievement gap (Chambers, 2009) between the various identified groups. The State of Texas has used and continues to use the Academic Excellence Indicator System (AEIS) to report the academic performance of campuses and districts. The AEIS disaggregates student academic data by identifiable groups such as race, ethnicity, gender, and free and reduced lunch status. Other identified groups include at-risk, special education and limited English proficient. The reception gaps are especially troubling since the passage of No Child Left Behind Act (2001), which holds schools accountable for the academic achievement for all identified groups.

Problem Statement

All public schools are tasked with providing a quality education for students based on state and federal standards. Why are some schools successful while others struggle to reach the same standards? Coleman et al. (1966) and Jensen (1969) suggested that children of poverty were predestined to poor academic achievement based on their backgrounds, and schools could do little to impact student achievement. In response to Coleman and Jensen, Edmunds (1979) spurred into action the effective school research movement that continues today in the era of accountability and high stakes testing.

Well before the federal law, NCLB, was enacted and reported Adequate Yearly Progress (AYP), Texas required students, campuses, and districts to meet proficiency standards. Based on the performance of the students in the various reporting categories, campuses and districts are rated as exemplary, recognized, academically acceptable or

academically unacceptable. However, NCLB introduced a new layer of accountability along with prescribed measures to correct underperforming schools. If a campus or district does not meet AYP for two consecutive years, students must be offered additional academic support and/or school choice. The underperforming campuses and/or districts must take corrective actions to increase student achievement.

As Edmunds (1979) and others observed, through concerted efforts, schools can positively influence student achievement. While not quantified until Hoy and Feldman (1987), what Edmunds observed is now known as academic emphasis or academic press. Academic emphasis has been used as a measure of school health (Hoy & Feldman, 1987), effectiveness (Bryk & Thum, 1989), climate (Hoy, et al., 1990; Hoy, Tarter, & Kottkamp, 1991), trust (Hoy, Sabo, & Barnes, 1996), and as predictor of academic achievement (Goddard, et al., 2000; Hoy & Hannum, 1997; Lee & Smith, 1999; Ma & Klinger, 2000; Shouse, 1996). In the era of accountability, schools must be cognizant of their efforts to improve student achievement.

Early research of academic emphasis was grounded in Parson's theory of action social systems (Hoy & Feldman, 1987; Hoy & Ferguson, 1985) that held that schools, as open social systems, must solve the problems of adaptation, goal attainment, integration, and latency. Later researchers employed Bandura's social cognitive theory (Goddard, 2001) to explore the role of academic emphasis in schools. For example, there is a common thread woven between Parson's theory of action and Bandura's social cognitive theory that has not been fully explored. Both theories recognize the importance and the

role of norms on individual and group behavior. There is an absence of research bringing these two theories to bear on the role of academic emphasis on student achievement.

Academic emphasis has been studied in a variety of settings in elementary and secondary schools. The sample employed for this study was purposefully drawn, however, to generate knowledge about its impact in the post accountability era with particular emphasis on urban fringe schools that have begun serving highly diverse student populations. Previous studies have explored the role of academic emphasis in New Jersey (Hoy & Feldman, 1987), the Midwest (Goddard et al., 2000; Licata & Harper, 1999) Hong Kong (Tsui & Cheng, 2000), Chicago (Lee & Smith, 1999), and New Brunswick, Canada (Ma & Klinger, 2000). When the populations of the aforementioned studies are reported, they do not represent the same racial and ethnic diversity found in major suburban and other central city districts in Texas. This study is situated in district types (major suburban and other central city) responsible for educating over half of all students in Texas. Furthermore, these district types represent the most racially, ethnically and economically diverse districts in Texas.

Previous studies of academic emphasis have included socio-economic status (SES) and demonstrated academic emphasis is a stronger predictor of student achievement than SES. Texas reports a campus' percentage of economically disadvantaged students based on the number of students receiving free or reduced meals. Other researchers have used a myriad of factors to determine SES, such as parental educational attainment, parental job status and educational artifacts found in the home. However, Goddard et al. (2000) used free and reduced lunch as a proxy for SES when

studying academic emphasis. His data was generated from 45 schools in one large urban district and included 444 teachers and achievement data from 2,429 students. Again, there is an absence of research in Texas about the effects of academic emphasis coupled with SES.

Purpose and Significance of the Study

This study will bridge the work of Parson's action theory and Bandura's social cognitive theory. Both, Parson and Bandura recognize the importance of norms in shaping individual and collective behaviors. However, little research has been done to link the two similar theories employing academic emphasis. This research will further the literature of normative press and its implications for school climate and culture. This study, like other similar studies, will approach the research through a positivist epistemological perspective. Employing a positivist perspective will allow the author to create statistical models using academic emphasis as a predictor of student achievement. Additionally, the author will be able to isolate the influence of the school's demographics on the level of academic emphasis found at the campus level. Finally, an empirical approach will allow the author to measure the influence of academic emphasis while controlling for an array of student level and campus level variables which have historically hindered achievement.

While a link between academic emphasis and student achievement has been established, little is known about the influence of academic emphasis within the elementary schools of major suburban and other central city districts in Texas. If academic emphasis significantly and positively influences student achievement in these

districts, schools within these districts have the potential to bring to fruition higher student achievement. The primary purpose of this study is to build upon the research base in the area of academic emphasis, as it relates to student achievement specifically in the subject areas of math and reading. In practical terms, this study has the potential to influence culture and climate of elementary schools of major suburban and other central city districts. The findings of this study may be especially important since the participating schools are situated within major suburban and other central city districts, which are responsible for educating approximately half of all students in Texas.

Research Questions

The units of analysis are the individual and the campus; therefore a multi-level model will be employed to answer the following research questions. The following questions will steer this study:

1. What relationship exists between a school's level of academic emphasis and differences among schools in student achievement on 5th grade TAKS mathematics and TAKS reading exams in suburban-urban Texas elementary schools controlling for student demographic variables?
2. Is the level of academic emphasis based upon the demographic context of the school and the level of prior achievement?

Hypothesis

Based on the previously mentioned research questions, the author proposes the following hypotheses:

- H1. A positive and significant relationship exists between academic emphasis and differences among schools in student achievement controlling for prior student achievement, student and campus demographics.
- H2. The level of academic emphasis found in a school is not significantly influenced by the school's demographics or school's level of prior achievement.

Definitions of Terms

The following are key terms used in this study:

Academic emphasis: is the normative press feature of the school organization which pushes the school toward higher academic achievement (McDill, Natiello & Pallas, 1986) in its quest for excellence (Hoy & Feldman, 1987; Hoy, Sweetland & Smith, 2002). This term also refers to academic press.

Efficacy belief: a person's belief about his capabilities to exercise control over his own level of functioning in events that affect his life (Bandura, 1991, p. 257).

Collective Efficacy: a group's shared belief in its conjoint capabilities to organize and execute the course of action required to produce at given levels of attainment (Bandura, 1997 p. 477).

Norms: unwritten informal group expectations developed through collective experiences and enforced by the larger group (Hoy & Miskel, 2005).

Normative press: social sanctions (positive or negative) imposed by the group to bring individuals into compliance with group norms (Goddard et al., 2000; Goddard, Hoy & Hoy, 2004).

Agency: intentional actions taken by the individual to bring forth a desired outcome (Bandura, 1997)

Organizational agency: intentional actions taken by individuals in the organization to exert some control toward achieving predetermined organizational goals (Goddard et al., 2000; Goddard et al., 2004).

Major suburban district: A school district in and around a major urban area that is traditionally contiguous to a major urban district of Texas (TEA, 2009).

Other central city district: A major school district in other large, but not major, Texas cities. These are the largest districts in counties with populations between 100,000 and 749,999 and are not contiguous to any major urban districts (TEA, 2009).

Limitations and Delimitations

There are several factors beyond the control of the researcher in this study. First, the teacher response rate should be considered as a limitation. The teacher survey was administered at regularly scheduled faculty meetings at participating campuses to maximize participation however teacher participation was voluntary. Additionally, there is no guarantee every teacher on the participating campuses attended the faculty meeting or that every teacher that attended the faculty meeting completed the Texas A&M Study of School Organization and Instructional Practices (TSSOIP). No attempts were made to have absent teachers complete the survey. The survey was used to gauge teachers'

beliefs and perceptions and it may be possible that organizational normative press influenced their responses. Teachers may have also inflated their responses to portray themselves more favorably. Second, specific scripts and instructions were provided to the survey administrators but there is no indication that the reading of the script and instructions were standardized across all participating campuses. Third, because this was not a true experimental design with a control group, there is not a way to completely isolate the true effects of academic emphasis on academic achievement or the effects of prior achievement on academic emphasis.

There were specific limitations placed on this study. For this study, districts and schools were chosen as a matter of convenience thus preventing the researcher from making generalizations beyond schools in this sample. The districts participating in the study were also identified as major suburban or other central city. These two district types are responsible for educating approximately half of all students enrolled in Texas public schools but limits any generalizations one might make based on these findings to all district types. The data collection was also restricted to Southeast Texas which limits the generalizations one may make about Texas schools not in this geographic region. Finally, all data used was limited to elementary campuses, P-K thru 5, and should not be used to generalize to secondary schools or the district from which the data originated.

CHAPTER II

LITERATURE REVIEW

In the proceeding pages the author will explore the theoretical underpinnings of Parsons (1951,1960, 1971, 1977) theory of action and Bandura's (1986, 1991, 1997) social cognitive theory as they apply to academic emphasis. The aforementioned theories have been employed to explain the dynamics of academic emphasis in schools. The common thread between both theories is the role of norms at the organizational and individual level. Beyond the theoretical underpinnings, the author will trace the development of academic emphasis as a vital component of a school's culture and climate. Finally, the author will review previous studies employing academic emphasis as a measure of school effectiveness, school culture and as a predictor of academic achievement.

The author employs Parsons' theory of action in combination with Bandura's social cognitive theory. This combination of theories allows for the examination of the different functions found in social systems (Parsons) as well as the processes (Bandura) occurring within the social system. The employment of these two theories will allow the author to explore the normative pressure of academic emphasis within the confines of a school as a social system.

Parsons (1960) notes the primary difference between an organization and other social systems is the "orientation to the attainment of a specific goal" (p.17). This indicates the organization is a social system that must integrate the various subsystems as well as the internal and external environment in which it is situated. Parsons refers to

interpenetration of institutional norms integrating the subsystems and the environment. However, as Bandura (1997) noted, social structure alone does not organize, guide and regulate human affairs. The author will utilize social cognitive theory to explain how the normative pressure moves individuals and the organization to action.

Theory of Action

Initially Hoy & Ferguson (1985) employed the goal model and systems model to explore organizational effectiveness. He used Talcott Parsons' theory of action to link these seemingly opposite models. Hoy asserts that the goal model dictates that the organization must achieve certain predetermined goals to be considered effective. On the other hand, the systems model states that there are numerous external and internal demands placed on the organization therefore it is difficult to focus on a single goal. In order to weave together a concept of organizational effectiveness between the two competing models of organizational structures Hoy turned to Parsons (1951,1960, 1971, 1977) theory of action.

Parsons (1951) proposed a structure capable of fitting all social systems and divided them into four different, yet overlapping, subsystems. The social subsystem's primary function is integration, the cultural subsystem's primary function is pattern-maintenance, the personality subsystem's primary function is goal-attainment, and the behavioral organism's primary function is adaptation. Each of the four subsystems are interdependent of one another and a change in one alters the complexity and dynamic nature of social systems. The distinct separation of the four subsystems and their related functions are rarely, if ever, fully achievable.

Parsons (1951, 1960, 1971) posited social systems were a natural extension of the theory of action. Social systems consist of the various states and processes of social interaction among individual actors. A social system situated in the theory of action has four subsystems of action and primary functions associated with each subsystem. The zone of interpenetration is where the subsystems are connected, which allows interchange to occur between the various levels of the subsystems. Additionally, Parsons (1960, 1971, 1977) contends that social systems are naturally open systems that are subject to an input-output relationship with the environment and internal components. Parsons (1977) argued that the social system is relative to the actor and is part of a more complex and dynamic cultural system which is nested in a larger society.

A social system framed in action theory must first address the integrative issue; meaning the other subsystems are aligned and coordinated with one another. Parsons (1951) stated a social system is a process of interaction between multiple actors and the actors are interdependent and through a concerted action work towards a collective goal. The coordination of the other subsystems and their primary function is accomplished through an articulated system of norms within a collective organization. The articulated norms of the integrative subsystem assist the actor to define their obligation of loyalty to the social collective. Parsons (1971) stated loyalty was the actor's willingness to respond for the wellbeing of the societal collective. Institutionalized norms, those which permeate the social system, provide avenues to resolve internal conflict and maintain tension at acceptable levels. The institutional norms also focus the other social subsystems into supporting relationships with one another (Parsons, 1951).

Parsons (1977) later elaborated on the importance of norms maintaining order and mutually reinforcing them across the subsystems within the theory of action. Norms guide and strengthen the desirable actions of the entire system as well as the actors in the system. Conversely, the intuitional norms delaminate the undesirable actions of the systems and actors. The institutional and articulated norms of the social subsystem work to form normative order in Parsons' theory of action and create a common culture. The actors participating in the social system will observe the norms or be subjected to negative social sanctions. It is critical that the institutionalized normative culture saturate the social system in order for there to be a stable system of social interactions (Parsons, 1977).

The cultural subsystem is responsible for pattern maintenance. Organization of a cultural system is centered around the values and norms of the collective rather than the actions of any individual actor (Parsons & Shils, 1951). It is this subsystem which sustains the institutionalized values of the organizations and shapes the motivational commitment of the individuals in the organization (Parsons, 1971). The institutionalized values and norms of the cultural system are not random and unrelated to goal attainment but rather, they are consistently oriented towards the collective ends. Cultural patterns, once internalized become a part of the personality and the social system (Parson & Shils, 1951). Parsons (1971) notes that the commitment to the values of the cultural subsystem indicates the actor is obligated to assist in bringing forth the desirable state for the collective. Interestingly, Parsons (1977) suggested that the institutionalized values and norms are regarded as the moral values of the community. The moral values of the

cultural subsystem have the capacity to interpenetrate both the social and personality subsystems as they become internalized at the cultural level. This suggests the values of the cultural subsystem simultaneously influence the norms of the social subsystem and the goal attainment of the personality subsystem.

The attainment of a goal is the relation between the social system and the external environment in which it is situated (Parsons, 1960). It is within the personality subsystem the organization produces an output based upon its input (Parsons, 1971). Parsons (1960) noted the output of educational organizations (schools) is to provide the students with a particular type of “trained capacity” (p. 17) since the students have been exposed to the teaching of the schools. This implies that the students attained predetermined goals (output) based on the teaching of the school (input). The primary function of the personality subsystem is to integrate the internal and external environments. Interpenetration within the personality subsystem permits the institutional norms to penetrate the cultural and behavioral subsystems therefore allowing the norms to permeate the subsystem.

The behavioral subsystem drives the adaptive process of the social system. Parsons (1977) drew from Darwin’s interpretation adaptation. Adaptation is the relation of the social system and the external system and the changes made to the internal structure of the social system. Social systems must learn to adjust to the external environment in which they are stationed.

Parsons (1971) suggested the external environment plays two important roles for the social system. First, it provides the physical resources which can be used towards

goal attainment. This would include, but not be limited to: students, teachers, parents, and policy makers. At the zone of interpenetration in the personality subsystem, the institutionalized norms drive the collective personality of the social system. Secondly, the external environment serves as a deterrent of undesirable behavior for the social system. That is to say, the external environment will not provide the raw material necessary to sustain the social system if it does not produce the desired results.

Social Cognitive Theory

Bandura's (1986) social cognitive theory will be used to explore how organizations react and change based upon cognition, the external environment and behavior. Social cognitive theory is rooted in the fact that individuals, and therefore organizations, have the capacity for cerebral events and they must coordinate and alter behavior and environment. This is similar to Parson's integration of the subsystems from the theory of action. However, action theory does not adequately address the cognition involved.

Bandura (1986) proposed a triadic reciprocal causation model in which cognition, behavior, and environment work in concert with one another. This model suggests a bi-directional structure in which a change in one facet of the structure will alter the other two facets. Therefore, a change in the external environment will cause a change in the organizational behavior and cognition and vice versa. For example, the external environment (local, state or federal) requires more rigorous academic standards for schools. Therefore, triadic reciprocal causation holds that the organizational behavior

and cognition must change in order to meet the new requirements of the external environment.

In the triadic reciprocal causation model there are two components which influence an organization's position in the model. Organizational agency, the intentional actions taken to achieve a desired outcome, is a critical feature of social cognitive theory. Bandura (1991) writes the capacity of "intentional and purposive action" (p.248) is at the very core of the symbolic interaction. One of the mechanisms of agency is efficacy, whether at the individual or organizational level. While agency is the purposeful course of action, efficacy is the belief the individual or organization has the capacity to reach a predetermined goal. Collective efficacy is the belief held concerning the abilities to execute a course of action required to bring forth a desired outcome (Bandura, 1997). The combination of agency and efficacious beliefs are the foundation of action in social cognitive theory.

Collective Efficacy

Spring boarding from the social cognitive theory of Bandura (1986,1997), Goddard et al., (2004) constructed a framework for collective efficacy. A key feature of self-efficacy is human agency. Organizational agency is derived from human agency which is the intentional actions taken by people to exercise some level of control in their lives. Thus, organizational agency is intentional actions taken by the organization to exert some control toward achieving predetermined organizational goals. Superimposing Bandura's (1986,1997) work to the collective, Goddard et al., (2004) asserts that the

collective may have mastery and vicarious experiences, impose social persuasion, and experience various affective states.

Collective efficacy, like self-efficacy, can be influenced and altered based on mastery and vicarious experiences. Goddard et al., (2004) asserts organizations have the capacity to learn because the individuals of the collective learn, and through individual learning the group learns. Groups can have a mastery experience based on past performance. Goddard (2001) operationalized the mastery experience as prior achievement and noted it as a significant predictor of the school's collective efficacy. The vicarious experience that may enhance the school's perception of collective efficacy may include the replication of educational programs from similar organizations and/or visiting or observing successful similar schools (Goddard, et al., 2004). Given the two types of experiences, mastery and vicarious, the mastery experience is more likely to improve the collective efficacy of the school.

Another key mechanism of collective efficacy includes social persuasion. Social persuasion is the means by which the individual experiences organizational socialization and has the ability to encourage or discourage desired behaviors based on the norms of the organization (Goddard, et al., 2004). An organization that exhibits a strong sense of collective efficacy has the ability to exert social sanctions (positive or negative) on individuals to bring them into compliance with the culture of the school. Members of the school faculty and students are exposed to the normative press when they interact with other members of the school. Organizational expectations are paramount to the collective efficacy of the school and are an essential component of the organizational

socialization, foundational in the organization's culture and influence the performance of group members (Goddard, et al., 2004). The social persuasion feature of collective efficacy holds that group members have the capacity to create and adjust norms in order to bring members into compliance through the use of positive or negative sanctions.

The final component of Goddard et al., (2004) collective efficacy model is affective states. He contends that schools with a robust sense of collective efficacy have a better opportunity to endure external pressures without rendering the organization ineffective. Hoy and Miskel (2005), Bandura (1997) and Parsons (1960, 1971, 1977) suggest organizations, like individuals, are responsive to their surrounding environment and environmental pressures. In times of crisis or increased challenges schools with positive efficacious beliefs will continue to operate with little disruption. Whereas schools with low levels of collective efficacy will succumb to the whims of the environment and lose their institutional integrity. Hoy and Feldman (1987) describe institutional integrity as the ability of the school to maintain its educational focus and protect the instructional staff from unreasonable interference from the community.

Norms

Norms, the unwritten informal group expectations developed through collective experiences and enforced by the larger group (Hoy & Miskel, 2005), play a role in the function and processes of organizations. Parsons (1951) acknowledged integrative processes in social systems were driven by norms, but these norms were not the process of "magic" (p. 190). Norms must be interpreted in relation to the other subsystems of a social system. Norms are continually adjusted to meet the demands of the social system

in order to ensure stability of the system. Norms also serve to set boundaries of the membership of and loyalty to an organization. Within this membership the individual and organization voluntarily agree to the unwritten rules that govern membership. Bandura (1991) suggests the individual's adherence to the social norms depends upon fidelity and consistency since individuals voluntarily agree to participate in a social system

Because membership and loyalty are voluntary norms, they have the capacity to influence personal and organizational behaviors. The influence of norms comes in the form of rewards or sanctions. Parsons (1971) suggested the adherence to the norms of a social system increases the binding effect by deterring noncompliance. Conversely, adherence to the norms leads to stable social systems through the pattern maintenance function of the cultural subsystem.

Parsons (1971) stated a shared normative order was the most important feature that must be satisfied in order for a social subsystem to fulfill its function of integration. Parsons likened the normative order of a social system to a common culture, i.e. a common language, symbols and code. As the norms become institutionalized by the collective organization they begin to exert control over individuals and the group. When the cultural norms are internalized by the individuals and institutionalized by the collective, interpenetration of the subsystems occurs contributing to the stability of the social system.

In social cognitive theory, norms also play a pivotal role. Bandura (1997) notes norms regulate behavior via social sanctions and self-sanctions. While Parsons (1971)

acknowledged the negative influence of norms on behaviors, Bandura (1997) posited behaviors that fulfill a social value are rewarded. Through this process people and organizations will adopt self-regulated behaviors. However, people and organizations do not act solely on this process. Instead, they embrace a standard of conduct which allows for the anticipation of consequences (Bandura, 1997). Through this evaluative process people and organizations will choose a course of action mitigating negative consequences and accentuating the positive.

Because the social consequences of norms are rooted in the social fabric of the organization they are more likely to outweigh the immediate consequences imposed by an outside entity or organization. The modeling impact on the individual standards of behavior and social sanctioning function is bolstered by normative pressure (Bandura, 1997) exerted by the social and cultural subsystem (Parsons, 1971).

For the purposes of this literature review, Parsons' theory of action serves as the structure of the social system whereas Bandura's social cognitive theory will serve as the process. Parsons' theory of action was initially used by Hoy & Ferguson (1985) to determine the effectiveness of schools. It is through Parsons' theory of action that the function of each subsystem begins to emerge. The social subsystem is responsible for system integration. The cultural subsystem is tasked with pattern maintenance. Goal attainment is the function of the personality subsystem. Lastly, the behavioral subsystem is charged with adaptation.

Social cognitive theory served as the process. Social cognitive theory is rooted in the fact that individuals, and therefore organizations, have the capacity of cerebral

events, and they must coordinate and alter their behavior and environment. Cerebral events can be altered by mastery or vicarious experiences. Through these experiences the organization begins to adapt to the new situation and ultimately the cultural subsystem.

Norms of the cultural subsystem influence the commitment level of the actors and maintain consistency within the organization. Additionally, norms dictate how the organization interacts with the external environment. Parsons and Bandura acknowledge norms as a deterrent through social sanctions. Bandura also had an alternative view of norms. He suggested norms could inspire behavior through the use of positive social rewards when the behavior fulfills an organizational need. Normative pressure has the ability to influence the behaviors and beliefs of individuals and therefore organizations.

Academic Emphasis

Academic emphasis has been used as a school and teacher level construct based on the perceptions and actions of individuals within the school organization. Hoy and Feldman (1987) defined it as a school's "quest for academic excellence" (p.32). McDill, et al., (1986) view academic emphasis as the feature of school climate which exerts "normative pressure in the school environment toward educational goals such as high achievement and intellectualism" (p.158). Regardless of which definition is used, academic emphasis is a feature that permeates the school, the staff, the students and the community. Therefore it is key to consider several models and theoretical underpinnings to understand the importance and power of academic emphasis.

Schools have long been considered organizations and more specifically formal organizations. Hoy and Miskel (2005) describe a formal organization as one established

specifically to reach predetermined goals. Schools are established for the formal purpose of educating students. In some form or fashion, all schools have the stated purpose of educating students. For this reason, it is critical to examine the theoretical assumptions of schools as systems, as open social systems, the collective-efficacy of the school, school climate and culture, and organizational normative press of the school. Before diving into the organizational literature it is essential to briefly discuss Bandura's (1986) triadic reciprocal causation to explain how the environment, behavior and cognition work in unison to alter collective efficacy.

Open Systems

Hoy and Miskel (2005) use the open-systems model to explain how schools interact with the surrounding environment. This approach acknowledges that schools are "complex and dynamic" (p. 19). Schools have a formal structure for the sole purpose of achieving specific organizational goals. However schools are composed of individuals who may put their personal needs, beliefs and interests ahead of the organization's. This may create conflict and instability within the organization. The open-system approach is built on the interdependent relationship between the individual, the organization, and the environment. An open system is predicated on input from the surrounding environment, transforming the input, and producing a product for the environment. In the open system model, schools are influenced by and dependent on the environment. External environmental influences include, but are not limited to, community members and materials, financial resources, and local, state, and national academic standards.

Furthermore, the school has the ability to learn and adjust the transformation process through the use of feedback loops based on the output, i.e. student achievement.

Hoy and Miskel's (2005) meta-analysis pushed the open systems model a step further and asserted schools are open social systems. As an open social system there are some assumptions that are important to the explanation of academic emphasis.

- Schools are social systems,
- Social systems are peopled and people act on the basis of their needs and roles,
- Social systems consist of interdependent parts,
- Social systems are goal oriented,
- Social systems are structural,
- Social systems are normative,
- Social systems are sanction bearing,
- Social systems are political,
- Social systems are conceptual and relative, and
- All formal organizations are social systems.

These assumptions of an open social system are key to understanding how academic emphasis has a positive impact on student achievement. Additionally, the open system provides an explanation of how the social context of the school may impact academic emphasis. The assumptions of the open social system support the model of collective efficacy developed by Goddard et al., (2004) whose model states people act on the basis of their needs, social systems are normative and have the capacity to issue sanctions (positive or negative).

Another feature of an open social system is that it is situated in a unique environment and this environment comes with expectations for particular outcomes. This is certainly true of schools. However, the desired outcome may not be realized if the school does not learn to make adjustments to the environment, cognition and behavior. As stated earlier, organizations have the capacity to learn but organizational learning is mediated through the individual (Bandura, 1997). Hoy and Miskel (2005) suggested that desired learning is relayed back to the organization through the use of internal and external feedback loops. The information from the internal feedback loops is the first indicator that adjustments to the transformational process need to be made. The community uses external feedback loops in an evaluative manner which may have ramifications for the whole social system.

Research Review of Academic Emphasis

In this section I will review the historical roots of academic emphasis, the various constructs used to measure it and its implications to schools. Academic emphasis has been used as a measurement of organizational effectiveness, organizational health, and a predictor of student achievement. Academic emphasis has been defined as a school's "quest for academic excellence" (Hoy & Feldman, 1987, p. 32). McDill, et al., (1986) define academic emphasis as the feature of school climate which exerts "normative pressure in the school environment toward educational goals such as high achievement and intellectualism" (p.158). Lee & Smith (1999) contend academic press is the pressure "the school exerts on its students toward learning activities and performance" (p. 908).

Regardless of which definition is used, because academic emphasis is a feature and function of schools it is worthy of further research.

Effective School Research

Weber (1971) was an early dissenter of Coleman et al., (1966) and Jensen (1969) and an advocate of effective schools research. He looked for the characteristics of effective instruction in four schools situated in the inner-city. His study revealed effective schools were led by a strong leader who was pivotal in setting the tone for the campus. Leaders were also instructional specialists helping teachers determine the appropriate strategies and allocating resources. High expectations for students were found at each school but beyond that schools were orderly and serious with an emphasis on reading acquisition.

Edmunds (1979) called for public education to teach children of poverty at least as well as it taught the children of the middle class. He framed his argument in the blanket of equity which he defined as “ a simple sense of fairness in the distribution of the primary goods and services that characterize our social order” (p. 15). Schools have traditionally taught students they believed need to be taught while allowing others to receive less than an acceptable education. He argues against the findings of Coleman et al., (1966) and Jensen (1966) which suggested low academic achievement among children of poverty was a by-product of their “inherent disabilities”. If, as they suggest, this would mean schools would not have the capacity to influence student achievement. However, Edmunds (1979) found effective schools shared several similar characteristics with one another. The shared characteristics include:

- a. a strong administrative leader,
- b. a climate of high expectations for all children,
- c. an orderly atmosphere focused on instruction,
- d. the focus of the school is student learning,
- e. resources are allocated and when necessary diverted to the primary function of the school, and
- f. student academic progress is frequently assessed and monitored.

It was the early work of Weber and Edmunds that sparked the effective schools movement that inundated school reform efforts of the 1980s and 1990s.

Hoy and Ferguson (1985) noted effective schools research faced a number of critics for a lack of a sound theoretical framework, coherent definition and conceptualized measurement. Organizational effectiveness has multiple layers and dimensions and without a sound theoretical model it is difficult to ascertain if one school is more effective than another. To overcome this shortcoming the researchers applied a combination of goal model and systems model to their study. The goal model measured success based upon reaching predefined goals while the systems model considered the internal stability and survival of the organization. In order for a goal system to effectively measure performance four conditions for goals must be met: specific, challenging, attainable, and individual commitment to the goals (Hoy & Miskel, 2005). Whether overtly or covertly, the behavior of the organization is focused on goal achievement.

The measure of effectiveness used by Hoy and Ferguson (1985) is derived from the systems model which considers the organizational means and ends. The systems model approach holds the major function of the organization is to survive and grow. This approach requires the organization to compete for and secure resources from its surrounding environment. The system model requires one to examine the internal consistency of the organization, the efficient use of resources, the ability of the organization to cope with internal and external stresses, and the ability to secure resources in the face of competition.

With a combined model, Hoy and Ferguson turned to Parsons (1951) theory of social system survival which requires four problems to be resolved before an organization can be considered effective. Effective organizations, including schools, must have the capacity to adapt, achieve goals, preserve solidarity of the elements in the system (integration) and avoid latency. The proposed model supports the “notion that school organizations are natural, open and rational systems” (p. 131) focused on their viability, bound by their environment, and driven by their instructional goals. Hoy and Ferguson (1985) contend that in order for a school to be considered effective it must take into account the environmental forces, internal workings of the school, and student achievement. Combining these two competing models to measure effectiveness is not hard to fathom if one considers that in both models the organizational behavior is goal-directed. When these models are combined to determine organizational effectiveness one must consider:

1. The nature of the organization

2. The definition of effectiveness
3. The domain of effectiveness
4. The constituencies
5. Testability (p. 121).

Academic Emphasis in Effective Schools

Hoy and Feldman (1987) moved beyond determining if a school was more or less effective to assessing the health of the school. This work was predicated on the work of Miles (1969) who suggested a healthy organization survives in its environment, copes with changes over time, and constantly develops new strategies to prolong survival and coping skills. This led to the development of the Organizational Health Inventory (OHI) which was an extension of Parsons and Shils (1951) action theory and consisted of seven dimensions of organizational health: institutional integrity, principal influence, consideration, initiating structure, resource support, morale, and academic emphasis. Each of these measures fell into one of three levels of school control: technical, managerial or institutional.

Hoy and Feldman (1987) argue the technical level involves the primary function and mission of schools that is to educate the students. The managerial level is primarily a function of the principal who allocates resources and leads the work of the school. The institutional level places the school in the larger environment of the community and provides legitimacy for the school. Healthy schools have the ability to adapt to their changing environment while continuing to meet goals and simultaneously expressing the needs of social and normative integration. Healthy and effective schools strike a balance

at each of the three levels and maintain focus on their primary mission: to educate students.

The researchers surveyed 1,131 teachers and principals from seventy-eight secondary schools, which represented a large cross-section of public schools in New Jersey. The academic emphasis construct created by Hoy and Feldman (1987) used factor analysis and achieved an alpha coefficient of .93. Using a four-point Likert scaled, their construct of academic emphasis consisted of five items:

1. high yet achievable educational goals are set for students,
2. the learning environment is orderly and serious,
3. teachers believe in their students' ability to achieve the educational goals,
4. students work hard, and
5. students respect other students that do well academically.

In the second order factor analysis for the OHI academic emphasis had a robust loading of .703 on the overarching factor of school health. It was through this study that academic emphasis was conceptualized and recognized as a viable variable for further research.

Academic Emphasis as Measure of Health

Licata and Harper (1999) examined the relationship between the health of a school and the robustness of the school's environment. They describe the robustness of the school environment as one where the teachers experience drama or empathy. They argued that the day-to-day routine and school structure have the potential to elicit responses just as if they were participating in a theatrical production. They hypothesized

there was a significant positive relationship between the health of the school and the level of robustness of the school environment.

The sample population came from 38 junior high and middle schools in the Midwest. 554 teachers completed the OHI and the robustness semantic differential (RSD). The RSD asked teachers to scale their environment based on polar opposite adjective pairs on a scale of one to seven. Some of the polar opposite adjectives include: meaningful-meaningless, active-passive, unusual-usual, fresh-stale. There was a significant correlation between RSD and OHI with the exception of the subscale of teacher affiliation from the OHI. The researchers then employed multiple regression models with the RSD as the dependent variable and the subscales of OHI as the independent variables. This model produced a statistically significant model that could explain roughly 42% of the variance of the teachers' perceptions of environmental robustness. However, only academic emphasis made a separate and significant contribution to environmental robustness.

The Licata and Harper (1999) study suggests that a robust climate is contingent on high academic standards, an environment where students are focused on learning, and teachers believe students can attain academic goals. The challenging work in creating this type of environment is active, meaningful, unusual, thrilling and action-packed. Schools that have high levels of academic emphasis are more likely to have robust environments.

Tsui and Cheng (1999) suggested teachers' commitment was contingent on the health of the schools and personal characteristics. They collected data from 423 primary

school teachers randomly chosen from 20 primary schools in Hong Kong. They hypothesized that teacher commitment was contingent upon organizational health and personal characteristics. The researchers used the OHI to assess the health of the school and the Organizational Commitment Questionnaire to determine the teacher's perception of organizational commitment. Teachers were also asked to provide personal data such as marital status, years at school, years of service and position.

Interestingly, academic emphasis was positively associated with teacher commitment but it was not statistically significant. Academic emphasis was also positively associated with the teachers' positions in the schools and years in services at the schools although it was not statistically significant. However, morale, institutional integrity and consideration were positively and significantly associated with teacher commitment. This would suggest that increases in teacher commitment is a product of relationships between administrators and colleagues i.e. morale and consideration, and protection from outside influences. Teachers may not have the same level of commitment if academic emphasis is a dominant feature of the school.

Academic Emphasis as a Predictor of Academic Achievement

Shouse (1996) compared the relationship between academic press and the sense of community found at schools. He suggests there are two competing forces, academic press and sense of community, in the educational reform movement which may be counter productive based on the demographic characteristics of the school. While he does not discount the role of communality he noted it could be counter productive to the overall mission of the school, educating students. His academic press construct

considered three components: academic climate, disciplinary climate, and teacher instructional practices and emphasis.

Academic climate is the mechanism used to push students into higher academic classes in the core subjects rather than general classes. Students are encouraged to strive for higher grades while also protecting the reliability of the rewarded grade. Homework is valued and emphasized for adding increased rigor to the class. Exceptional performance is valued and recognized across the campus. The disciplinary climate is built with the profound sense that a campus with high academic press cannot exist without good attendance and a reasonable decorum. Schools must work to establish policies and procedures which are clear to students and adults alike that address student attendance and discipline. The teachers' instructional practices and emphasis assist in creating a high academic press by establishing measurable and challenging standards for students' performance. A campus environment with a strong academic press defines the primary purpose of the school and relays the message to members of the school community that the pursuit of academic excellence is paramount.

Shouse employed Bryk and Driscoll's (1988) construct of communality in schools which have three components at their core: (1) a set of shared and commonly understood values and beliefs about the organization's purpose, (2) a shared schema of activities and traditions which defines membership and provides meaningful social interactions, (3) discernable patterns of social relationships embodying an ethic of caring between staff members and staff members and students.

For Shouse (1996) there is a conflict between a school's academic press and sense of communality. This is especially difficult for public schools to navigate because as they move to increase the academic press they must also be responsive to the norms and beliefs of the community they serve. Schools with high academic press strive to protect the integrity of their standards. He suggests that the tension between academic press and communality may be strained based upon the SES of the school. Affluent communities and schools work in concert to foster high academic standards where as economically disadvantaged schools may be more concerned with creating a safe and supportive school at the expense of academic standards.

Shouse (1996) considered three hypotheses in his study of academic press and schools' sense of community. First, he hypothesized there is a positive relationship between the level of a school's academic press and student achievement. Second, academic press would be high in the most affluent schools. Finally, academic press, communality and school mean SES would have important interactive effects.

Shouse used data from the National Education Longitudinal Study of 1988 (NELS:88) as his base year (eighth grade) which included first and second follow up surveys for tenth and twelfth grades respectively. In the first stage of his analysis, public and private schools were stratified by region, urbanicity and minority enrollment. At the second stage, an average of 26 students were sampled from each school creating a sample of 24,599 students from 1,035 public and private schools. Math scores from the NELS:88 were used as the dependent variable in the analysis. Independent variables at the student and school level were selected as controls to make certain academic press

and communality were measuring what they were purported to measure. The control variables at the student level included socio-economic status, race, academic track, prior achievement, and prior math courses. Secondly, Shouse controlled for school type, average socio-economic status, and school SES category at the school level.

Academic press consisted of 28 indicators from the components of academic climate, disciplinary climate and teacher instructional practices and emphasis. The communality index used 24 indicators based on Bryk and Driscoll's (1988) components of shared beliefs, common agenda of activity, and ethic of caring. Both constructs, academic emphasis and communality, had robust Cronbach's Alpha scores of .73 and .84, respectively, indicating internal consistency and reliability (Shouse, 1996). Using hierarchical linear modeling (HLM) Shouse examined the main achievement effects of the two variables while controlling for other school and student variables known to influence student academic achievement. At the second stage, he sought to demonstrate the interplay of academic press, communality and school SES.

Examining academic emphasis and communality at the school level, academic press is associated with a statistically significant increase in student achievement across all schools. In economically disadvantaged schools, academic press was associated with a .10 coefficient that suggests academic press has the potential to decrease the achievement gap regardless of SES of the school or its students. The level of a school's communality does not significantly impact academic achievement across all schools. In economically disadvantaged schools, communality is associated with a decrease in achievement although not statistically significant. On the other hand, the level of

communality in high-SES schools is associated with an increase in achievement but again the effect is not significant.

In the second stage of Shouse's analysis, he created a continuous variable for 27 hypothetical schools to estimate the interactive effects of academic press, communality, and SES. Based on the analysis, academic press possess a positive effect across all schools regardless of level of SES where as communality has a negative effect at the high-SES schools. At low-SES schools a high level of academic press and communality have a tremendous influence on academic achievement and to a lesser degree at the average SES schools.

Phillips (1997) also considered school communality and academic emphasis as a predictor of student achievement and attendance. Phillips (1997) made a comparison of the communitarian climate and academic climate on students' mathematics achievement and attendance. Phillips suggests academic press aligns with the bureaucratic model of the early and mid-1980s. The academic press measure used a combination of teacher perceptions and student behaviors and was comprised of three measures: teachers' expectations from teacher reports, the percent of students taking algebra in the 8th grade, and the number of hours students reported doing homework per week. Teachers were asked what percentage of the students in their school they expected to complete high school and what percent of students would complete a 4-year college degree.

The description of communitarian climate is similar to the one used by Shouse (1996) and the social support employed by Lee and Smith (1999). Phillips suggests the level of communitarian climate is based upon the bonds and amount of support received

by students. The communitarian model is different from the bureaucratic model that is a top down approach. A top down approach imposes higher academic standards, higher graduation requirements and accountability.

Phillips used data of 5,600 students from 23 middle schools in a middle class suburban county comprised predominately of African Americans. The sample was composed of middle school students and restricted to European and African Americans. African Americans composed approximately 70% of the entire sample. In order to be considered for the sample the students could not have changed schools between the seventh and eighth grade and had recorded achievement scores.

The variables of interest for Phillips were created from school level data and reports from teachers and students. The communitarian measure included the teachers' perspective of shared values, democratic governance and positive teacher relationships coupled with the students' perceptions of teachers' caring. Academic press used teacher and student reports and the percentage of students taking algebra. School level controls included SES, percentage of African Americans and school size. The SES measure was developed using parental educational attainment and free and reduced lunch reports. The dependent variables were attendance and mathematic achievement. Attendance records were collected for the students' eighth grade year. The mathematics achievement was measured by a criterion-referenced test. The students took the test during their seventh grade year and again at the start of their ninth grade year.

Phillips used a nested model (HLM) to tease out the characteristics of schools that positively influence individual outcomes (attendance and math achievement). The

results revealed that teachers' caring for students was negatively correlated with all facets of academic press. This would suggest schools that have a more supportive or communal climate are more concerned with relationships than academics. Schools that reported high degrees of teachers' caring also reported lower levels of homework and fewer students taking algebra in eighth grade. The strongest predictor of math achievement was student performance on the seventh grade test followed by the students' performance on the California Achievement Test. However, students that reported teachers cared about them tended not to perform as well as students subjected to higher levels of academic press.

Phillips' findings suggest students attending schools with high levels of academic press have higher attendance rates. This may be attributed to the fact teachers expect their students to graduate from high school and college. Furthermore, academic press was positively related to math achievement. Schools one standard deviation above the mean of academic press would increase math achievement by a quarter of a standard deviation. The findings also reveal academic press has a more profound influence on students entering eighth grade with lower math scores.

Lee and Smith (1999) used the concept of social support to delineate the positive relationships students have with people that assist them to succeed in school. This study focuses on the adolescents' perception of support from: teachers, parents, friends and their neighborhood. They contend academic press is the pressure "the school exerts on its students toward learning activities and performance" (p. 908). Their overarching

hypothesis is learning and the amount of social support received is contingent on level of academic press of the school the students attend.

Social support reforms focus on building connections between group members and with the adults in the larger community. Bryk and Driscoll (1988) suggest communal school organizations are judged on two outcomes: teacher-student engagement and academic achievement of the students. Communal schools build connections between adults and students when members share “values and understanding, a common agenda of activities and an ethic of caring” (Lee & Smith, 1999, p. 910-911). In contrast, academic press focuses on compliance with academic standards and performance that gives credence to competition over cooperation. The researchers suggest two factors motivate the level of academic press found in schools: (a) teacher expectations of student performance and (b) standards and/or sanctions imposed by the district, state or nation. The press can be driven internally or externally; it depends on the source of the motivation.

The researchers hypothesized: 1. Social support is positively related to learning math and reading, 2. Academic press is associated with higher average levels of learning in math and reading, and 3. The relationship between social support and learning is stronger in schools with more academic press.

The sample consisted of 304 schools that housed both sixth and eighth grade. The total student population included 28,318 students in sixth and eighth grade. The data was collected in 1997 through surveys given by the Consortium for Chicago Schools Research to all students in grades six, eight and ten and all teachers and principals.

Students' reading and math scores from the Iowa Test of Basic Skills and prior achievement were used as the dependent variable. The independent variables included social support for learning and academic press. Social support was created using four composite measures from the student perspective whereas academic emphasis used data collected from the perspective of the teachers and students. All variables were aggregated to the school level. School characteristics included the percentage of low-income students and racial composition.

Students were grouped into three groups (low, medium and high) based on the level of social support they reportedly received. Schools were grouped into similar categories (low, medium, and high) based on levels of academic press. The researchers found that there was a positive and significant relationship between the students' reported level of social support and gains in math (0.017 standard deviations) and reading (0.021 standard deviations). However, the schools' academic press was a stronger predictor of gains in math (0.036 standard deviations) and reading (0.033 standard deviations). The combined statistical model of social support and academic press revealed positive and significant gains in math (0.037 standard deviations) and reading (0.030 standard deviations). In the combined model, the level of academic press found in the schools' contributed more to the gains than did the amount of social support students received. The researchers also noted low income schools reaped the rewards of high social support and strong academic press as evidenced by significant gains in academic achievement.

Ma and Klinger (2000) used HLM to determine the students' and schools' effects on academic achievement in New Brunswick, Canada. For the purpose of their study student effects included gender, family structure, ethnicity, and SES. Student SES was created by student responses to questions about possessions in their homes and family activities. School effects consisted of school climate and culture variables and other factors such as school size, school location and mean school SES. Student achievement was measured by a criterion-referenced test developed by teachers and subject area specialist for the core areas of mathematics, reading, science and writing.

Ma and Klinger (2000) measured school characteristics based on the students' beliefs about:

- A) disciplinary climate, constructed from students' perspective about rules homework and possible disciplinary consequences
- B) academic press, constructed from students perspectives about the academic behavior of their cohort and teacher expectations
- C) parental involvement, constructed from questions about the actions of parents at school and home.

Using HLM, the researchers created a nested model (students nested within schools) to determine the influence of the independent variables (student and school characteristics) on the dependent variables (academic achievement in core subject areas). The sample size included 6,883 students from 148 schools with a sixth grade cohort. The Cormbach's alpha for disciplinary climate, academic press and parental involvement was 0.77, 0.61 and 0.77 respectively (Ma & Kingler, 2000). It should be noted, this is not the

strongest measure of academic press which may be a by-product of how it was conceptualized and operationalized. Furthermore, the disciplinary climate employed similar questions developed by Hoy and his colleagues for the OHI from the teachers' perspective to measure academic press.

Ma and Klinger (2000) found that academic press was a positive and significant predictor of individual student achievement in all subject areas except reading. Based on their model, the contribution of academic press on student achievement was equal to or greater than the contributions of parental involvement in all subject areas. Additionally, the influence of academic press was equal to or greater than contributions of the disciplinary climate in all subject areas except science. When they considered the relative effect of academic press at the school level, there was not a significant contribution. As stated earlier this may be a by-product of the researchers' conceptualization and operational measure of academic press.

Goddard, et al. (2000) considered academic emphasis to be a vital component to school climate and associated with increased academic achievement. They contend successful schools maintain a focus on academics and student achievement. Academic emphasis was designed as a single factor of a school's climate (Hoy & Sabo, & Barnes, 1996; Hoy, Tarter, & Bliss 1990; Hoy, Tarter & Kottkamp, 1991) by capturing the characteristic of effective schools.

Goddard et al. (2000) aggregated the teachers' perception of academic emphasis to construct a collective measure of the school's organizational beliefs. The researchers held organizations (schools) have the capacity to learn based on the cognitive activity of

the individuals within the organization. Social cognitive theory was used as a framework to explain individual and collective behaviors. One of the key features of Bandura's social cognitive theory is human agency, the intentional pursuit of a particular course of action. Juxtaposed to the school, social cognitive theory serves as the appropriate theoretical framework for determining the influence of academic emphasis on student achievement.

The data set was compiled from 45 schools from 444 teacher surveys. The data set also included academic achievement of 2,429 students as measured by the state administered seventh edition of the Metropolitan Achievement Test (MAT7). Student achievement data was collected for third and fourth grade. Third grade data was used to account for prior achievement while fourth grade achievement is employed as the dependent variable. Student demographic data (gender, race and ethnicity) and free and reduced-priced lunch were also included. School size was included as a school feature.

The researchers used HLM to create a nested model that would allow them to explain between-school variance and make inferences about the individual students. The construct of the academic emphasis was aggregated to the school level since it is a measure of the organizational climate. This is the same construct developed as part of the Organizational Health Inventory for Elementary Schools (Hoy & Tarter, 1997, Hoy, Tarter, & Kottkamp, 1991). Goddard et al. (2000) were able to attain an alpha coefficient of reliability of .92. The control variables for this model included the students' gender, race/ethnicity, SES and prior achievement. School level control variables included the proportion of students with disadvantaged SES, the proportion of African American

students, and the proportion female students. First level of analysis revealed a statistical difference between a school's level of academic emphasis and students' academic performance: mathematics (25.2%) and reading (19.1%). The second level of analysis found academic emphasis explained 47.4% of the between-school variability in math and 50.4% in reading.

Conclusion of Academic Emphasis Research

The review of research traced the lineage of academic emphasis through the effective schools research of Weber (1971) and Edmunds (1979). However it was Hoy and Ferguson (1985) that silenced the critics by aligning the effective school research with Parsons and Shils (1951) theory of social system survival. From this point Hoy and Feldman moved to assessing the health of schools by developing the OHI. The development of the OHI solidified academic emphasis as a viable construct and it has been used in multiple forms across multiple settings.

Academic emphasis has been used as an indicator of a school's health (Hoy, Tarter, et al., 1990; Licata & Harper, 1999; Tsui & Cheng, 2000) and demonstrated promising returns. Perhaps the most important contribution of academic emphasis is its potential to impact student achievement, especially in schools with elevated proportions of economically disadvantaged students (Goddard, et al. 2000; Hoy, et al, 2002; Lee & Smith, 1999; Ma & Klinger, 2000; Phillips, 1997; Shouse, 1996).

Academic emphasis can serve as a catalyst for creating an effective healthy school that positively influences student academic performance. Furthermore, academic emphasis can serve as an organizational normative expectation that has the potential to

change individual behaviors and ultimately organizational behavior (Goddard, et al., 2004, Goddard, et al., 2000; Hoy et al, 2002). High levels of academic emphasis have the potential to influence social perceptions and behaviors which support teaching and learning.

CHAPTER III

METHODOOGY AND METHODS

In the proceeding chapter the author will provide a rational for the statistical methodological approach used in this quasi-experimental study. Next, the author will provide a description of the research questions and hypothesis followed by a narrative of the variables used in the statistical models. Finally, the chapter will conclude with a description of the research procedures and steps taken to ensure the anonymity of the teachers and students involved in the study.

Methodology

Academic emphasis is a single construct representing a school's quest of academic excellence (Hoy & Feldman,1987). It is also the normative press feature of the school organization which pushes the school toward higher academic achievement (McDill, et al., 1986). Academic emphasis has been shown to be a positive predictor of academic achievement.

Research Question

The researcher attempts to answer the following questions in an attempt to further investigate the effect of school level academic emphasis as a forecaster of student achieve:

1. What relationship exists between a school's level of academic emphasis and differences among schools in student achievement on 5th grade TAKS mathematics and TAKS reading exams in suburban-urban Texas elementary schools controlling for student demographic variables?

2. Is the level of academic emphasis based upon the demographic context of the school and the level of prior achievement?

Hypothesis

Based on the previously mentioned research questions, the author will employ both multi-level and multiple regressions analysis to test the following hypotheses:

- H1. A positive and significant relationship exists between academic emphasis and differences among schools student achievement controlling for prior student achievement, student and campus demographics.
- H2. The level of academic emphasis found in a school is not significantly influenced by the school's demographics or school's level of prior achievement.

Participants

Population

The current study was conducted in one of the largest and fastest growing student population segments among Texas school districts: major suburban districts and other central city districts. According to Texas Education Agency's (TEA) 2010 snapshot data, the combination of major urban and other central city districts represented approximately half of 4.6 million students educated in Texas public schools. These combined categories also compose the most diversified groups, racially/ethnically and economically.

The 2010 data available from TEA revealed the number of identified major urban districts (78) has remained constant between 2006-2010. In 2010, major urban districts were home to 1,958 schools, an increase from 1,755 in 2006, and educated 1,588,847

students up from 1,451,943 in 2006 as shown in Table 3.1. These districts employed 106,127 teachers, an increase from 93,696 in 2006. These district types are responsible for educating the largest proportion of all students in Texas. In addition, the same data revealed the number of identified other central city districts has decreased by one from 2006-2010 to 38. However, during that same time period the number of schools, students and teachers increased from 1,064 to 1,093; 701,847 to 740,979; 46,900 to 50,299 respectively. Other central city districts are responsible for educating the third largest proportion of all Texas school children.

Table 3.1

District Type Populations

District Type	Year	Number of Districts	Number of Schools	Number of Students	Number of Teachers
Major Urban	2006	78	1,755	1,451,943	93,696
	2010	78	1,958	1,588,847	106,127
Central City	2006	39	1,064	701,847	46,900
	2010	38	1,093	740,979	50,299

Sample

The Texas A&M Study of School Organization and Instructional Practices (TSSOIP) was administered across 5 school districts in Southeast Texas. 100 of a possible 164 elementary schools elected to participate in the study. To be considered for the study, the school districts had to be either major urban or other central city districts as defined by TEA. Initially, seven school districts were invited to participate in the study, however, two districts declined leaving five participating districts. Once the five

districts permitted the TSSOIP to be administered, a campus administrator at each elementary campus, Pre-K thru 5th, in the districts was contacted to schedule a time to collect data. The campus administrators from 100 of the possible 164 elementary schools allowed trained data collectors to administer the TSSOIP. Regularly schedule faculty meetings were used to increase the likelihood of maximum voluntary teacher participation. Only pre-coded district and campus codes were used to identify the districts and campuses. All teacher-generated data remained anonymous.

Districts that opted to participate in the study also agreed to provide three years of student achievement and demographic data. The student achievement data collected in the 2010-2011 school year will constitute the measure of current achievement and data collected in 2009-2010 and 2008-2009 were used as a measure of prior achievement. Like the teacher-generated data, student achievement data was scrubbed of all identifiable indicators to protect student anonymity.

Data Collection Setting and Procedures

In an effort to ensure maximum teacher participation, the TSSOIP administered at regularly scheduled faculty meeting at the 100 participating schools by researchers. The data collection protocol allowed the researchers to collect teacher data and maintain teacher anonymity and confidentiality. One of the three forms (A, B or C) of the TSSIOP was randomly distributed to each teacher who agreed to participate. Each of the survey forms were pre-coded to identify the participating districts, campuses, and respondent number. Beyond that, teacher information was anonymous and confidential. Participating school districts agreed to provide the research team with three years of

student achievement data from 2008-2011. This data included the student achievement data from the TAKS 3rd, 4th and 5th grade math and reading test along with student demographics. Student data did not include any individually identifiable student information beyond district and campus codes.

Instrumentation

Texas A&M Study of School Organization and Instructional Practices (TSSIOP) was developed by a group of doctoral students at Texas A&M University under the supervision of a faculty member from the Department of Education Administration and Human Recourse Development. The TSSIOP was developed by combining survey items previously used to gauge teachers' perceptions of collective efficacy, trust, instructional leadership, and academic emphasis. The measure of interest for this investigation, academic emphasis, was originally developed by Hoy, Tarter & Bliss (1990) for the Organizational Health Inventory. Once the TSSIOP was developed it was tested in six school districts to determine readability and clarity. Using the feedback provided, adjustments were made to the layout of the TSSIOP without altering the content. In its final version, the TSSIOP consisted of three forms, Form A, Form B and Form C.

Variables

Academic Emphasis. The concept of interest in this confirmatory study is academic emphasis, as it relates to the school's level of academic achievement. In this investigation factor analysis will be used to create the latent variable, academic emphasis, by using survey items originally designed for the OHI (Hoy, et al. 1990; Hoy, et al, 1991), along with the variables added by Goddard et al. (2000). In previous studies,

academic emphasis has been used as a measure of school climate and health (Hoy & Feldman, 1987; Hoy, et al., 1990). Additionally, this measure of academic emphasis has been employed to predict student achievement (Hoy & Hannum, 1997; Goddard et al. 2000). These variables were selected for the same reasons articulated by Hoy and Feldman (1987):

1. They represent a desirable feature within the context of schools;
2. The statements are written in clear and concise language;
3. The statements have content validity; and
4. Use of a six point Likert scale affords some discriminatory potential.

Using a Likert scaled ranging from strongly disagrees to strongly agrees, the following items from the TSSOIP were used to gauge teacher perceptions of academic emphasis:

- a. The school sets high standards for performance (AE1).
- b. Students respect others who get good grades (AE2).
- c. Students seek extra work so they can get good grades (AE3).
- d. Academic achievement is recognized and acknowledged by the school (AE4).
- e. Students try hard to improve on previous work (AE5).
- f. The learning environment is orderly (AE6).
- g. The students in this school can achieve the goals that have been set for them (AE7).
- h. Teachers in this school believe that their students have the ability to achieve academically (AE8).

Collectively, the abovementioned items represent normative press features of the school organization in its quest for attaining high academic goals. Over time and various studies, the operationalized construct of academic emphasis has maintained robust reliability by repeatedly having alpha coefficients ranging from .93 (Hoy & Feldman, 1987) to .92 (Goddard, et al., 2000). Prior research has established the reliability and validity of academic emphasis.

Since the data was collected from individual teachers at each campus in the sample, the academic emphasis measure will be aggregated to the school level. Aggregating academic emphasis to the school level will provide the author with a cumulative measure of each school's pursuit of academic excellence. The aggregated academic emphasis variable will be standardized with a mean of 0 and a standard deviation of 1. The standardized aggregated academic emphasis variables will be used to create a school level measure of academic emphasis. All other data aggregated to the school level and each campus will have a standardized score for each variable of interest.

Prior Achievement. Prior math (4th_MathSS) and reading achievement (4th_ReadSS) is operationalized as the scaled scores from the 2010 fourth grade math and reading TAKS test. Prior math and reading achievement will be used as a control variable in the multi level model measuring the effects of academic emphasis. TAKS results are reported in two fashions: raw scores and scaled scores. Scaled scores will be used in this study for the three reasons:

1. They are a conversion of a raw score to a scaled that is common across all test forms,

2. They account for the complexity level of the specific test items, and
3. They compute the student's performance in relation to the proficiency standard.

Prior math and reading achievement will be aggregated to the campus level for each school, therefore providing each campus with a standardized mean scaled score. Texas Education Agency set the range of scaled scores on the April 2010 fourth grade math exam from a minimum 169 to a maximum 842. The April 2010 fourth grade reading test scaled scores ranged from 117-853.

Student Achievement. Current student achievement will be operationalized as the student's scaled score in math (5th_MathSS) and reading (5th_ReadSS) from the 5th grade 2011 TAKS test. Student achievement will serve as two dependent variables in the multi level models. 2011 math and reading scaled scores will be used for student achievement for the same aforementioned reasons. Texas Education Agency set the range of scaled scores on the April 2010 fourth grade math exam from a minimum 222 to a maximum 893. The April 2010 fourth grade reading test scaled scores ranged from 175-904.

Ethnicity. The researcher created two student of color variables based on the coding extracted from TEA's Public Education Information Management System (PEIMS) furnished from the participating districts. Students are sorted into one of seven categories: Native American, Asian, African American, Hispanic, Native Hawaiian/Pacific Islander, White or two or more races. In order to control for the effects of a student's ethnicity or race in the statistical models, control variables were created. In order to create this control variable all students identified as Hispanic were recoded as 1

into the new variable (HIS_STU) and all others were coded as 0. The same procedure will be followed to create the African American student (AA_STU) variable.

Socio-Economic Status. In order to control for the effects of a student's socio-economic status in the statistical models, a control variable will be created. A student's SES is based on the student's eligibility to receive free or reduced lunch or other public assistance and was extracted from the TEA PEIMS data furnished by the participating districts. In order to create this control variable all students identified as recipients of free or reduced price lunch are recoded as 1 into the new variable (SES_STU) and all others were coded as 0. Creating this control variable will allow the researcher to control for the effects of a student being identified as economically disadvantaged in relation to student achievement.

At-risk Students. In order to control for the effects of a student's at-risk status in the statistical models, a control variable will be created. A student's at-risk status is based on meeting one or more of the state's thirteen predetermined indicators. The state has deemed a student is at-risk of dropping out of school based on a student's past academic performance, discipline history, and language proficiency. Additionally, a student is also coded as at-risk if he or she meets one or more of the following: is with or has had a child, has previously been reported as a dropout, and/or is homeless. It should be noted, these indicators are not indicative of the student's race/ethnicity or SES. The student's at-risk status was extracted from the TEA PEIMS data furnished by the participating districts. In order to create this control variable all students identified as at-risk were recoded as 1 into the new variable (ATRISK_STU) and all others were coded

as 0. Creating an at-risk variable will allow the researcher to control for the effects of being identified as at-risk in relation to student achievement.

Gender. Female gender will serve as the sex type for this sample. The student's gender will be used as a control variable in the multi-level statistical models. A student's gender was gathered from TEA PEIMS data furnished by the district. To create the female student (FEM_STU) level variable, female students are coded as 1 and all others were coded as 0. Creating a gender variable will allow the researcher to control for the effects of gender in relation to student achievement

School Size. School size is a school level variable (SCH_SZE) indicating the size of the school's student population. The researcher will be able to determine if a relationship exist between a school's size and the school's level of achievement. The data for school size was obtained from the AEIS reports for each of the participating campuses.

School Level Prior Achievement. Student prior achievement in fourth grade math (MeanMath_4thSS) and reading (MeanRead_4thSS) will be aggregated to the campus level. This will enable the researcher to calculate mean scaled score for math and reading for each campus based on the April 2010 TAKS fourth grade math and reading test. The campus' mean scaled score was used as an independent variable in the statistical models used to predict the school's level of academic achievement. This process allows the researcher to test the effects of previous school achievement in relations to current levels of achievement.

Proportion of Students of Color. The student race/ethnicity variables will be aggregated to the school level to create two new variables reflecting the proportion of Hispanic students (PRO_HIS) and the proportion of African American (PRO_AA) at each campus. With this procedure complete, the proportion of Hispanic and African American students can be used as a control variable in the multi-level statistical models. Employing the proportion of Hispanic students and proportion of African-American as a control variables will allow the researcher to determine if a relationship exist between a school's level of academic emphasis and its proportion of Hispanic students and proportion of African-American students.

Proportion of Economically Disadvantaged. The proportion of students eligible to receive free or reduced price lunch will be used as a control variable in the multi-level statistical models therefore this variable must be aggregated to the campus level. The economically disadvantaged variable will be aggregated to the school level to determine each school's proportion of economically disadvantaged (PRO_ED) students. With this procedure complete, the proportion of economically disadvantaged students can be used as a control variable. Employing the proportion of economically disadvantaged students as a control variable will allow the researcher to determine if a relationship exist between a school's level of academic emphasis and its proportion of economically disadvantaged population.

Proportion of At-Risk Students. The proportion of at-risk students will be used as a control variable in the multi-level statistical models therefore the ATRISK_STU variable must be aggregated to the campus level. The at-risk student variable will be

aggregated to the school level to determine each school's proportion of at-risk population (PRO_ATRISK) students. With this procedure complete, the proportion of at-risk students can be used as a control variable. Employing the proportion of at-risk students as a control variable will allow the researcher to determine if a relationship exist between a school's level of academic emphasis and its proportion of at-risk students.

Proportion of the Female Population. The proportion of female students will be used as a control variable in the multi-level statistical models therefore the female student variable must be aggregated to the campus level. The female student variable will be aggregated to the school level to determine each school's proportion of female population (PRO_FEM) students. With this procedure complete, the proportion of female students can be used as a control variable. Employing the proportion of female students as a control variable will allow the researcher to determine if a relationship exist between a school's level of academic emphasis and its proportion of female student population.

Analytic Methods

In this quantitative study, a multi-level model is utilized, to determine the relationship between school level academic emphasis and individual student achievement in math and reading. Using this approach requires the researcher to integrate school and student level data into statistical models. Academic emphasis will be created using factor analysis. Once a reliable and valid measure of academic emphasis is created, it will be used as a dependent variable in the multi-level statistical models. Furthermore, the researcher will attempt to determine the relationship between

the school context variables and academic emphasis. In the following sections, the author will describe the factor analysis methods employed as well as the assumptions tested in creating a construct for academic emphasis. Finally, the researcher will describe the multi-level model used to tease out the relationship between academic emphasis and student achievement along with the assumptions that must be considered.

Factor Analysis

Utilizing factor analysis will allow the author an opportunity to answer the first research question and test the first hypothesis. Within the TISSOP dataset a number of variables, AE1 thru AE8, are used to gauge teacher perceptions and beliefs about academic emphasis. The academic emphasis variable was originally conceptualized and deployed by Hoy et al. (1990) as a subset of the Organizational Health Inventory. Since the latent variable will be constructed based on individual teacher beliefs and perceptions of academic emphasis it will be aggregated to the campus level. Students on each campus will be assigned the mean measure of academic emphasis consistent with their campus' level of academic emphasis. In order to create the mean academic emphasis new variables (CAMP_AE1 thru CAMP_AE8) will be created to reflect campus level aggregation. Through the use of factor analysis variables, CAMP_AE1 thru CAMP_AE8, will be employed to create a campus level latent variable (CAMP_AEFAC) used to measure the level of academic emphasis at each campus. Campus level academic emphasis will be used as the primary dependent variable in the first multi-level analysis. Provided the first research question and hypothesis are

answered in the affirmative and the proceeding assumptions are verified, the study will continue to multi-level analysis.

The assumptions of factor analysis, multi-normality, linearity, outliers, and the absences of high multicollinearity must be considered (Cohen, Cohen, West & Aiken, 2003). Inspecting the histograms of variables used in the factor analysis will allow the author to check for multi-normality and outliers. The histograms should show a normal distribution curve based on the Central Limit Theorem. The Central Limit Theorem states when the sample size, n , is more than 121 the sample will center along the true population mean (Ritchey, 2008). Producing a scatter plot matrix of variables used to construct the academic emphasis variable will allow the author to check linearity. The use of a six point Likert scale ensures the data is in a continuous form. A correlation matrix comprised of the variables used to construct the latent variable will be consulted to verify the absence of multicollinearity.

Multi-level Analysis

Research Question 1. The researcher utilizes nested multi-level models (students in schools) in order to test the second research question: What relationship exists between a school's level of academic emphasis and student achievement on 5th grade TAKS mathematics and TAKS reading exams in suburban-urban Texas elementary schools controlling for student demographic variables? The nested approach will allow the author to determine if a relationship exists between school level academic emphasis and individual student achievement in mathematics and reading. This model will allow the researcher to control for prior achievement, student demographics, and school size.

Unconditional and multi-level models will be used to investigate the effect of academic emphasis on student achievement. Using an unconditional model will allow the author to estimate the proportion of variance in dependent variables (i.e. fifth grade math and reading achievement) found within and between schools. Before a multi-level model can be used, the author must first account for four assumptions: normality, independence, model correctness, and no extreme collinearity between dependent variables (Raudenbush & Bryk, 2002). Normality will be determined examining histograms and utilizing the kurtosis and skewness analysis of the each variable used in the multi-level model. Correlation coefficients will be employed to determine if extreme collinearity exist between the dependent variables. The Intraclass Correlation Coefficient (ICC) will be used to determine model correctness by estimating the proportion of variance within and between schools. The ICC allows the researcher to establish the amount of variance explained by the dependent variables in the multi-level models.

$$\text{Level 1 (Within Schools): } Y_{ij} = \beta_{0j} + r_{ij}$$

$$\text{Level 2 (Between Schools): } \beta_{0j} = \gamma_{00} + u_{0j}$$

The 10,464 students are represented by i ($i = 1,2,3,\dots,10,464$) in the unconditional model and j represents 97 schools ($j = 1,2,3,\dots,97$).

Utilizing a multi-level model will allow the author to generate an estimate of fixed effects of academic emphasis, prior achievement, and student demographics. The multi-level model also allows the author to control for campus demographics and school size on 5th grade math and reading achievement. The equations used in the multi-level model are displayed below:

Math Achievement

Level I (Student Level)

$$\begin{aligned} Y_{5th\ Math\ Scale\ Score_{ij}} = & \beta_{0j} + \beta_{1j} 4^{th}\ Math\ Scale\ Score_{ij} + \beta_{2j} Student\ is \\ & Hispanic_{ij} + \beta_{3j} Student\ is\ African\ American_{ij} + \beta_{4j} Student\ receives\ free\ or \\ & reduced\ lunch_{ij} + \beta_{5j} Student\ is\ At-Risk_{ij} + \beta_{6j} Student\ is\ female_{ij} + r_{ij} \end{aligned}$$

Level II (School Level)

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01} Academic\ Emphasis_j + \gamma_{02} Proportion\ Hispanic_j + \gamma_{03} Proportion \\ & African\ American_j + \gamma_{04} Proportion\ Economically\ Disadvantaged_j + \gamma_{05} Proportion\ At- \\ & risk_j + \gamma_{06} Proportion\ Female_j + \gamma_{07} School\ Size_j + u_{0j}; \end{aligned}$$

$$\beta_{1j} = \gamma_{10i};$$

$$\beta_{2j} = \gamma_{20i};$$

$$\beta_{3j} = \gamma_{30i};$$

$$\beta_{4j} = \gamma_{40i};$$

$$\beta_{5j} = \gamma_{50i};$$

$$\beta_{6j} = \gamma_{60i};$$

$$\beta_{7j} = \gamma_{70i};$$

Reading Achievement

Level I (Student Level)

$$\begin{aligned} Y_{5th\ Reading\ Scale\ Score_{ij}} = & \beta_{0j} + \beta_{1j} 4^{th}\ Reading\ Scale\ Score_{ij} + \beta_{2j} Student\ is \\ & Hispanic_{ij} + \beta_{3j} Student\ is\ African\ American_{ij} + \beta_{4j} Student\ receives\ free\ or \\ & reduced\ lunch_{ij} + \beta_{5j} Student\ is\ At-Risk_{ij} + \beta_{6j} Student\ is\ female_{ij} + r_{ij} \end{aligned}$$

Level II (School Level)

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{Academic Emphasis}_j + \gamma_{02}\text{Proportion Hispanic}_j + \gamma_{03}\text{Proportion African American}_j + \gamma_{04}\text{Proportion Economically Disadvantaged}_j + \gamma_{05}\text{Proportion At-risk}_j + \gamma_{06}\text{Proportion Female}_j + \gamma_{07}\text{School Size}_j + u_{0j};$$

$$\beta_{1j} = \gamma_{10i};$$

$$\beta_{2j} = \gamma_{20i};$$

$$\beta_{3j} = \gamma_{30i};$$

$$\beta_{4j} = \gamma_{40i};$$

$$\beta_{5j} = \gamma_{50i};$$

$$\beta_{6j} = \gamma_{60i};$$

$$\beta_{7j} = \gamma_{70i};$$

The equation for the first multi-level analysis allows the author to determine the effects of school level academic emphasis on 5th grade math achievement while controlling for prior achievement, student demographics (Hispanic, African American, gender) economically disadvantaged, at-risk status, and school size. Additionally, within and between school variances can be ascertained using the aforementioned equations.

The second multi-level model and equation allows the author to determine the effects of school level academic emphasis on 5th grade reading achievement while controlling for prior achievement, student demographics (Hispanic, African American, gender) economically disadvantaged status, at-risk status, and school size. As in the first multi-level model, the author will be able to determine within and between school variances.

Predicting Academic Emphasis

Research Question 2. The author will employ a multiple regression model to tease out the effects, if any, between academic emphasis and school level contextual variables. The multiple regression model will be used to answer the second research question: Is the level of academic emphasis based upon the demographic context of the school and the level of prior achievement? The multiple regression model will use variables aggregated to the school level in order to calculate academic emphasis. The multiple regression equations that follow will be used to determine the effects of the school contextual variables on academic emphasis:

$$Y_{\text{Academic Emphasis}} = B_0 + B_{\text{MeanMath_4thScaleScore}}X_i + B_{\text{Proportion of Hispanic Students}}X_i + B_{\text{Proportion of African American Students}}X_i + B_{\text{Proportion of Economically Disadvantaged Students}}X_i + B_{\text{Proportion of At-risk Students}}X_i + B_{\text{Proportion of Female Students}}X_i + B_{\text{School Size}}X_i + e_i.$$

$$Y_{\text{Academic Emphasis}_i} = B_0 + B_{\text{MeanRead_4thScaleScore}}X_i + B_{\text{Proportion of Hispanic Students}}X_i + B_{\text{Proportion of African American Students}}X_i + B_{\text{Proportion of Economically Disadvantaged Students}}X_i + B_{\text{Proportion of At-risk Students}}X_i + B_{\text{Proportion of Female Students}}X_i + B_{\text{School Size}}X_i + e_i.$$

Employing this equation allows the author to determine the effects of school level variables (Proportion of Hispanic Students, Proportion of African American Students, Proportion of Economically disadvantaged students, Proportion of At-risk students, Proportion of Female Students and School Size) along with previous achievement (Mean 4th Grade Math Scaled Scores).

Statistical modeling using multiple regression must address the underlying assumptions of linearity, equal variance, normality, collinearity, and independence (Cohen et al., 2003). In order to check for linearity and equal variance residual plots will be consulted. The residual plots provide a visual representation of the values obtained versus the predicted values. The assumption of normality in the multiple regression models will be addressed by examining the histograms of the residuals. Consulting the scatter plots and correlation matrix of the independent variables will allow the researcher to check for collinearity in the regression models. Finally, the data will be collected in such a manner to insure independence.

Human Participants and Ethical Precautions

The current study is dependent on information generated through anonymous teacher surveys used to create school level measures of academic emphasis. Teacher participation was voluntary. The research team took great care to ensure teacher responses were confidential and could not lead to identification of the respondents. The research team also administered and collected all survey materials. School district or campus administrator do not and will not have access to survey materials.

The study also relies on student data supplied by participating districts. Mathematics and reading achievement data as well as student demographic data will be utilized. The participating districts furnished student achievement and demographic data without student identification numbers. Withholding student identification numbers ensured student confidentiality was maintained. The Institutional Review Board determined the study protocol met the criteria for exemption.

CHAPTER IV

RESULTS

The following chapter will use descriptive statistics to portray the teacher and student populations as well as the campuses participating in this study. Descriptive statistics and correlations for each variable used in the factor analysis, the multi-level models and multiple regression model will be provided. The multi-level model is utilized to allow the author to test the relationship of campus level academic emphasis and student achievement while controlling for student ethnicity, gender, socio economic status, and school size. The results of the multi-level statistical models employed to measure the effects of academic emphasis on student achievement will be presented. Finally, the results of the multiple regression model will be reported. The author will use multiple regression models to measure the influence of the schools' context on the level of academic emphasis and will include the descriptive statistics and correlations among the variables used in the multiple regression model.

Sample

This section includes descriptive statistics which detail the student and teacher populations from the 97 participating campuses used in the multi-level models and multiple regression. Initially, the school sample included 100 campuses, however one campus was omitted because of insufficient student data, and two campuses were excluded because of testing irregularity concerns. The elimination of the three campuses left 97 in the sample size.

School Level Sample

The following section will review the descriptive statistics of the school level samples. The school level data used in the multi-level statistical model and multiple regression were collected from teachers of 97 participating campuses. The TSSIOP was completed by 3,106 teachers from 97 campuses from five South East Texas school districts. The mean number of teachers completing the survey per campus was 32.02 with a standard deviation of 8.04. The number of teachers per campus ranged from as few as 17 to as many as 56 (Table 4.1). The academic emphasis survey items from the TSSIOP were aggregated to the campus level by County District Campus Identification number allowing the author to establish a mean response to each survey item for each of the 97 campuses. The mean campus scores were used in multiple factor analysis to create an academic emphasis variable. Once established, the academic emphasis variable was aggregated to the student level by County District Campus Identification number which allowed the author to later test the effect of academic emphasis on individual student achievement.

Table 4.1

Teacher Sample (N = 3,106)

Teacher N	Mean	Std Dev	Minimum	Maximum
3,106	32.02	8.045	17.00	56.00

The professional and demographic data was self-reported by the participating teachers completing the TSSIOP and are reported in Table 4.2. Of the 3,106 teachers, 2,832 (91.2%) reported their gender as female, 182 (5.9%) reported their gender as male and 92 (3.0%) were unreported. The single largest ethnic group for teachers is White (65.3%) followed by Hispanic (16.6%) and African American (7.2%). Additional ethnic groups included Asian (2.1%), Native American (.9%), Pacific Islander (.3%), Other (2.3%). Race or ethnicity was not disclosed for 5.4% of the teachers surveyed. The reported educational level of the teacher staff is as follows: Bachelor 73.2%, Master 21.3%, Doctorate .3% and 5.3% did not provide their educational level. Over 50% of the teachers reported 10 or fewer years as a classroom teacher. The years of experience for teachers are as follows: 0-5 years 27.6%, 6-10 years 25.6%, 11-15 years 16.1%, 16-20 years 10.4%, 21-25 years 6.3%, 26-30 years 4.1%, 3.4 % of the respondents reported 31 or more years as a classroom teacher and 6.5% did not report the number of years of their experience. Teachers reported the number of years on their current campus as follows: 0-5 years 56.4%, 6-10 years 24.1%, 11-15 years 7.1%, 16-20 years 3.6%, 21-25 years 1.3%, 1% of the teachers reported they had been on their campus 26 or more years, and 6.4% did not report their time on their campus. The student-level descriptive statistics are reported next.

Table 4.2

Teacher Demographics (N=3,106)

Teacher Item	Frequency	Percent
Gender		
Female	2832	91.2
Male	182	5.9
Unreported	92	3.0
Ethnicity		
Native American	28	.9
Asian	66	2.1
African American	224	7.2
Hispanic	515	16.6
White	2027	65.3
Pacific Islander	9	.3
Other	70	2.3
Unreported	167	5.4
Education Level		
Bachelor	2273	73.2
Master	661	21.3
Doctorate	8	.3
Unreported	164	5.3
Total Years Teaching Experience		
0-5	857	27.6
6-10	796	25.6
11-15	500	16.1
16-20	323	10.4
21-25	197	6.3
26-30	127	4.1
31-35	74	2.4
36-40	24	.8
41plus	5	.2
Unreported	203	6.5
Total Years at Current Campus		
0-5	1753	56.4
6-10	750	24.1
11-15	219	7.1
16-20	112	3.6
21-25	40	1.3
26-30	22	.7
31-35	7	.2
36-40	3	.1
Unreported	200	6.4

Student Level Sample

This section provides the descriptive statistics for the student sample used in this study. The student sample in this study consists of 5th grade students who were enrolled in one of the 97 participating schools and took the first administration of the mathematics and reading 2010 – 2011 Texas Assessment of Knowledge and Skills mathematics and reading exam. The sample consisted of 10,464 5th grade students. Descriptive statistics are reported in Table 4.3. The mean number of students per campus was 107.87 with a standard deviation of 35.67. The number of students from the participating campuses ranged from a minimum of 31 to a maximum of 209.

Table 4.3

Student Sample (N=10464)

Student N	Mean	Std Dev	Minimum	Maximum
10,464	107.87	35.67	31	209

Each of the five participating districts provided student demographic and student achievement data. The descriptive statistics for student demographics are reported in Table 4.4. Of the 10,464 students, 5,320 (50.8%) were male, 5,142 (49.1%) were female, and 2 were unreported. Hispanics represent the largest percentage (35.7%) of the student sample followed by White (34.7%), African American (16.9%), Asian (11.9%), Native American (.9%), Pacific Islander (.2%), and a single student did not have race or ethnicity reported. The socioeconomic status of the student was based on

whether or not the student received free or reduced lunch. Of the 10,464 5th grade students, 4,199 (40.1%) students received free or reduced price lunch compared to 6,265 (59.9%) of the students paying full price for lunch. Of the 10,464 students, 6,873 (65.7%) of the students were coded as “not at-risk”, 3,445 (32.9%) were coded as “at-risk”, and 146 (1.4%) were not reported. The state has deemed a student is at-risk of dropping out of school if he or she meets one or more of the state’s thirteen predetermined indicators. A student’s previous academic performance, discipline history, and language proficiency are also used to identify students in danger of dropping out of school.

Table 4.4

Student Demographics (N=10,464)

Student Item	Number	Percent
Gender		
Male	5320	50.8
Female	5142	49.1
Unreported	2	.0
Ethnicity		
Native American	93	.9
Native Hawaiian/Pacific Islander	21	.2
Asian	1244	11.9
African American	1765	16.9
Hispanic	3732	35.7
White	3608	34.5
Multiple Races	1	.0
Economic Status		
Paid Lunch	6265	59.9
Free or Reduced Lunch	4199	40.1
At-risk Status		
Not At-risk	6873	65.7
At-risk	3445	32.9
Unreported	146	1.4

Descriptive Statistics

The following section will provide the descriptive statistics for the student (Table 4.5) and school (Table 4.6) level variables used in the multi-level model and multiple regression. Prior to any analyses being conducted, the data was cleaned and checked for normality and outliers were removed. When the student's TAKS math and reading scaled scores fell beyond the range of scaled scores set by the Texas Education Agency for a given test admission, the scores were removed. Kurtosis and skewness tests were conducted on each variable used in this study and all fell within the acceptable range of kurtosis ($<.3$) and skewness ($<.7$).

Student Level Variables

The current section of the study will review the descriptive statistics of the student level variables used in the multi-level and multiple regression models. Each of the participating school districts provided student demographic and achievement data for 10,464 students. The descriptive statistics for the student level variables are reported in Table 4.5. The dependent variables for the multi-level models are 5th grade math and reading TAKS scaled scores. The missing scaled score data is the result of students being absent on the day of the math and/or reading test administration. The 9,609 5th grade math scaled scores from the April 2011 administration ranged between 222 and 893 with a mean of 731.90 and a standard deviation of 95.858. With scores ranging from 175 through 904, mean scaled score for Spring 2011 5th grade reading TAKS test is 734.41 with a standard deviation of 89.724. The results of subsequent mathematic and

reading test administrations were not included since the Texas Education Agency set different scaled scores from the first April 2011 test administration.

Table 4.5

Student Level Descriptive Statistics (N = 10,464)

	N	Mean	Std. Dev.	Min.	Max.
5th Math Scale Score	9609	731.90	95.858	222	893
4th Math Scale Score	9997	682.30	94.444	169	842
5th Read Scale Score	9500	734.41	89.724	175	904
4th Read Scale Score	9241	674.26	101.426	117	853
Student is Eco Disadvantaged	10464	.40	.490	0	1
Student is African American	10464	.1687	.37448	.00	1.00
Student is Hispanic	10464	.3567	.47903	.00	1.00
Control for female status	10462	.49	.500	0	1

The author controlled for the student’s prior achievement by utilizing the 2010 4th grade math and reading TAKS scaled scores as an independent variable. The use of prior achievement as a control variable allows the researcher to isolate the effect of academic emphasis on student achievement based on 5th grade math and reading scaled scores. The participating districts furnished data for 9,997 spring administration of the 2010 4th grade mathematics test for 10,464 students in the student sample. The scaled scores ranged between 169 and 842 with a mean of 682.30 and a standard deviation of 94.444. Of the 10,464 students in the sample, the participating districts provided 4th grade-reading results for 9,241 students. Scaled scores for the 2010 4th grade reading test ranged from 117 to 853 with mean of 674.26 with a standard deviation of 101.426.

Students enrolling in the districts after the 2010 test administration did not have previous achievement data.

Beyond controlling for prior achievement, the multi-level statistical model allows the author to include other independent student level demographic variables. The variable Economically disadvantaged is the independent variable that represents students receiving free or reduced priced lunch. Including this variable allowed the author to control for and test for the effects of a student receiving free or reduced priced lunch on math and reading achievement. The mean for economically disadvantaged is .40 therefore 40% of the student sample is identified as economically disadvantaged. The author created two students of color variables employed as independent variables. Including these variables allowed the author to control for and test for the effects of a student being identified as African American or Hispanic. Students of color, African American, had a mean of .1687 and a standard deviation of .374. As noted earlier, 16.9% of the student sample was identified as African American. The mean students of color, Hispanic, was .3567 and a standard deviation of .479; thus 35.7% of the student sample was identified as Hispanic. A female student variable was created to control for and test for the effect of being female on mathematics and reading. The female variable had a mean of .49 and a standard deviation of .50. Consequently, 49% of the student sample was identified as female.

School Level Variables

In addition to the student level variables, the author used school level variables in the multi-level model. The descriptive statistics are reported in Table 4.6. The primary

independent variable is academic emphasis, present at the 97 participating schools. Academic emphasis is a standardized variable, the mean score is 0 with a standardized deviation of 1. Other school level independent variables included school size, proportions of student ethnicity, proportion of students identified as “at-risk” and the proportion of students receiving free or reduced lunch. The proportion of Hispanic students has the greatest mean (41.21%) followed by white (30.63%) and African American (15.39%). The mean proportion of students identified as economically disadvantaged and at-risk is 46.49 % and 44.01% respectively. The mean school size is 727.29.

Table 4.6

School Level Descriptive Statistics (n = 97)

	Mean	Std Dev	Minimum	Maximum
Academic Emphasis	0	1	-4.61	2.13
Proportion White	30.63	24.05	0.3	76.1
Proportion African American	15.39	14.50	1	83.9
Proportion Hispanic	41.21	26.05	5.4	94
Proportion Eco Dis	46.49	30.55	2.8	94.5
Proportion At-Risk	44.01	18.69	4.9	85
School Size	727.29	192.24	253	1288

Factor Analysis

Factor analysis is the statistical procedure used to create a single academic emphasis variable from multiple responses. Because academic emphasis is a school level measure, the county district campus identification numbers were used to aggregate the individual teacher responses to the campus level.

Academic Emphasis

Initially the author attempted to create a single measure of academic emphasis using each of the responses to the eight items of the Organizational Health Inventory (OHI). These items have been used in previous studies to gauge the level of academic emphasis found at schools (Goddard, et al., 2000; Hoy, et al., 1990; Hoy & Hannum, 1997). Each of the academic emphasis items were aggregated to the campus level using the county district campus identification numbers, allowing the author to determine a mean campus score for each of the eight items. Teachers recorded their perceptions of their campus' academic emphasis using a Likert scaled ranging from 1 (strongly disagree) to 6 (strongly agree) for each of the academic emphasis items. The descriptive statistics for each of the academic emphasis items are reported in Table 4.7.

The highest recorded mean 5.567 is for item AE1 (*The school sets high standards for performance.*) with a standard deviation of .350. The lowest mean recorded is for item AE3 (*Students seek extra work so they can get good grades*) 3.546. Item AE3 also had the highest standard deviation of .487. Based on the mean scores, the collective teacher group indicated academic emphasis is an important attribute to school climate. The two items with the highest mean scores AE1 (5.567) and AE8 (5.484) were dependent upon the collective actions of the school and teachers. However, the item with the lowest mean score, AE3, relies on the action and behavior of the students of the campus. These scores revealed the school and teachers are the drivers of academic emphasis more so than the actions of the students.

Table 4.7

Academic Emphasis Scale Item Descriptive Statistics (n=97)

	Mean	Std. Dev.	Min	Max
The school sets high standards for performance. (AE1)	5.57	0.35	3.83	6
Students respect others who get good grades. (AE2)	4.66	0.42	3.33	5.63
Students seek extra work so they can get good grades. (AE3)	3.55	0.49	2.38	5
Academic achievement is recognized and acknowledged by the school. (AE4)	4.46	0.45	3	5.5
Students try hard to improve on previous work. (AE5)	4.74	0.57	2	6
The learning environment is safe and orderly. (AE6)	5.08	0.54	3	6
The student in this school can achieve the goals that have been set for them. (AE7)	5.04	0.45	3	6
Teachers in this school believe that their students have the ability to achieve academically (AE8)	5.48	0.345	4.33	6

The interrelatedness between the OHI academic emphasis items were evaluated using bivariate correlations. The correlation matrix of the eight items designed to gauge the level of academic emphasis at each campus is presented in Table 4.8. Each of the items are positively and significantly correlated at the 0.01 level. The highest correlation (.795) is between AE1 (*The school set high standards for performance.*) and AE7 (*The students in this school can achieve the goals that have been set for them.*). Followed closely by the correlation (.792) between AE1 (*The school sets high standards for performance*), and AE8 (*Teachers in this school believe that their students have the ability to achieve academically*). The lowest recorded correlation (.220) is between item AE3 (*Students seek extra work so they can get good grades.*) and AE6 (*The learning environment is safe and orderly.*). The calculated Cronbach's Alpha of the eight academic emphasis survey items had an internal reliability .888.

Table 4.8

Correlation Matrix of Academic Emphasis Items

	AE1	AE2	AE3	AE4	AE5	AE6	AE7	AE8
AE1	1							
AE2	.639**	1						
AE3	.395**	.594**	1					
AE4	.562**	.453**	.372**	1				
AE5	.473**	.377**	.256*	.735**	1			
AE6	.483**	.262**	.220*	.645**	.760**	1		
AE7	.537**	.472**	.382**	.795**	.791**	.688**	1	
AE8	.792**	.626**	.340**	.498**	.348**	.392**	.507**	1

**Correlation is significant at the 0.01 level (2 tailed)

As previously stated, the author initially attempted to create a single school level academic emphasis variable using all eight of the academic emphasis items. However, when all eight items were loaded into a single factor analysis two factors emerged as shown in Table 4.9. Before proceeding, the author removed item AE2 (*Students respect others who get good grades*) and AE3 (*Students seek extra work so they can get good grades*) since they loaded the lowest at .180 and .107, respectively. However, even after removing items AE2 and AE3, the factor analysis continued to reveal two factors (Table 4.10). In the second attempt to create a single academic emphasis factor, AE8 (*Teachers in this school believe that their students have the ability to achieve academically*) loaded the lowest at .698. Items AE4, AE5, AE6 and AE7 all loaded at .816 or higher. This study then attempted to create a single academic emphasis factor using only the factors which loaded the highest from the second attempt.

Table 4.9

Rotated Component Matrix of Eight Academic Emphasis Items

Academic Emphasis Items	1	2
The school sets high standards for performance. (AE1)	0.401	0.76
Students respect others who get good grades. (AE2)	0.18	0.871
Students seek extra work so they can get good grades. (AE3)	0.107	0.711
Academic achievement is recognized and acknowledged by the school. (AE4)	0.8	0.372
Students try hard to improve on previous work. (AE5)	0.908	0.174
The learning environment is safe and orderly. (AE6)	0.874	0.135
The student is this school can achieve the goals that have been set for them. (AE7)	0.836	0.36
Teachers in this school believe that their students have the ability to achieve academically (AE8)	0.299	0.78

Table 4.10

Rotated Component Matrix Academic Emphasis Removing AE2 and AE3

	1	2
The school sets high standards for performance. (AE1)	0.767	0.54
Academic achievement is recognized and acknowledged by the school. (AE4)	0.873	-0.143
Students try hard to improve on previous work. (AE5)	0.851	-0.384
The learning environment is safe and orderly. (AE6)	0.816	-0.297
The student is this school can achieve the goals that have been set for them. (AE7)	0.891	-0.196
Teachers in this school believe that their students have the ability to achieve academically. (AE8)	0.698	0.652

The third attempt produced a single viable measure of school level academic emphasis. The remaining four items, AE4, AE5, AE6, and AE7, reduced to a single variable with an Eigenvalue of 3.209 and explained 80.237% of the variance (Table 4.11). The four items included in the factor analysis had a Cronbach's Alpha of .914 and all items loaded at .86 or higher (Table 4.12). Through the iterative process, the author

was able to construct a school level variable that embodies a school’s pursuit of academic excellence.

Table 4.11

Academic Emphasis Total Variance Explained

Initial Eigenvalues			Extraction Sums of Squared Loadings		
Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
3.209	80.237	80.237	3.209	80.237	80.237
0.385	9.626	89.863			
0.223	5.583	95.445			
0.182	4.555	100			

Table 4.12

Component Matrix for Four Item Academic Emphasis

Component Matrix(a)	Component
Academic achievement is recognized and acknowledged by the school. (AE4)	0.886
Students try hard to improve on previous work. (AE5)	0.919
The learning environment is safe and orderly. (AE6)	0.86
The student is this school can achieve the goals that have been set for them. (AE7)	0.916

Correlation Statistics

Before proceeding to the multi-level analysis, the author ensured multi-collinearity did not exist between the independent variables in the multi-level models. This was accomplished by conducting a bivariate correlation analysis which reports the strength and direction of the relationship between the independent variables (Table 4.13). The correlation between the 4th grade math and reading is positive and significant. However, these independent variables will not be present in the same multi-

level model. The next strongest positive and statistically significant correlation (.421) is between Hispanic students and Economically disadvantaged status. The weakest negative and statistically significant correlation is between 4th grade math and at-risk status (-.350). The correlation matrix revealed extreme multi-collinearity was not present among the independent variables in the multi-level model or the multiple regression model. Therefore, elimination of independent variables at this point was considered premature and the author proceeded to multi-level and regression analysis.

Table 4.13

Multi-level Independent Variable Correlation Matrix

	4th Math	4th Read	Female	Eco dis	At-risk	SOC AA	SOC Hispanic	School Size	Academic Emphasis
4th Math	1								
4th Read	.493**	1							
Female	-.025*	.026*	1						
Eco dis	-.260**	-.237**	0.009	1					
At-risk	-.350**	-.309**	-.040**	.370**	1				
SOC AA	-.175**	-.098**	-0.007	.124**	-0.001	1			
SOC Hispanic	-.170**	-.164**	0.013	.421**	.315**	-.335**	1		
School Size	.113**	.038**	0.005	-.163**	-.089**	-.066**	-.076**	1	
Academic Emphasis	.163**	.082**	-0.012	-.139**	-.137**	-.090**	-.069**	.304**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Multi-level Analyses

The multi-level analyses employed to test the effects of school level academic emphasis on student achievement in math and reading will be presented in this section. The multi-level model allowed the author to control for several school level characteristics and individual student characteristics. A multi-level approach provided

the researcher the ability to account for the variance in the dependent variables (math and reading) at the student level while considering the context from all levels of the analysis (Steenbergen & Jones, 2002). Additionally, multi-level models allowed the author to test organizational characteristics on the individual level while simultaneously addressing the problems associated with the unit of analysis (Raudenbush & Bryk, 2002). For the purpose of this study, the school is the organization and the students are the individuals nested within the organization. The nesting enabled by multilevel analysis thus accounts for the dependency of observations (i.e., student test scores) collected with the same organizational unit (i.e. schools).

The researcher was able to test the relationship of school level academic emphasis and student achievement in mathematics and reading while controlling for student characteristics (ethnicity, student gender, student socioeconomic and at-risk status) and school characteristics (school size, proportion of African American students, proportion of Hispanic students, proportion economically disadvantaged students, proportion of at-Risk students). The primary independent variable in the multi-level models is school level academic emphasis.

Unconditional Model

An unconditional model was consulted to estimate the proportion of variance in the dependent variables (i.e., 5th grade math and reading) occurring within and between schools before the full conditional model is reported. In the unconditional model, predictors are removed to deduce the proportion of variance in the dependent variable. Below are the equations for the unconditional models for student achievement.

Level 1 (Within Schools): $Y_{ij} = \beta_{0j} + r_{ij}$

Level 2 (Between Schools): $\beta_{0j} = \gamma_{00} + u_{0j}$

The 10,464 students are represented by i ($i = 1,2,3,\dots,10,464$) in the unconditional model and j represents 97 schools ($j = 1,2,3,\dots,97$). The estimation of within and between school variance in student math and reading are reported in Table 4.14 and Table 4.15. Once the author estimated the within and between school variance of dependent variables the Intraclass Correlation Coefficients (ICC) were calculated. The ICC is calculated by dividing between school variance by the sum of between and within school variance. The computed ICC for the mathematics model is .130. The computed ICC for the reading model is .122. The calculated ICCs for both models are greater than 0 and statistically significant, therefore a multi-level statistical model is appropriate to test the influence of school level academic emphasis on individual student achievement in 5th grade math and reading.

Table 4.14

Unconditional Model Mathematics Achievement

Parameter	Estimate	Std. Error	Wald Z	Sig
Within School Variance	8042.61	116.62	68.96	> 0.001
Between School Variance	1200.70	187.39	6.411	> 0.001

Table 4.15

Unconditional Model Reading Achievement

Parameter	Estimate	Std. Error	Wald Z	Sig
Within School Variance	7069.27	103.099394	68.568	> 0.001
Between School Variance	987.22	154.401457	6.394	> 0.001

Multi-level Model

This section provides a discussion of the multi-level models employed to investigate the effects of school level academic emphasis on individual student achievement. The equations that follow represent the original model utilized to assess the effect of academic emphasis on student achievement while controlling for student and school demographics.

Math Achievement

Level I (Student Level)

$$Y_{5th\ Math\ Scale\ Score_{ij}} = \beta_{0j} + \beta_{1j}4th\ Math\ Scale\ Score_{ij} + \beta_{2j}Student\ is\ Hispanic_{ij} + \beta_{3j}Student\ is\ African\ American_{ij} + \beta_{4j}Student\ economically\ disadvantaged_{ij} + \beta_{5j}Student\ is\ At-Risk_{ij} + \beta_{6j}Student\ is\ female_{ij} + r_{ij}$$

Level II (School Level)

$$\beta_{0j} = \gamma_{00} + \gamma_{01}Academic\ Emphasis_j + \gamma_{02}Proportion\ Hispanic_j + \gamma_{03}Proportion\ African\ American_j + \gamma_{04}Proportion\ Economically\ Disadvantaged_j + \gamma_{05}Proportion\ At-risk_j + \gamma_{06}Proportion\ Female_j + \gamma_{07}School\ Size_j + u_{0j};$$

$$\beta_{1j} = \gamma_{10i};$$

$$\beta_{2j} = \gamma_{20i};$$

$$\beta_{3j} = \gamma_{30i};$$

$$\beta_{4j} = \gamma_{40i};$$

$$\beta_{5j} = \gamma_{50i};$$

$$\beta_{6j} = \gamma_{60i};$$

$$\beta_{7j} = \gamma_{70i};$$

Reading Achievement

Level I (Student Level)

$$Y_{5\text{th Reading Scale Score}_{ij}} = \beta_{0j} + \beta_{1j} 4^{\text{th Reading Scale Score}_{ij}} + \beta_{2j} \text{Student is Hispanic}_{ij} + \beta_{3j} \text{Student is African American}_{ij} + \beta_{4j} \text{Student economically disadvantaged}_{ij} + \beta_{5j} \text{Student is At-Risk}_{ij} + \beta_{6j} \text{Student is female}_{ij} + r_{ij}$$

Level II (School Level)

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \text{Academic Emphasis}_j + \gamma_{02} \text{Proportion Hispanic}_j + \gamma_{03} \text{Proportion African American}_j + \gamma_{04} \text{Proportion Economically Disadvantaged}_j + \gamma_{05} \text{Proportion At-risk}_j + \gamma_{06} \text{Proportion Female}_j + \gamma_{07} \text{School Size}_j + u_{0j};$$

$$\beta_{1j} = \gamma_{10i};$$

$$\beta_{2j} = \gamma_{20i};$$

$$\beta_{3j} = \gamma_{30i};$$

$$\beta_{4j} = \gamma_{40i};$$

$$\beta_{5j} = \gamma_{50i};$$

$$\beta_{6j} = \gamma_{60i};$$

$$\beta_{7j} = \gamma_{70i};$$

As previously mentioned, Level I of these equations allows the researcher to test the effects of school level academic emphasis on student achievement while simultaneously isolating the influence of the student ethnicity, socioeconomic status, and gender. Level II of the model provides the ability to establish the variance in student achievement explained by the school level independent variables of the full statistical

model. By including the school level independent variables, the researcher used stepwise backward elimination to create the best possible multi-level model for calculating the effect of school level academic emphasis on student academic achievement.

Stepwise backward elimination allows for the removal of independent variables individually when they are observed as not statistically significant. The researcher systematically removed several school level independent variables when the observed p value was greater than .05 (Henderson, 1989). All independent variables considered to be significant predictors of student achievement were included. As the multi-level statistical model is run, a p value for each independent variable is recorded along with the -2 Restricted Likelihood Log (-2RLL). Independent variables with an observed p value greater than .05 are deemed to be statistically insignificant. The -2 RLL is a ratio used to verify which model should be rejected allowing the author to compute the simplest possible model. The difference of the -2RLL model is calculated between Model 1 and Model 2. This process is carried forward with each of the subsequent tests of models until each independent variable has a p value equal to or less than .05 and the computed -2RLL is less than 3.84.

There were advantages to the stepwise backward elimination process. First, the removal of non-significant independent variables allows the author to systematically create a model which best fits the data. Second, the stepwise backward design of removing the variables decreased the p values of the remaining independent variables until the relevant variables had an observed p value equal to or less than .05. Finally, this

statistical technique allows the author to measure the underlying effect that the level of academic achievement has on individual student achievement in math and reading.

The first multi-level analysis the author considered was the math model. The results of the first conditional model with all student and school level independent variables are reported in Table 4.16.

Table 4.16

Multi-level Analysis Predicting Math Achievement Model 1 (Math)

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	310.330032	10.027374	216.627	30.948	0.001
Within Schools					
Math_4thSS	0.641677	0.008329	9222.237	77.039	0.001
Hispanic	-8.08199	1.912082	9201.133	-4.227	0.001
African American	-17.833772	2.269496	9192.209	-7.858	0.001
Eco_Dis	-7.568675	1.833424	9215.786	-4.128	0.001
At-risk	-23.243949	1.735475	9215.753	-13.393	0.001
Female	-4.611469	1.357393	9172.846	-3.397	0.001
Between Schools					
Academic Emphasis	5.807532	1.737043	94.304	3.343	0.001
Proportion African Am	-0.165453	0.178671	93.654	-0.926	0.357
Proportion Hispanic	-0.201069	0.232739	89.774	-0.864	0.39
Proportion Eco. Dis.	-0.066315	0.194494	91.425	-0.341	0.734
Proportion At-risk	0.319469	0.173931	89.518	1.837	0.07
School Size	-0.000704	0.009283	91.313	-0.076	0.94

a. Dependent Variable: 5th Math Scale Score.

The results of the stepwise backward elimination process for math are reported in Table 4.17. Beginning with the variable with the highest p value, the author removed the variable and recalculated until it was unjustifiable to remove variables. The first independent variable removed proceeding model 1 was student enrollment ($p = 0.94$). A total of six multi-level models were analyzed during the stepwise backward elimination analysis. Statically non-significant variables were removed and an acceptable difference in the -2RLL between models was calculated. After the first model with all independent

variables was analyzed the researcher ranked the significance level of the student and school level variables in ascending order. Significant variables were not removed during the stepwise backward elimination procedures. The results of model 6 are detailed in Table 4.18.

Table 4.17

Stepwise Backward Elimination Table (Math)

Model	Variable Removed	Highest p value	RLL
Model 1	Student Enrollment	0.940	103479.369
Model 2	Proportion Eco Disadvantaged	0.739	103471.848
Model 3	Proportion African American	0.103	103470.421
Model 4	Proportion At-risk	0.194	103470.816
Model 5	Proportion Hispanic	0.279	103470.684
Model 6	Proportion Female	0.001	103468.251

* Model 6 was utilized in means as outcome model predicting math achievement

Table 4.18

Multi-level Analysis Predicting Math Achievement Model 6

Parameter	Estimate	Std. Error	Df	T	Sig
Intercept	310.20967	6.37098	6216.646	48.691	0.001
Within Schools					
Math_4thSS	0.642293	0.008323	9221.843	77.173	0.001
Hispanic	-8.669439	1.872461	8458.354	-4.63	0.001
African American	-18.339708	2.228038	8599.271	-8.231	0.001
Economically Disadvantaged	-8.128032	1.791996	8225.668	-4.536	0.001
At-risk	-23.208084	1.728195	9125.944	-13.429	0.001
Female	-4.623175	1.357311	9174.869	-3.406	0.001
Between Schools					
Academic Emphasis	5.96539	1.651136	99.532	3.613	0

a. Dependent Variable: 5th Math Scale Score.

The author followed the same stepwise backward elimination procedure when analyzing the multi-level models for reading achievement. The results of Model 1 are displayed in Table 4.19. The first independent variable removed proceeding Model 1 was the proportion of Hispanic population ($p = 0.656$). A total of four multi-level models were analyzed employing stepwise backward elimination removing the statically non-significant variables and an acceptable difference in $-2RLL$ between models. Table 4.20 reports the p values of the variables removed and the $-2RLL$ through the stepwise backward elimination process for reading models. Table 4.21 details the within and between school variance of Model 4 for reading achievement accounting for student and school level demographics.

Table 4.19

Multi-level Analysis Predicting Reading Achievement Model 1

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	508.078881	9.165525	301.334	55.434	> 0.001
Within Schools					
Reading_4thSS	0.354451	0.008598	8402.501	41.226	> 0.001
Hispanic	-10.049754	2.200171	8472.689	-4.568	> 0.001
African American	-14.66422	2.577398	8467.569	-5.69	> 0.001
Economically Disadvantaged	-15.359131	2.110703	8468.257	-7.277	>0.001
At-risk	-39.698458	1.966866	8287.429	-20.184	> 0.001
Female	11.16827	1.560552	8444.714	7.157	> 0.001
Between Schools					
Academic Emphasis	3.011713	1.385106	87.219	2.174	0.032
Proportion African Am	-0.15724	0.143319	90.99	-1.097	0.275
Proportion Hispanic	-0.082545	0.184528	82.713	-0.447	0.656
Proportion Eco. Dis.	-0.173256	0.155895	86.394	-1.111	0.269
Proportion At-risk	0.140918	0.137543	81.439	1.025	0.309
School Size	0.015166	0.007723	85.25	1.964	0.053

a. Dependent Variable: 5th Read Scale Score.

Table 4.20

Stepwise Backward Elimination Table (Reading)

Model	Variable Removed	Highest p value	RLL
Model 1	Proportion Hispanic	0.656	96628.243
Model 2	Proportion at-risk	0.356	96626.897
Model 3	Proportion African American	0.231	96625.451
Model 4	School Size	0.029	96624.108

* Model 4 was utilized in means as outcome model predicting reading achievement

Table 4.21

Multi-level Analysis Predicting Reading Achievement Model 4 (Reading)

Parameter	Estimate	Std. Error	Df	T	Sig
Intercept	508.111718	8.982481	337.82	56.567	> 0.001
Within Schools					
Reading_4thSS	0.354548	0.008595	8402.636	41.25	> 0.001
Hispanic	-10.159289	2.185627	8356.127	-4.648	> 0.001
African American	-15.286914	2.516055	7207.469	-6.076	> 0.001
Economically Disadvantaged	-15.392274	2.110314	8471.291	-7.294	> 0.001
At-risk	-39.642843	1.957322	8004.964	-20.254	> 0.001
Female	11.151725	1.5605	8446.011	7.146	> 0.001
Between Schools					
Academic Emphasis	3.05364	1.355156	89.691	2.253	0.027
Proportion Economically Disadvantaged	-0.182768	0.050263	143.648	-3.636	> 0.001
School Size	0.016467	0.007395	85.414	2.227	0.029

a. Dependent Variable: 5th Read Scale Score.

Mathematics. Table 4.22 reports the standardized beta for the independent variables included in model 6. As previously noted, all variables in the multi-level model are statistically significant. The level of academic emphasis on a campus is positively and significantly related to student achievement in mathematics. The mean scaled score for 5th grade mathematics is 731.90 with a standard deviation 95.86, as noted in Table

4.5. Consequently, one standard deviation change in academic emphasis resulted in a .06 standard deviation change in 5th grade mathematics achievement. This equates to a 5.97 increase in a student's scaled score for 5th grade mathematics. The independent variable which had the greatest effect on 5th grade math achievement was 4th grade math achievement, the control for prior achievement. A one standard deviation change in prior achievement resulted in a 0.633 standard deviation change in 5th grade math achievement. This is equivalent to an increase of 60.68 scaled points and clearly the greatest predictor of math achievement in this multi-level model.

There are several independent variables in this model which resulted in a decrease in 5th grade math scaled scores. Students identified as Hispanic experience an 8.67 decrease in math achievement as measure by the 5th grade mathematics TAKS test. Students identified as African American experience an 18.34 decrease in math achievement as measured by the 5th grade mathematics TAKS test. This indicates students identified as Hispanic or African American score 8 to 18 points lower, respectively, than their non-Hispanic and non-African American counterparts. The effect of being identified as at-risk is equivalent to 23.20 decrease in math achievement, meaning a student identified as at-risk achieves 23 scaled points lower than non at-risk students on the 5th grade math TAKS. Students identified as female experience a 4.62 decrease in math achievement as measure by the 5th grade mathematics TAKS test compared to males.

Table 4.22

Multi-level Analysis Predicting Math Achievement with Standardized Beta

Parameter	Estimate	Std. Error	Std. Beta	Df	T	Sig
Intercept	310.20967	6.37098	-0.0249	6216.646	48.691	> 0.001
Within Schools						
Math_4thSS	0.642293	0.008323	0.633	9221.843	77.173	> 0.001
Hispanic	-8.669439	1.872461	-0.043	8458.354	-4.63	> 0.001
African American	-18.339708	2.228038	-0.072	8599.271	-8.231	> 0.001
Econ disadvantaged	-8.128032	1.791996	-0.042	8225.668	-4.536	> 0.001
At-risk	-23.208084	1.728195	-0.114	9125.944	-13.429	> 0.001
Female	-4.623175	1.357311	-0.024	9174.869	-3.406	> 0.001
Between Schools						
Academic Emphasis	5.96539	1.651136	0.06	99.532	3.613	> 0.001

a. Dependent Variable: 5th Math Scale Score.

Reading. Table 4.23 reports the standardized beta for the independent variables included in Model 4 used to measure the effect school level academic emphasis had on reading achievement. The multi-level model controlled for student and school demographics as well as school size. All variables in the multi-level model are statistically significant. The level of academic emphasis on a campus is positively and significantly related to student reading achievement. The mean scaled score for 5th grade reading is 682.30 with a standard deviation 94.44, as noted in Table 4.5. Therefore, one standard deviation change in academic emphasis resulted in a .032 standard deviation change in 5th grade reading achievement or 3.05 scaled points. The independent variable that had the greatest effect on 5th grade reading achievement was 4th grade reading achievement, the control for prior reading achievement. A one standard deviation change in prior achievement resulted in a 0.400 standard deviation change in 5th grade reading

achievement. This is equivalent to an increase of 37.78 scaled points and noticeably the greatest predictor of reading achievement in this multi-level model. The effect of a student being female, after controlling for the effect of all other student and school level variables, is 11.51; therefore, females scored almost 12 scaled points higher than males.

There are several independent variables in this model which resulted in a decrease in 5th grade reading scaled scores. Students identified as Hispanic scored an average of 10.15 scaled score points lower in reading achievement as measured by the 5th grade reading TAKS test. Students identified as African American scored an average of 15.28 scaled score points lower in reading achievement as measured by the same instrument. Thus, Hispanic and African American students score 10 to 15 points lower, respectively, than their non-Hispanic and non-African American counterparts in reading achievement. The effect of being identified as at-risk is associated with a decrease of 39.64 scaled score points in reading achievement. This indicates a student identified as at-risk scored nearly 40 scaled points lower than their non at-risk counterparts on 5th grade reading achievement. The effect of proportion of students identified as at-risk is results in a decrease of 0.18 scaled score points. A one standard deviation increase in the proportion of at-risk students resulted in an 0.18 scaled point decrease in reading achievement. Finally, the effect of school size is positively and statistically significant, yet, the effect is hardly detectable at 0.01 scaled score points.

Table 4.23

Multi-level Analysis Predicting Reading Achievement with Standardized Beta

Parameter	Estimate	Std. Error	Standard Beta	df	t	Sig.
Intercept	508.111718	8.982481	-0.0322	337.82	56.567	0.001
Within Schools						
Reading_4thSS	0.354548	0.008595	0.400627	8402.636	41.25	0.001
Hispanic	-10.159289	2.185627	-0.053659	8356.127	-4.648	0.001
African American	-15.286914	2.516055	-0.063841	7207.469	-6.076	0.001
ECON_DIS	-15.392274	2.110314	-0.083298	8471.291	-7.294	0.001
At-risk	-39.642843	1.957322	-0.208236	8004.964	-20.254	0.001
Female	11.151725	1.5605	0.062148	8446.011	7.146	0.001
Between Schools						
Academic Emphasis	3.05364	1.355156	0.031807	89.691	2.253	0.027
Proportion Eco. Dis.	-0.182768	0.050263	-0.065359	143.648	-3.636	0.001
School Size	0.016467	0.007395	0.036776	85.414	2.227	0.029

a. Dependent Variable: 5th Read Scale Score.

Variance Explained

The within and between school variances of the unconditional models are reported in Tables 4.14 and 4.15 for mathematics and reading achievement, respectively. The within and between school variance of the final mathematics and reading achievement multi-level models are reported in Tables 4.24 and 4.25, respectively. Calculating the difference between the unconditional and final models allowed the author to measure the amount of within and between school variance explained by the independent variables. The variance is calculated by determining the difference between the unconditional estimate and full model estimates divided by the unconditional estimate. The within school variance in mathematics achievement explained by the multi-level model was 47.82%. The same model is responsible for 83.02% of the between school variance. The multi-level model for reading achievement accounted for

27.72% of the within school variance. The amount of between school variance in reading achievement explained 90.14% of the full model.

Table 4.24

Multi-level Model Mathematics

Parameter	Estimate	Std. Error	Wald Z	Sig.
Within School Variance	4196.65	62.078403	67.602	0.001
Between School Variance	203.860755	36.498119	5.586	0.001

a. Dependent Variable: 5th Math Scale Score.

Table 4.25

Multi-level Model Reading

Parameter	Estimate	Std. Error	Wald Z	Sig.
Within School Variance	5109.70	78.896838	64.764	0.001
Between School Variance	97.300678	23.516197	4.138	0.001

a. Dependent Variable: 5th Read Scale Score.

Predicting Academic Emphasis

Given that academic emphasis was a significant predictor of both mathematics and reading achievement, the author turned to determining which school level independent variables predict academic emphasis. The rationale for this analysis is to determine if school context is a significant predictor of academic emphasis. Academic emphasis is a school level construct developed through teachers' responses to survey items meant to gauge their perceptions on various aspects of school climate. Their responses were aggregated to the campus level; therefore, it is appropriate to investigate

which school level independent variables significantly effect school level academic emphasis on a particular campus.

Descriptive Statistics

A review of the descriptive statistics for the dependent and independent variables is appropriate before proceeding to the multiple regression analysis. The descriptive statistics for the dependent and independent variables used in the prediction of campus level academic emphasis are reported in Table 4.26. As noted earlier, campus level academic emphasis is a standardized variable with a mean of 0 and a standardized deviation of 1. Across the 97 participating campuses, academic emphasis ranged between -4.61 to 2.13. In this multiple regression analysis, academic emphasis served as the dependent variable. Mean 4th grade achievement will serve as an independent variable and represents the average scaled score for a particular campus on the TAKS Exam. It also provides an opportunity to test the effects of campus prior achievement on campus level academic emphasis. The mean scaled score for 4th grade math achievement is 708.96 with a standard deviation of 51.25. The math scaled scores ranged between 596.96 to 826.30 across the participating campuses. The mean scaled score for 4th grade reading achievement is 703.42 with a standard deviation of 57.06. The 4th grade reading scaled scores range from a minimum 596.27 to a maximum 972.87.

Campus level demographics were used to define the social context of the school and the descriptive statistics are reviewed below. Students receiving free or reduced lunch enrolled at each campus are represented by the proportion of economically disadvantaged. The mean proportion of economically disadvantaged students among

campuses was 46.49% with a standard deviation of 30.55%. The proportion of economically disadvantaged students across the participating campuses ranged 2.8% to 94.5%. Including the campus proportion of economically disadvantaged students in the multiple regression allowed the author to measure its effect on campus math achievement. Percent of African American represents the proportion of the students on a particular campus identified as African American. The mean proportion of African American students is 15.39% with a standard deviation of 14.50. Percent of Hispanic represents the proportion of students identified as Hispanic on a particular campus. The mean proportion of Hispanic is 41.21% with a standard deviation of 26.05. The proportion of Hispanic student body found on the participating campuses ranged from a minimum of 5.4% to a maximum of 94%. Employing this variable allowed the author to test the effect of proportion of Hispanic enrolled on a campus on campus level academic emphasis. Percent at-risk represents the proportion of students identified as at-risk of dropping out on a particular campus. The inclusion of this independent variable allows the researcher to test the effect of the proportion of at-risk students on a campus level of academic emphasis. The mean proportion of at-risk students is 44.01 with a standard deviation of 18.69. The minimum proportion of at-risk students is 4.9 and the maximum is 85. School size variable represents the student enrollment for a particular campus. The mean student enrollment of the 97 participating schools is 727.29 with a standard deviation of 192.24. The student body was as little as 253 students and as large as 1288. Including the school size variable in the multiple regression allowed the author to test the effect of school size on the campus level academic emphasis.

Table 4.26

Multiple Regression Descriptive Statistics

	Mean	Std. Dev.	Minimum	Maximum
Academic Emphasis	0	1	-4.61	2.13
Math_4thSS	708.96	51.25	596.96	826.3
Reading_4thSS	703.42	57.06	596.27	972.87
Proportion African American	15.39	14.50	1	83.9
Proportion Hispanic	41.21	26.05	5.4	94
Proportion Eco Dis.	46.49	30.55	2.8	94.5
Proportion At-risk	44.01	18.69	4.9	85
School Size	727.29	192.24	253	1288

Correlation Statistics

Before proceeding to the multiple regression analysis, the author conducted a bivariate correlation analysis to determine if multi-collinearity exists between any of the variables included in the multiple regression used to predict campus level academic emphasis. The bivariate correlation analysis is used to determine the strength and direction of the relationship that exists between two variables. Results are reported in Table 4.27. A significantly strong and positive correlation is present among the independent variables; proportion Hispanic and proportion At-risk (.835), proportion Hispanic and proportion economically disadvantaged (.901) and proportion At-risk and proportion economically disadvantaged (.833). This is indicative of extreme multi-collinearity; therefore, the proportion Hispanic and proportion economically disadvantaged will be removed from the final multiple regression model. Also, extreme multi-collinearity is present between 4th grade math and 4th grade reading achievement ($r=.858$). Only one of the achievement variables will be used in the final multiple regression model and will be determined by the stepwise backward elimination process.

Table 4.27

Correlation Matrix of Multiple Regression Variables

	Academic Emphasis	4 th Math	4 th Reading	Proportion African American	Proportion Hispanic	Proportion Eco Dis	Proportion At-risk	School Size
Academic Emphasis	1							
4 th Math	0.181	1						
4 th Reading	0.036	.858**	1					
Proportion African American	-0.169	-.208*	-0.175	1				
Proportion Hispanic	-0.093	-.581**	-.610**	-0.009	1			
Proportion Eco Dis.	-0.186	-.586**	-.608**	.313**	.901**	1		
Proportion At-risk	-0.171	-.566**	-.637**	.230*	.835**	.833**	1	
School Size	.255*	-0.069	-0.072	-0.148	-0.145	-.260*	-0.112	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The correlations between the remaining independent variables used in the multiple regression model do not exhibit extreme correlation. The highest reported and statically significant correlation exists between proportion economically disadvantaged and 4th grade reading ($r=-.637$). The lowest observed correlation is between 4th grade reading and academic emphasis ($r=.036$); however, this correlation is not statistically significant. The lowest statistically significant correlation exist between proportion of African American and 4th grade math scaled scores ($r=-.208$).

Stepwise Backward Elimination Analysis

As previously mentioned, stepwise backward elimination is a systematic process to remove independent variables from a statistical model which are found to be non-

significant. The process begins by loading all the independent variables into the regression model and identifying the independent variable with the highest p value and removing it from the proceeding models (Table 4.28). The independent variable used for prior achievement, 4th grade math or 4th grade reading, was determined by the variance explained (R^2) and the p value associated with each model. As noted earlier, the proportion Hispanic and proportion economically disadvantaged were excluded from the multiple regression model because of the extreme multi-collinearity exhibited in the bivariate correlation analysis. The stepwise backward elimination process began with 4th grade reading achievement and the remaining predictor variables: proportion African American, proportion at-risk, and school size.

Stepwise backward elimination began with Model 1 (Reading) in which 4th grade reading represented prior achievement. However, 4th grade possesses the highest calculated p value ($p=.566$) among the independent variables and is removed in the subsequent models. The total variance (R^2) explained by Model 1 (Reading) was .099. In Model 2 (Reading), the independent variable with the highest p value was proportion African American ($p=.294$) and was removed from the subsequent models. Model 2 (Reading), with 4th grade reading removed, accounted for slightly less variance ($R^2=.096$) than Model 1. In Model 3 (Reading), the independent variable with the largest p value ($p=0.15$) was the proportion at-risk and was therefore removed from Model 4 (Reading). The total variance explained by Model 3 is $R^2=.085$. In Model 4 (Reading), school size was the only independent variable remaining through the stepwise backward elimination process. Model 4 (Reading) explained only .065 of the variance with school

size as the only remaining statistically significant variable ($p = 0.012$). One standard deviation increase in school size is associated with .255 standard deviation increase in a school's level of academic emphasis.

Table 4.28

Multiple Regression Stepwise Backward Elimination Results (Reading)

	B	Std. Error	Beta	t	Sig.
Model 1					
(Constant)	0.638	1.956		0.326	0.745
Reading_4thSS	-0.001	0.002	-0.076	-0.577	0.566
Proportion African American	-0.008	0.007	-0.111	-1.085	0.281
Proportion At-risk	-0.009	0.007	-0.169	-1.28	0.204
School Size	0.001	0.001	0.214	2.091	0.039
Model 2					
(Constant)	-0.454	0.485		-0.935	0.352
Proportion African American	-0.007	0.007	-0.108	-1.055	0.294
Proportion At-risk	-0.006	0.005	-0.121	-1.188	0.238
School Size	0.001	0.001	0.225	2.253	0.027
Model 3					
(Constant)	-0.563	0.474		-1.188	0.238
Proportion At-risk	-0.008	0.005	-0.144	-1.451	0.15
School Size	0.001	0.001	0.239	2.404	0.018
Model 4					
(Constant)	-0.964	0.388		-2.483	0.015
School Size	0.001	0.001	0.255	2.567	0.012

a. Dependent Variable: School Level Academic Emphasis

Next, the author followed the same stepwise backward elimination process using 4th grade math as an independent variable. Including 4th grade math achievement allowed for the testing of prior math achievement on academic emphasis (Table 4.29). The total variance explained by Model 1 (Mathematics) was $R^2 = .113$. Proportion of at-risk had the highest calculated p value ($p = 0.806$) and was removed from the proceeding models. The variance explained by Model 2 (Mathematics) was $R^2 = .113$, identical to

Model 1 (Mathematics). In Model 2 (Mathematics), the proportion of African American student had the highest p value ($p = .354$) and was removed from Model 3 (Mathematics). In Model 3 (Mathematics), the remaining independent variables, 4th grade mathematics and school size, are statistically significant and the model accounts for .105 of the variance explained. Using the stepwise backward elimination process allowed the author to conclude the best model for predicting campus level academic emphasis included only two predictor variables, 4th grade math and school size.

Table 4.29

Multiple Regression Stepwise Backward Elimination Results (Mathematics)

	B	Std. Error	Beta	t	Sig.
Model 1					
(Constant)	-3.019	1.982		-1.524	0.131
Math_4thSS	0.003	0.002	0.162	1.335	0.185
Proportion African American	-0.006	0.007	-0.091	-0.892	0.374
Proportion At-risk	-0.002	0.007	-0.03	-0.246	0.806
School Size	0.001	0.001	0.249	2.462	0.016
Model 2					
(Constant)	-3.332	1.509		-2.208	0.03
Math_4thSS	0.003	0.002	0.179	1.782	0.078
Proportion African American	-0.007	0.007	-0.094	-0.931	0.354
School Size	0.001	0.001	0.253	2.55	0.012
Model 3					
(Constant)	-3.776	1.431		-2.639	0.01
Math_4thSS	0.004	0.002	0.2	2.04	0.044
School Size	0.001	0.001	0.269	2.744	0.007

a. Dependent Variable: School Level Academic Emphasis

Multiple Regression Analysis

At the conclusion of the stepwise backward elimination, the author determined the best model for predicting campus level academic emphasis included prior achievement on fourth grade math and school size. The following equation represents the model used to predict campus level academic emphasis and the results are reported in Table 4.30.

$$Y_{\text{Academic Emphasis}_i} = B_0 + B_{\text{MeanMath_4thScaleScore}}X_i + B_{\text{School Size}}X_i + e_i.$$

4th grade math and school size were statistically significant predictors of campus level academic emphasis. A one standard deviation change in 4th grade math scaled scores is associated with a .20 standard deviation increase in campus level of academic emphasis. A one standard deviation increase in school size resulted in a .269 increase in the level of academic emphasis in the 97 participating campuses. The multiple regression used to predict the context of campus level academic emphasis explained 10.5% of the variance ($R^2=.105$).

Table 4.30

Predicting Academic Emphasis

	B	Std. Error	Beta	t	Sig.
(Constant)	-3.776	1.431		-2.639	0.01
Math_4thSS	0.004	0.002	0.2	2.04	0.044
School Size	0.001	0.001	0.269	2.744	0.007

a. Dependent Variable: School Level Academic Emphasis

Summary

This chapter discussed the results of the study. The researcher began by providing the descriptive statistics of students, teachers and schools. The statistical techniques used to create a viable academic emphasis variable were reported. In the multi-level portion of this chapter the researcher discussed the stepwise backward elimination process used to determine the independent variables to include in the multi-level model and the results of the multi-level model. The multi-level model showed campus level academic emphasis is a positive and significant predictor of student achievement. While academic emphasis may not overcome demographic factors, it certainly has the capacity to dampen the effects of student demographics. Finally, the author considered the school context as a predictor of campus level academic emphasis. Again, stepwise backward elimination was used to fine tune the multiple regression model. The stepwise elimination process removed campus level demographic groups leaving prior achievement and school size as predictors of academic emphasis.

CHAPTER V

CONCLUSIONS

The current chapter will discuss the findings that have materialized from the factor analysis, multi-level modeling, and the multiple regression analysis. The discussion will start with the measure of campus level academic emphasis followed by the chief results from the multi-level models employed to predicate achievement and the multiple regression models used to measure the influence of school social context on academic emphasis. The chapter will close by discussing the contributions of his work made to theory, practice and further research.

Statistical Discussion

The proceeding section will provide a discussion of the factor analysis, multi-level models used to predict academic achievement, and the multiple regression model used to predict academic emphasis. The academic emphasis variable was created through factor analysis based on the instrumentation from Hoy and Feldman's (1987) Organizational Health Inventory. The multi-level models allow for the measurement of the influence of academic emphasis on student achievement controlling for student and campus level demographics. The multiple regression model is used to tease what aspects of campus social context that influence academic emphasis.

Discussion of Academic Emphasis Construct

Prior to conducting the multi-level and multiple regression analysis used to investigate the effects of academic emphasis on student achievement, the author created a valid and reliable measure of academic emphasis. The academic emphasis construct

began by mimicking the previous studies of Hoy & Fledman, 1987, Hoy et al, 1991, Hoy & Tarter, 1990, and Godard et al., 2000 by using the OHI. The final construct of the campus level measure reaffirmed academic emphasis as an important component of the school environment and influence on student achievement. There is some indication that the OHI measure is not the ideal instrument for gauging academic emphasis as noted by the factor analysis which only used four of the original eight items.

The aforementioned studies used factor analysis from the OHI to create a construct for academic emphasis. Initially, Hoy and Feldman (1987) used the eight item academic emphasis as part of the OHI to determine the level of school effectiveness. In Hoy and Feldman's original model, academic emphasis was considered to be a technical component of an effective and healthy school. They asserted the technical component of a school was primarily the teaching and learning process the very reason schools exist.

As mentioned in the previous chapter, the initial factor analysis began by attempting to duplicate the result from previously mentioned academic emphasis studies. However, the eight item academic emphasis scaled from the OHI produced two factors (Table 4.9). The researcher then began to systematically remove variables with the lowest loadings and proceeded with the factor analysis. By systematically eliminating items, the author was left with four items from the OHI academic emphasis subscale to create a valid and reliable measurement of academic emphasis. The factor analysis for academic emphasis produced a Crombach's Alpha of .916 and explained 80.24% (Table 4.11) of the variance. This latent variable represents the normative press feature of the

school's climate that pushes the school toward higher academic achievement (McDill, Natiello & Pallas, 1986) in its quest for excellence (Hoy & Feldman, 1987).

Although some adjustments were made to the original eight OHI items used by Hoy and Feldman (1987), the results of factor analysis led the author to construct a valid and reliable measure of campus level academic emphasis by using four survey items. The author contends the four items used to create the academic emphasis measurement are the essences of a school's quest for excellence because the four items represent the structure and process of academic emphasis. Creating a reliable and valid construct of academic emphasis allowed the researcher to continue to the multi-level analysis.

Multi-level Analysis Discussion

Using a multi-level approach allows for testing the effects of school level academic emphasis on math and reading achievement of individual students nested within a school. This approach allows the researcher to control for the effects of various student characteristics such as gender, race, socioeconomic status, and at-risk status on math and reading achievement. Multi-level modeling also permits the author to control for the effects of the school's social context. The proportion of African Americans, Hispanics, economically disadvantaged and at-risk students, as well as school size represent the school's social context for this study.

Before proceeding to the multi-level analysis, the ICC was calculated to validate the use of a multi-level statistical model. The calculated ICC for the math model is .130 and reading model is .122. To be considered statistically significant, the ICC must be greater than 0, as is the case in this study. Since the calculated ICC for both models is

statistically significant, the study was able to continue with the statistical models used to answer the first research questions. The multilevel models answered the following question: What relationship exists between a school's level of academic emphasis and differences among schools in student achievement on 5th grade TAKS mathematics and TAKS reading exams in suburban-urban Texas elementary schools controlling for student demographic variables? The multiple regression model sought to answer the following question: Is the level of academic emphasis based upon the demographic context of the school and the level of prior achievement?

Other studies have examined the effect of school level academic emphasis using a multi-level statistical approach (Shouse, 1996; Phillips, 1997; Ma & Klinger, 2000) predicting student achievement; however these studies did not use the OHI construct of academic emphasis or test the effects of school level academic emphasis on individual student achievement. This study is similar to the Goddard et al. (2000) multi-level level analysis which surveyed 45 Midwest elementary schools. This study consists of 97 schools and surveyed 3,106 teachers from Southeast Texas. In this study the multilevel statistical models allowed the author to control for the effect of a student being identified as at-risk; whereas, Goddard et al. (2000) did not include this control variable. In this study, students that were identified as at-risk scored 23 scale points lower than their non at-risk counterparts in math and 39 scaled points lower in reading.

This study allowed the author to identify the precise effect of school level academic emphasis on individual student achievement in the participating schools controlling for student and school level demographic variables. The author

systematically used stepwise backward elimination to create a viable nested model to test the effect of school level academic emphasis on individual student achievement. The multi-level mathematics model accounted for 47.82% of the within school variance and 83.02 % of the between school variance. The multi-level model for reading achievement accounted for 27.72% of the within school variance. The amount of between school variance in reading achievement explained 90.14% of the full model.

As hypothesized, academic emphasis is a significant predictor of student math and reading achievement. The multi-level analysis demonstrated that a positive and significant relationship exists between a school's level of academic emphasis and student achievement in math (Table 4.22) and reading (Table 4.23). The findings of this study further demonstrate a positive school climate centered around high expectation for student success is an important feature to the climate and culture of the campus. As anticipated, this study reaffirms the work of Edmunds (1979) when he posited successful schools establish a climate of academic expectation that students will learn regardless of their background. The highest level of academic emphasis was 2.12 standard deviations above the mean and the lowest was -4.60 standard deviations below the mean. One standard deviation increase in campus level academic emphasis results in 5.75 scaled points increase in math achievement controlling for student and school demographics. Students in schools with the highest levels of academic emphasis, 2.12 standard deviations above the mean, scored 39 scale points higher in math compared to schools with the lowest levels of academic emphasis, -4.60 standard deviations below the mean. Campus level academic emphasis had a similar effect on reading. One standard deviation

increase in academic emphasis resulted in an increase of 2.85 scaled points on average for reading achievement. Again, students in schools with the highest levels of academic emphasis scored 19 scale points higher in reading compared to schools with the lowest levels of academic emphasis.

This study confirms that when higher levels of academic emphasis are present in the culture of the campus, math and reading achievement are positively and significantly influenced regardless of student or campus demographics. There are achievement gaps (Chambers, 2009) between the identified groups in this study; however, these are characteristics beyond the control of the student, campus, and educational establishment. Furthermore, all students in schools with high levels of academic emphasis do better in reading and math achievement, regardless of student and school social characteristics. As the multi-level models show, students identified as African American, Hispanic, Economically Disadvantaged, and at-risk are associated with a reduction in scaled scores in math and reading achievement. However, schools with high levels of academic emphasis have the capacity to dampen the effects of a student's demographics. School climates should not be predicated on the demographics of the student or the campus. The fact that academic emphasis is positively associated with student achievement has the potential to have tremendous implications for students of color and students from poverty. The potential of academic emphasis to positively influence student achievement lead the author to determine which campus level characteristics predict academic emphasis.

Predicting Academic Emphasis Discussion

This study has demonstrated academic emphasis is a desirable feature and characteristic of the school climate and will positively effect student achievement regardless of student demographics. This led the author to investigate which school contextual characteristics predict the level of academic emphasis found on a campus. Multiple regression analysis provides the ability to determine which contextual characteristics predict academic emphasis. Furthermore, it allows the author to establish if academic emphasis is solely based on school context or variables beyond the scope of this study. In the event that a majority of the variance is left unexplained, then the possibility exists that other facets of the school influence academic emphasis.

Goddard, et al., (2004) asserted that the organization is influenced by mastery experiences which are represented by prior achievement on 4th grade math and reading. As Goddard suggested, prior achievement ought to be positively and significantly associated with the level of academic emphasis found on a campus. Interestingly, 4th grade reading achievement was not significantly associated with the level of academic emphasis and was not included in the final multiple regression model. The proportion of African American, proportion of Hispanic and proportion of at-risk was negatively associated with the level of academic emphasis in both multiple regression models. However, the contextual parameters were not statistically significant and confirm the level of academic emphasis on campuses is not influenced by the social context of the school.

Through bivariate correlation analysis and stepwise backward elimination, the author created a final model that included 4th grade math and school size as independent variables. One standard deviation increase in math achievement is associated with a .20 increase in academic emphasis. School size was also positively and significantly associated with an increase in academic emphasis. One standard deviation increase in school size is associated with .269 increase in academic emphasis. The positive relationship between math achievement and academic emphasis suggests that academic success leads to a more positive school climate focused on a quest for academic excellence. However, the analysis strongly suggests the quest for academic excellence is not dictated by the social context of the school. The multiple regression model explained only 10.5% of the variance. This means school size and math achievement cannot explain over 89% of the variance of academic emphasis from schools used in this study.

Based on the multiple regression analysis, the proportion of African American, Hispanic, at-risk and economically disadvantage are non-significant predictors of academic emphasis. This suggests high academic expectations are based on campus climate dynamics beyond the social context of the school. This is an important finding because it implies the level of academic emphasis may be contingent upon the social interactions within the structure of the organization. If academic emphasis is dependent on the internal social interactions of the school organization then the organizational collective should have the capacity to set and maintain the climate by imposing positive and negative sanctions. Furthermore, it implies the educational establishment should

focus on creating cultures and climates focused on academic achievement of each student regardless of student, campus or district demographics.

Statistical Discussion Summary

Although some slight adjustments had to be made through factor analysis, the current study, like previous school level academic emphasis studies, is a viable measure of the organization's pursuit of academic excellence. Only 4 of the original 8 OHI academic emphasis items loaded into the campus level latent variable. Nonetheless, the reliable and valid measure for campus level academic emphasis captured the essence of the structure and process needed to improve student performance. Specifically, the measure of academic emphasis employed for this research represents the structure and processes involved in the pursuit of academic excellence.

At the technical level (Hoy and Feldman, 1987), academic emphasis is vital component in creating a school culture in which the teachers, school, and community come together focused on student academic achievement. The culture of the school is serious and safe but not overly oppressive. The school seeks ways to recognize the academic accomplishments of the students through out the year and encourage the students to improve upon their previous academic achievements. A key ingredients of academic emphasis is the efficacious beliefs of the faculty, staff, and community in influencing the academic lives of their students. Furthermore, these beliefs will be manifested in the agency of the faculty, staff, and community.

While controlling for student and campus demographics, multi-level statistical models demonstrated a positive and significant relationship exists between school level

academic emphasis and student math and reading achievement. A one standard deviation increase in academic emphasis is associated with an average gain of 5.75 scaled points in math and 2.85 scaled points in reading. This suggests that the strength of the norms for academic excellence perceived by teachers is a strong predictor of behaviors that influence student learning in core subject areas such as mathematics and reading.

Finally, this study used a multiple regression model to predict the school attributes responsible for the level of academic emphasis found on a campus. The multiple regression model revealed that the proportion of African American, Hispanic, at-risk, and economically disadvantaged students are not statistically significant predictors of academic emphasis. However, prior achievement in mathematics was significantly and positively related to the level of academic emphasis. This supports the notion that mastery experiences can positively influence organization-wide beliefs (Goddard, 2001). In sum, the findings of this study confirm previous effective schools research, indicating that school climate positively influences student achievement and provide important knowledge that the strength of academic expectations characterizing a school are not contingent upon the demographics of the campus. That is, the level of academic emphasis characterizing schools does not appear directly related to their ethnic or socioeconomic composition. The findings of this study have theoretical and practical implications as well as avenues for future research.

Theoretical and Practical Implications

The following section discusses the theoretical and practical implications of the multi-level and multiple regression analysis in this study.

Theoretical Implications

The findings of this study further validate academic emphasis as a desirable feature of a school's climate. One of the early critiques of Edmonds (1979) was the lack of theoretical underpinnings yet he found that the level of academic focus in schools did matter to student achievement. Hoy and Ferguson (1985) and Hoy and Feldman (1987) initially applied Parsons and Shils (1951) action theory to support the initial supposition of Edmonds (1979). Action theory (Parsons, 1951) provides a structure to the social system which allows the system to function. Action theory holds that the norms of the organization allow the actors to align and coordinate with one another, define individual and organizational goals through common language and beliefs. Years later, Goddard et al. (2004) employed Bandura social cognitive theory (1986, 1997) to explore the normative press of academic emphasis. Academic emphasis is clearly rooted in action theory and social cognitive theory. The common thread between action theory and social cognitive theory is the role of norms, the informal group expectations of the organization and how norms influence behavior of the individual and the social system. Social norms influences cognition and in turn cognition influence social behavior (Bandura, 1997). Social rewards and scansions are administered based on the individual's adherence of the institutional and articulated social norms.

Academic emphasis is the normative press feature of the school organization which pushes the school toward higher academic achievement (McDill, Natiello & Pallas, 1986) in its quest for excellence (Hoy & Feldman, 1987). Academic emphasis of the campus is derived from the informal group expectations imposed by the larger group through a collective experience. Parsons (1977) noted norms guide and strengthen the desirable actions of the whole social system as well as the individuals that compose the system. It is vital for a school to have institutional and articulated norms which saturate all levels of the campus. As Parsons (1951) noted, institutional norms shape the culture of the organization and maintain a desired level of pattern maintenance. For the purposes of this study, pattern maintenance is the level of academic emphasis experienced on each campus as related to the collective perceptions of the faculty. The campuses with the highest level of academic emphasis have an established pattern and can focus on academic achievement.

Action theory and social cognitive theory have slightly different perspectives on norms. Action theory suggests individuals are influenced by the norms of the social structure (Parsons, 1971). However, social cognitive theory asserts that norms assist individuals to self-regulate their behavior and through individual self-regulation influences the organization (Bandura, 1997). Because individuals have the ability to self-regulate they possess the capacity to navigate the social structure of the organization successfully. As the actors are able to successfully navigate the organization, they begin to embrace the intuitional values of the organizations. Bandura (1991) suggested the

adherence to norms influences self-regulated and voluntary behavior. Fidelity and consistency of norms is paramount to achieving high levels of academic emphasis.

There is a subtle difference in perspective of social norms in social cognitive theory and action theory. Social cognitive theory holds social norms informally sanction and reward the self-regulated behavior of the individual (Bandura, 1997). Whereas, action theory holds that norms are more punitive in an effort to bring the individual into compliance of the larger social structure (Parsons, 1971). As the collective institutionalizes the norms, they begin to exert control over individual behavior. Social cognitive theory acknowledges norms have the capacity to reward desired behavior. Conversely, action theory views the role of norms in a punitive fashion. Action theory holds norms are intended to bring the individual into compliance with the social structure of the organization. Regardless whether norms are considered punitive or rewarding, compliance with the expectations of the collective is the ultimate outcome.

Norms bind the social functions and the process of the organization. Action theory notes social systems are divided into four overlapping subsystems. Each of the subsystems serves a specific function within the organizational social system. The zones of interpenetration, where the subsystems overlap, are the areas where norms influence the function of the four subsystems. Self-regulated behavior is a caveat of social cognitive theory and requires individual actors to weigh their options in relation to the collective. Self-regulated behavior requires the individual to embrace the standards of conduct of the organization or risk negative consequences imposed by the collective.

Beyond helping to regulate behavior of individuals, norms also assist the organization to run more effectively through cooperation. Parsons (1951) noted norms are continually adjusted to meet the changing demands of the environment. Norms help to shape organizational culture through common language, values, codes and symbols, therefore allowing changes to social system to meet new demands of the internal and external pressures. Furthermore, as norms become internalized by individuals and institutionalized by the cultural subsystem stability within the organization ensues.

Statistically, the current research confirms academic emphasis as an institutionalized norm which influences the behavior of the individuals and contributes to the achievement of organizational goals. Concurrently, the norms are not so rigid that individuals and the organization cannot adjust to the environment. The normative press of academic emphasis is again shown to be an important feature of the climate and culture of a school. Beyond the theoretical implications of the current study, there are also practical implications in which academic emphasis can positively and significantly impact academic achievement regardless of student and campus demographics.

Practical Implications

Academic emphasis has been shown to have positive and significant influence on student achievement and has practical implications for teachers and campuses. Edmunds (1979) identified campus characteristics found in effective schools; a strong administrative leader, high academic expectations for all students, orderly environment, the belief that academic acquisition drives school goals, and systematic monitoring of students progress towards the academic standards. Effective school leaders and teachers

must continue to seek out those practices which have shown to produce improved academic achievement and jettison those practices which have not been shown to improve academic achievement.

Educational leaders at the local, state and national levels should turn to theory when exploring ways to improve the academic achievement of their students. One of the caveats of action theory and social cognitive theory is that the organization's behavior is influenced by the efficacious beliefs of individuals. This means the educational leaders, including teachers, must establish and communicate the values, goals and beliefs of the public education while encapsulating practices proven to improve academic achievement. Bryk et al. (2010) noted that educational leaders must operate beyond the confines of the campus and work to establish relationships with all stakeholders touting the virtues of the school's quest for excellence. The school and district leaders must embrace the effects of academic emphasis in establishing a school climate focused on school improvement. It is incumbent on school officials to identify and implement those practices and procedures that consistently and positively reinforce the articulated expectations of academic excellence, above all else.

Academic emphasis has proven, regardless of the student's background or the social context of the campus, to be positively related to student achievement. Faculty members should be empowered to recognize and reward their colleagues that comply with norms, values and beliefs of the school. Additionally, teachers can also be subjected to the informal social sanctions for not complying with the agreed upon values and beliefs of the organization. As the culture of the school is communicated and monitored,

it is vital that the administrators make certain teachers have the skill set required to meet the stated beliefs and expectations of the school. Improving the skill set of the teachers aligned with the articulated beliefs and values of the campus has the potential to improve the cohesiveness of staff members and reinforces the norms of the campus. In turn, this allows teachers the opportunity to demonstrate they have the ability to meet and contribute to the success of the students. As the individual teachers improve their skill set, they contribute to the overall climate of the campus.

Parsons (1977) notes that every social system is rooted in a larger external society and therefore has the capacity to influence the larger society. School officials should consider how their environmental context influences the campus, as well as how the school's academic press can alter and influence the larger community. The academic emphasis of the school should not be limited to the confines of the campus. School administrators and teachers often interact with various stakeholders from the larger community. This provides them an opportunity to articulate the high expectations of the school and further enhance the school culture.

Clearly school officials cannot influence the demographics of their campus. Nor, can they dispute the achievement gaps (Chambers, 2009) that exist for African American, Hispanic, at-risk and economically disadvantaged students in math and reading. However, the current study shows that the structure and processes of the school focused on academic emphasis for each student can systemically influence academic achievement. School personnel should strive to create an environment in which students value good grades and seek opportunities to improve academically. Teachers can reinforce the

work of the students by viewing their primary mission as providing the supports required for students to excel academically. The school structure and operation is focused on safe and orderly environment and recognizes the academic achievement of the students. Furthermore, the staff projects a belief that the students have the capacity to achieve academic goals and work to improve on previous work. The multi-level models for math and reading, which controlled for student and campus demographics, explained 47.82% and 27.72% variance, respectively. The multiple regression models used to predict academic emphasis accounted for less than 11% of the variance. This would suggest school officials and teachers might very well be able to dramatically influence the level of academic emphasis on their campus. As the level of academic emphasis increases, so will achievement regardless of student demographics or the school's social context. Certainly, future research will help to bring into focus administrator and teacher practices that positively enhance academic emphasis and student achievement.

Future Research

The current study brings to light several possibilities for future research. The author confirmed the existence of academic emphasis by employing the OHI developed by Hoy (1987). The factor analysis construct of academic emphasis in this study originated from the eight items of the original OHI. Future researchers might consider using the OHI-E developed by Hoy et al (1991). The OHI-E was initially developed to ascertain the health of elementary schools and share some common survey items used in this study. However, the OHI-E was designed specifically to measure elementary teacher perception of their students' concern for learning. Employing the OHI-E, Hoy et al.

(1991) posited elementary teachers would conduct themselves in such a way as to continue to foster their students' concern for and pursuit of academic excellence.

Future research might further investigate the environmental factors that predict academic emphasis beyond the social context of the school used in this study. Action theory and social cognitive theory acknowledge the environmental influence on the larger social system. The present study explored the possible environmental factors contributing to the level of academic emphasis. The statistical models used in this study sought to control for the social context of the school. The proportion of socioeconomically disadvantaged students was negatively and significantly associated with reading achievement (Table 4.23). However, the influence of academic emphasis negated this environmental influence. The multiple regression model sought to identify the environmental variables that predicted academic emphasis and through stepwise backward elimination the author eliminated all but one environmental variable. School size was a positive and significant predictor of academic emphasis but the effect was hardly noticeable.

Another consideration for future research might be the composition of the staff. Action theory and social cognitive theory hold that an individual comes to a larger social system with his or her own experiences, values and beliefs. As teachers become indoctrinated into the social organization their personal experiences, beliefs and values will be influenced by the normative press of the organization. Conversely, the organization may be altered by the introduction of new ideas and procedures from individuals entering the social organization.

The current study reaffirms that academic emphasis is a statistically viable construct and positively influences academic achievement regardless of the student or campus demographics. Quantitative studies, such as this one, allow for precise measurement of the effects of academic emphasis on student achievement. However, a qualitative study would allow for observations and interviews to determine why teachers hold certain beliefs. Qualitative studies might also provide insight into which organizational and instructional practices and structures work to foster academic emphasis.

Conclusion

The intent of this study was twofold: 1. Measure the effect of academic emphasis on student achievement, 2. Determine if the social context of the campus predicts academic emphasis. The student population used in this study represents one of the most demographically diverse student populations in Texas. Previous research (Shouse, 1996; Phillips, 1997; Ma & Klinger, 2000, Godard et al., 2000) has examined the effects of academic emphasis and confirmed it as a significant predictor of student achievement. Once again, academic emphasis was confirmed as a significant predictor of student achievement even in highly diverse student populations found in urban fringe schools. The effect of campus level academic emphasis positively influenced academic achievement while controlling for the students' demographics and the social context of the school. The author went a step further to identify the significant social context predictors of academic emphasis. The results of this statistical model suggest there are other variables beyond the environmental social context of the school which contribute

to the level of academic emphasis. This would suggest the academic emphasis found in schools is more influenced by the structure and processes of the schools than by student population and school demographics. Further research should examine how school administrators and teachers can work to implement practices and procedures that enhance academic emphasis in their schools.

As school officials work to improve the climate of their campuses, academic emphasis must be a centerpiece to any plan focused on academic achievement. However, it must be noted that academic emphasis is not tangible but rather the positive and negative social sanctions imposed by the collective group to reinforce prevailing perceptions regarding the importance of academic success. Therefore, the collective group should find ways to positively recognize teachers and students who are meeting the high academic expectations. This type of recognition serves as an outward expression of what is important to the campus.

Many unanswered questions about academic emphasis remain, but what is not in question is the positive association between academic emphasis and student achievement. The normative press associated with academic emphasis has the capacity to unify the collective and articulate the beliefs, values and behaviors of the campus focused on student achievement for each student regardless of student demographics or social context of the campus.

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