EXAMINING RACIAL CONGRUENCE OF STUDENTS AND SCHOOL PERSONNEL TO BETTER UNDERSTAND THE ACHIEVEMENT GAP

A Dissertation

presented to

the Faculty of the Graduate School

at the University of Missouri-Columbia

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

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by

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MAY 2016

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

EXAMINING RACIAL CONGRUENCE OF STUDENTS AND SCHOOL PERSONNEL TO BETTER UNDERSTAND THE ACHIEVEMENT GAP

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a candidate for the degree of doctor of education,

and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

As I finish up my dissertation, I reflect on what brought me to where I am today. All of the following have played an integral role in helping me to reach this point:

Rob Moore, my husband,
thank you for being my very best friend and selflessly supporting my dreams. You encourage me daily and know how to make me laugh when I most need it.

Julie Bates, my mother,
thank you for being the best cheerleader I know and leading me to believe I can do anything. You remind me that work is important, but family is the most valuable.

Brad Bates, my father,
thank you for being my role model and working hard to provide me with opportunities. You are the reason I am an educator and the reason I strive to do my best.

Dee and Roma Bates, my late grandparents,
thank you for always showing interest in my life and encouraging me from an early age to do well in school. You remind me that education is much more than formal schooling.

friends and family members,
thank you for encouraging me and loving me.

Pryor Public Schools,
thank you for the strong foundation and setting high expectations.

Joseph Baldwin Academy,
thank you for helping me to define excellence and be confident in myself.

my colleagues and former students,
thank you for reminding me of the reason why I do what I do.

and finally, to Gracie,
thank you for coming at the perfect time. May you grow to see education as a tool for empowerment and develop into a strong woman. You are loved.

ACKNOWLEDGEMENTS

I would like to formally thank the members of my dissertation committee: Dr. T. C. Wall, Dr. Jason Anderson, and Dr. Jeffrey Cornelius-White. I truly appreciate the time they spent helping me with my dissertation and the feedback they gave me on my ideas. I would also like to acknowledge and express my deep appreciation for my advisor, Dr. Cynthia MacGregor. She has been patient, kind, dedicated, and encouraging to me throughout my dissertation experience. I am thankful for her commitment to this program and her students.

I would also like to acknowledge the members of Cohort 9, especially those learning with me at the Missouri State University site. We managed to learn a lot while laughing a lot. Some of my deepest growth occurred because of conversations with my peers. I would like to especially recognize Donita Cox and Rachal Tarrasch-Sholz. We started day one of this journey by randomly sitting together at orientation. They became my roommates during the summers and two of my closest friends, acting as encouragement for me to be a better practitioner and scholar.

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Examining Racial Congruence of Students and School Personnel to Better Understand the Achievement Gap

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ABSTRACT

This quasi-experimental study examined the relationship between student achievement and racial congruence levels of school personnel and students. This was accomplished through the use of publically available data and quantitative analysis. The data, deriving from 2014-2015, was collected from 158 elementary schools in the Houston Independent School District and consisted of student and personnel demographics, percentage of economically disadvantaged students, and fifth-grade students' State of Texas Assessments of Academic Readiness (STAAR) examination scores in the areas of reading, math, and science of each school. Using the demographics data, the percentage of non-white personnel was compared to the percentage of non-white students, and schools were labeled as highly congruent, moderately congruent, or slightly congruent. While controlling for the percentage of economically disadvantaged students within each school, separate univariate ANCOVAs revealed racial congruence levels were significantly related to student achievement levels in the areas of reading and math but not science. Findings helped to clarify research from previous studies and resulted in recommendations for school leaders and teacher recruitment programs.

Keywords: Race, Student Achievement, Achievement Gap, Racial Congruence

SECTION ONE:

INTRODUCTION TO DISSERTATION

Background of Study

Although the No Child Left Behind Act of 2001 (NCLB) was essentially a reauthorization of the Elementary and Secondary Education Act (ESEA), NCLB did bring about a new focus for American public school districts: accountability. Specifically, NCLB sought to ensure all students within public schools become at least proficient in the areas of reading and mathematics by the year 2014 (No Child Left Behind Act of 2001 [NCLB], 2003). In order to hold schools accountable in these areas, standardized achievement tests have been administered annually. Results of those tests have been made available to the public, with attention given to what percentage of students meets previously-set standard levels of proficiency. As a result of NCLB and the push for accountability, today schools within the United States of America feel more pressure to raise achievement levels and to demonstrate that every student, regardless of background or experience, can score at a specified minimum level of performance on states' standardized tests (Jorgensen, 2002; Wiliam, 2010).

In order to determine how school districts are performing academically, achievement test scores have been used to calculate a school's or district's Adequate Yearly Progress (AYP). AYP requires the disaggregation of data so those analyzing it can assess how subgroups, such as those composed of economically disadvantaged or minority students, are performing and monitor how well schools are working toward developing higher academic achievement levels for all students (Gardiner, Canfield-Davis, & Anderson, 2009). With such a focus being placed on the performance of all groups of students and the call having been to leave *no* child behind, both educators and

policymakers have concentrated more on how to increase student achievement and ensure a high-quality education for every individual student (Ellis, 2007; Jorgensen, 2002).

The examination of AYP data shows hope for school districts. Hall, Wiener, and Carey (2003) noted schools can improve and move away from statuses previously proclaiming them as low-performing. Additionally, schools serving large populations of minority students, who are often economically disadvantaged, are just as capable of reaching high levels of academic achievement as other schools. Still, though, many schools have struggled to progress at desired rates, and despite research suggesting there is no relationship between the quality of educational standards and scores on standardized achievement tests, many states have decided to opt out of NCLB and instead adopt the Common Core State Standards (CCSS), which are considered to be more rigorous and streamlined among states (Loveless, 2014, 2015).

With such pressure and focus, it is unsurprising that large amounts of attention are often placed on underperforming students. The achievement gaps are frequently evident in groups composed of culturally diverse, minority students. Overall, African American and Hispanic students demonstrate lower levels of performance on national standardized tests and have lower high school graduation rates when compared to their Caucasian peers (Austin, 2012; Bali & Alvarez, 2004; Cholewa & West-Olatunji, 2008). Additionally, African American and Hispanic students are habitually underrepresented in advanced courses (Corra, Carter, & Carter, 2011; Noguera, 2008), which negatively impacts the academic performance and college readiness of these groups (An, 2011). For schools where evidence of improved student achievement is mandatory, and in a society

where the expectation is to ensure that all students are college or career ready, these achievement gaps are alarming and require additional attention.

Statement of Problem

In order to better understand ways to eliminate achievement gaps, characteristics of school personnel have been studied to see how they relate to and influence student achievement. While much research has focused on showcasing the importance of characteristics such as a teacher's or administrator's years of experience and credentials in relation to student achievement (Clotfelter, Ladd, & Vigdor, 2010; Kalogrides, Loeb, & Beteille, 2013), lesser amounts of research have focused on how the diversity levels of school personnel, especially in regard to race, relate to the performance of students. This is an especially relevant time to explore the subject, though. Currently, the number of minority students within American public schools is steadily increasing (Bireda & Chait, 2011) and was expected to surpass the number of non-Hispanic white students in 2014 (Maxwell, 2014; National Center for Education Statistics [NCES], 2013); however, fewer people of color are seeking jobs in education, which remains a predominantly white field (Bireda & Chait, 2011; Branch, 2001; Ingersoll & May, 2011).

The research that has been done in order to examine how the race of school personnel affects students is limited and conflicting. Some research suggests students accomplish higher levels of achievement when they are taught by a teacher who is of the same race as them (Dee, 2001, 2004; Zirkel, 2002). However, other research argues against this, claiming students report more positive experiences when paired with a teacher of the same race but do not actually gain any sort of academic benefit measured by achievement test scores (Burt, Ortlieb, & Cheek, 2013). Additionally, the existing

research typically focuses on teachers and usually fails to examine another relative factor on student achievement: the role and impact of an administrator or other school personnel.

Additional research is important in order to help add to the discussion that is taking place within the literature. Further research can also attempt to clarify some of these contradicting, incomplete findings that stem from prior research relating to how racial diversity levels of school personnel relate to student achievement. Overall, additional exploration of this subject may result in new insight regarding how to help alleviate the achievement gap and may generate ideas regarding how to increase achievement levels for all students.

Purpose of the Study

The purpose of the study was twofold. First, the researcher sought to make a scholarly contribution to the field of education by narrowing an existing gap in literature. To do this, the researcher created a tool to measure racial diversity levels of those individuals both studying and working within elementary schools in the Houston Independent School District (HISD). This measurement tool was used to examine levels of racial diversity among students and personnel within schools and to check for congruence of student demographics and personnel demographics in relation to race. The researcher then examined the relationship between racial congruence and student achievement, with student achievement being measured using the State of Texas Assessments of Academic Readiness (STAAR) examination program. This program includes annual assessments in a variety of subject areas, such as reading and mathematics. Students are required to take these standardized tests as end-of-the-year

assessments, with different grade levels being tested over different subject areas. The researcher specifically looked at fifth-graders' scores in mathematics, reading, and science to see if mirrored levels of diversity between students and personnel led to higher levels of student achievement. While examining the relationship between racial congruence levels and student achievement, the percentage of economically disadvantaged students within each school was controlled.

This leads to the second part of the purpose of the study: the practical contribution. While the study was focused on Texas, achievement gaps exist across the United States, making it so the results of the study could be used by school personnel nationwide. The researcher hoped educators working at the elementary level can use the research to better understand the achievement gap and to better serve underperforming students. Additionally, understanding the role of racial congruence in relation to student achievement may serve to help administrators at these elementary levels make decisions regarding the hiring of school personnel. The researcher hypothesized that significant differences in achievement levels, as measured by the STAAR scores, would exist between schools with and without mirrored levels of diversity among students and school personnel, with higher achievement levels existing in schools where the diversity levels of students and personnel are more highly congruent.

Research Questions

The research study was fueled by three overarching research questions:

- (RQ1) What is the relationship between racial congruence of school personnel and fifth-grade students in Houston Independent School District elementary schools and student achievement, as measured by the STAAR reading exam?

- (RQ2) What is the relationship between racial congruence of school personnel and fifth-grade students in Houston Independent School District elementary schools and student achievement, as measured by the STAAR math exam?
- (RQ3) What is the relationship between racial congruence of school personnel and fifth-grade students in Houston Independent School District elementary schools and student achievement, as measured by the STAAR science exam?

Conceptual Framework

A conceptual framework was used to help organize ideas and structure the study. The framework consisted of two main constructs being applied to the study: the law of requisite variety and social cognitive career theory. The first concept was used to help gain an understanding of organizations and how they can function in regard to diversity levels. The second concept focused on what drives students within educational organizations. Finally, racial congruence was also discussed. This is a concept being presented within the dissertation and served as a foundation for research and in linking ideas together.

The Law of Requisite Variety

As organizations become more complex, leaders of organizations must examine ways to best adapt to and thrive among the complexity. Although it originated in the 1950s, Ashby's (1958) law of requisite variety still sheds great insight regarding how complex organizations today can succeed. Ashby (1958) provided the following explanation of the law of requisite variety:

> The law of requisite variety says that regulation cannot be achieved unless the regulator R, as a channel of communication, has more than a certain capacity.

> Thus, if D threatens to introduce a variety of 10 bits into the outcomes, and if survival demands that the outcomes be restricted to 2 bits, then at each action R must provide variety of at least 8 bits. (p. 6)

When applying the law of requisite variety to an organization, this suggests the internal complexity of an organization must mirror the external complexity if the organization wishes to respond to situations rooted in and to survive in a competitive market. To be capable and effective in regulating difficulties and maintaining order, "the variety of a regulator must be equal to or greater than the variety of environmental perturbations" (Morlidge, 2009, p. 235).

According to Azadeh, Darivandi, and Fathi (2012), variety is "the number of possible states of a system" (p. 67). The basic idea is more complex organizations have more variety. Although the term "variety" may not often be used in conjunction with the examination of an organization, the term "diversity" often is (Bartel-Radic & Lesca, 2009). Thus, Goldestein (2011) reiterated the ideas regarding the law of requisite variety by claiming an organization must be diverse if it expects to deal with diverse problems. Diversity, however, is a broad word and can encompass many different characteristics. Because so many characteristics may overlap and interact, it becomes difficult to truly measure diversity; however, while all components of diversity may not be able to be covered within an organization, it is important that there is at least some variety (Ashby, 2011) and that members of the organization can see different representations of diversity throughout the system (Bartel-Radic & Lesca, 2009).

As suggested by the law of requisite variety, having variety within an organization is one way to deal with change, as the variety produces flexibility that can

help organizations respond to changing needs and demands. However, the variety of situations and complexities outside of organizations will constantly grow and transform. They are elusive and unpredictable, causing a high level of variety to exist outside of the organization (Morlidge, 2009); consequently, it is important for the variety of thoughts, research, practices, and theories within the organization to continue to evolve as the organization changes and remains flexible (Kuchinke, 2008). In fact, flexibility seems to be a central component of the LRV. Ojha, White, and Rogers (2013) claimed flexibility within an organization can aid an organization by helping it to match the ever-changing balance of supply and demand. It can also help in yielding greater efficiency within an organization as time spent deciding how to meet changes is decreased through flexibility. Lewis and Stewart (2003) went so far as to suggest organizations have more control of themselves and their situations if they have more variety. While variety existing outside of the organization is uncertain, organizations can regulate themselves and situations that occur if they have at least as much variety internally. In effect, the law of requisite variety can be used to help predict and explain relationships between organizations and external, environmental factors (Ojha et al., 2013). Thus, more variety leads to greater flexibility, which helps organizations to better manage a variety of changing demands.

Social Cognitive Career Theory

While individuals typically are able to assert some level of choice regarding career development, certain factors can heavily influence the choices and restrict them from being completely autonomous in the decision-making process. The social cognitive career theory suggests career development is influenced by environmental variables, such as community influences and expectations, and person variables, such as race or gender.

Together, these variables impact one's self-esteem and self-efficacy, leading to an impact on the decision-making process of an individual (Lent, Brown, & Hackett, 1994). Additionally, personal goals and outcome expectations can be affected by these variables, which also has the potential to influence future career choices (Atadero, Rambo-Hernandez, & Balgopal, 2015). Overall, the variables influence not only one's confidence regarding if he or she can succeed at a given task but also one's beliefs relating to what will happen if a task is simply attempted.

Although the original theory focused mainly on the actual career choices of individuals (Lent et al., 1994), new developments have been made to consider adaptive career behaviors, such as exploring careers or seeking certain jobs. Brown and Lent (2013) explained that the previous focuses have "been more on the destination than on the journey, that is, on where people end up, occupation wise, rather than on how they get there or how they manage new challenges once they arrive" (p. 557). The new model proposed by Brown and Lent (2013) is intended to complement, but not replace, the previous models by exploring how students navigate through high school and what factors promote or deter such adaptive behaviors.

The social cognitive career theory, however, is not limited solely to one's career-related choices or ideas. Logically, occupational status is related to education (Flores & O'Brien, 2002). One can consequently apply the framework to one's education-related choices and ideas, as the variables affecting one's career choice can also affect the learning experiences and academic experiences of an individual (Gonzalez, 2012). For example, an individual's background may provide or limit certain experiences in childhood and adolescence that can be used to develop interests or skills that can

potentially prove to be beneficial later in life and in school. Additionally, proximal variables, such as the degree to which an individual perceives support of endeavors, continue to influence the academic development of a person. If individuals perceive support from others and can see themselves in a position without barriers, this theoretically influences their self-efficacy not only in career-related choices but also in academic achievements (Wright, Perrone-McGovern, Boo, & White, 2014).

Some variables of social cognitive career theory can be controlled and can be used to promote academic achievement. For example, exposing students to certain experiences or ideas can help students to build positive beliefs about themselves and come to expect positive outcomes. This fosters higher goals being set and active engagement in achieving goals among students (Gonzalez, 2012). Self-efficacy can be further developed by exposing students to role models to which they relate, providing encouragement, and revealing opportunities that would not be otherwise considered (Ali & Menke, 2014). Overall, if used strategically, it appears social cognitive career theory can be used to guide academic and career developments of individuals (Flores & O'Brien, 2002).

Racial Congruence

In previous studies, the term "racial congruence" has been used to describe a situation when a student attends a school where a high percentage of peers are of the same race as him or her (Byrd & Chavous, 2011; Georgiades, Boyle, & Fife, 2013). The term "racial congruence" was used throughout this study and served to help frame the topic. For the matters of this study, however, racial congruence was said to exist when a high percentage of both students and personnel of a school aligned as either white or non-

white (see Figure 1). In this study, non-white referred to Hispanic and African American students and school personnel, whereas white referred to all other groups. While the researcher realizes white and non-white are not races in themselves, these two groups are referred to as races throughout the study for the purpose of having a simple construct to refer to and investigate. Thus, the races of school personnel and students were examined and compared; schools were then labeled as slightly congruent, moderately congruent, or highly congruent.

Design of Study

This section provides an introduction to the general design of the setting. The setting is briefly described here, with more detailed information being presented in a later section. Participants and data collection tools are also discussed, along with data analysis measures that were employed.

Setting

Because the researcher used scores from the STAAR exam to measure students' achievement levels, the setting was limited to the state of Texas, and efforts were focused solely in the city of Houston. Additionally, the STAAR exams are administered mainly at the elementary level, so the researcher limited data collection to HISD elementary schools. There are 158 elementary schools in the district (Houston Independent School District [HISD], 2015a), and the researcher used one year of data from each elementary school to complete the study. Specifically, the researcher used data from the 2014-2015 school year because it was the most recent. With such a large sample size, the findings had the potential to show statistical significance (Fink, 2013). The researcher hoped that doing so would provide varying racial congruence levels within schools, where the racial

diversity levels of students and school personnel were more congruent in some schools than others.

Participants

Within each elementary school, the researcher included two groups of participants: students and personnel. To help narrow the research efforts, the researcher focused on the demographics and achievement scores of fifth-grade students in each of the 158 elementary schools. This group of students was chosen because they were required to take three STAAR exams, while other grade levels only required two STAAR exams. Therefore, there was more data to examine. Students were defined as anyone enrolled at the school, and personnel included all faculty and staff members. Thus, in examining school personnel, the researcher accounted for both certified individuals, such as administrators and teachers, and non-certified individuals, such as support staff. The data needed for this study was pre-existing and available online under each school's profile page, so the researcher did not need to directly contact any of the participants or obtain consent.

Data Collection Tools

Data relating to student demographics, the percentage of economically disadvantaged students within each school, and student STAAR examination scores is published annually and is available online through HISD's website. Therefore, the researcher used this pre-existing data to drive part of the study. The other data needed, which was the data relating to the race of school personnel, also already existed. It, too, is provided on HISD's website under the school profiles of each school. The researcher downloaded and compiled the necessary data from all of the chosen elementary schools.

Wurtz (2011) outlined how to keep confidentiality and suggested informing participants of procedures, restricting access of information, and removing individual identifiable information. However, since the data needed was already available to the public online, all identifying information had already been stripped, meaning there was little concern regarding confidentiality. The researcher also estimated that the risks associated with the study would be minimal but knew that it was essential for her to "take reasonable steps to avoid harm to others" (American Educational Research Association [AERA], 2011, p. 147) and to consider how the study may affect individuals and society (Horner & Minifie, 2011).

Data Analysis

Although the researcher could not truly prove or disprove the hypothesis, she could examine the data to see if it supports or refutes the hypothesis (Creswell, 2009). The researcher did this by running a series of one-way ANCOVA tests using the Statistical Package for Social Sciences (SPSS) software and examining if there was any statistical significance, with an alpha level of .05 being used to test significance, (Fink, 2013), regarding racial congruence and student achievement on the STAAR examinations. The one-way ANCOVA tests looked at the percentage of students passing each STAAR examination and compared means from several different groups (Field, 2013), with the percentage of students getting free- or reduced-lunches acting as the covariate. Tests to measure correlation between variables were also conducted. The study specifically included three different groups: (a) slightly congruent, (b) moderately congruent, and (c) highly congruent. These groups were determined using the matrix created by the researcher to categorize levels of racial congruence (see Figure 1). The

percentage of non-white personnel was compared to the percentage of non-white students in order to classify each school into one of the three groups.

		Percentage of Non-White Personnel			
		0-25%	26-50%	51-75%	76%-100%
Percentage of Non-White Students	76-100%	Incongruent	Slightly Congruent	Moderately Congruent	Highly Congruent
	51-75%	Slightly Congruent	Moderately Congruent	Highly Congruent	Moderately Congruent
	26-50%	Moderately Congruent	Highly Congruent	Moderately Congruent	Slightly Congruent
	0-25%	Highly Congruent	Moderately Congruent	Slightly Congruent	Incongruent

Figure 1. Matrix tool used to categorize racial congruence level of each school by comparing percentage of non-white (African American of Hispanic) personnel to percentage of non-white students

Using the measurement tool, the researcher took the percentage of personnel who identified as non-white (African American or Hispanic) and compared this to the percentage of students who identified as non-white in order to find the racial congruence level of each school. Thus, the racial congruence score assigned to each school was based on a ratio of demographics. For example, if 5% of personnel identified as a minority and 5% of students identified as a minority, the school was labeled as highly congruent. However, if 5% of personnel identified as a minority and 95% of students identify as a minority, the school was labeled as incongruent. These levels of congruence were then considered when examining achievement data to see if schools with low racial congruence had low academic achievements levels and if schools with high racial congruence had high academic achievement levels. Of course, the researcher considered

content validity and if the demographic data truly measured racial diversity levels (Creswell, 2009), along with reliability, making sure the data relating to achievement indicators was from the same year as the data relating to diversity levels.

Limitations, Assumptions, and Design Controls

One of the limitations of this study related to the matrix being used to categorize racial congruence (see Figure 1). Because such a study had not been done before, other measurement tools were not available. The researcher was also unable to locate any sort of tool that could be used to measure levels of diversity. This caused the researcher to create her own tool, and this study was the first time the matrix was be used. This means it had not been significantly tested or reviewed. The categories, such as incongruent and highly congruent, are also subjective based on the percentages the researcher assigned to those areas. In the end, no schools met the incongruent requirements, so only three categories were actually tested.

Also, the fact cannot be ignored that Asian students are considered a minority in both the United States of America and HISD. In fact, they are the smallest racial group within HISD. However, these groups of students and personnel were not examined separately in this study. Instead, the study examined four groups: non-white students, white students, non-white personnel, and white personnel. For the purpose of this study, Asian students and personnel were considered white and placed in the respective groups. This, too, was a limitation. Asians within HISD do not demonstrate achievement gaps, though. Because of this, the researcher chose to group them as white students, who do not exhibit such gaps in achievement, and white personnel so that she could instead focus more heavily on the non-white students who do exhibit achievement gaps.

Another limitation involves the way the researcher grouped African Americans and Hispanics. Instead of separating African Americans from Hispanics when examining data, the researcher merged the two groups. More specifically, African American students were grouped with Hispanic students, while African American personnel were grouped with Hispanic personnel. The groups were referred to as the minority, or non-white, groups. While both African Americans and Hispanics are currently minorities within the United States of America, each racial group faces its own set of distinctive challenges and possesses its own unique history. However, these differences were not accounted for within the study because the researcher chose to study the effect of racial congruence between students and school personnel on minority groups as a whole instead of examining the effects on individual races.

Along with being the researcher in charge of this study, the researcher is also a teacher. While the school at which she works is not very racially diverse, it is highly congruent because the majority of school personnel and the majority of students are Caucasian. The school in which the researcher works also has high levels of achievement. The researcher's own personal experiences did influence her assumptions and hypothesis. She had also recently visited HISD, met with the superintendent, and toured several of the schools. This, too, must be accounted for when considering the bias brought to the study by the researcher.

In order to complete the research study, a quantitative approach was chosen, and a quasi-experimental design was employed. As stated by Creswell (2009), a quasi-experimental design is one that is deliberate and non-random. It requires the examination of two variables to test the relationship among variables (Creswell, 2009; Fink, 2013). In

the research study, HISD fifth-grade reading, math, and science STAAR exam scores served as the dependent variable. The researcher limited the data collection to the most recent year of published achievement scores. The researcher measured how the independent variable, which was the racial congruence of students and school personnel in the research study, related to student achievement scores. After gathering the data, a measurement tool the researcher created was used to quantify the racial congruence level of each school. Then, the researcher analyzed the quantifiable data in order to test the hypothesis deductively (Creswell, 2009).

Definitions of Key Terms

One of the terms used continuously throughout this study was the term "achievement gap." In the case of this study, the term achievement gap was used to specifically refer to gaps in achievement levels occurring between minority and majority students on standardized tests. To truly be considered an achievement gap, one group of students outscores another group of students, with the differences in scores being statistically significant (National Center for Educational Statistics [NCES], 2015, p. 270).

The terms minority and majority were also often used throughout this study. The term majority was used to refer to Caucasians, or white non-Hispanic individuals, because they currently make up the majority of the population in the United States of America. Although projections suggested there was no actual majority group of students within American public schools during the 2014-2015 school year (Maxwell, 2014; NCES, 2013), non-Hispanic individuals were still the dominant group, thus retaining the power and privilege associated with this group. In this study, the term minority was used to refer to non-white individuals, specifically African American and/or Hispanic people.

While Hispanic students are actually the majority of HISD, they are still the minority in the country as a whole; thus, for the sake of consistency, they were referred to as minority students throughout this study.

Significance of Study

The current existing literature related to the chosen topic is conflicting and limited. As previously mentioned, some researchers say an educator's race does significantly relate to students' achievement levels, while others say the effect it does have on students does not relate to academic achievement and is instead limited solely to students' perceptions. Additionally, most of the existing research focuses on how teachers may affect student achievement levels. With such a narrow focus, the roles of administrators and school personnel as a whole are left out of the discussion. These pieces, however, may be important in helping to narrow the achievement gaps that exist between majority and minority students and in raising the achievement levels of all students. The researcher hopes that this research study helps further explain these achievement gaps and fills the gaps existing within the current literature.

The researcher also hopes her research can be used to inform administrators about the role that racial congruence between students and school personnel may have in student achievement and that such information can be considered when making decisions regarding the hiring of personnel. While the researcher acknowledges that Title VII of the Civil Rights Act of 1964 prohibits employment discrimination based on race and does not advocate for such discrimination, she does think her research could be used to better inform administrators of the effects relating to the hiring and placing of school personnel. Additionally, the research may influence recruitment movements for teacher or

administrator preparatory programs so that more people of color go into education and widen the applicant pools, helping to stop the decreasing number of minority educators.

Summary

The achievement gap between majority and minority students is alarming; despite a variety of research focusing on the reasons for and ways to eliminate the gap, differences in achievement levels between minority and majority students still exist. Ways in which schools can help to narrow achievement gaps are often discussed. The law of requisite variety and the social cognitive career theory may be used to suggest students may benefit from being in schools where there is racial congruence between students and school personnel. Unfortunately, though, the actual research relating to how the race of school personnel may affect student achievement is limited and inconsistent. Overall, the research focuses too narrowly on the role of teachers and fails to include how all school personnel members may affect student achievement levels.

The researcher focused on this gap in the literature by conducting a quantitative research study that measured racial congruence of students and personnel within HISD elementary schools and examined how it relates to student achievement. The study included 158 elementary schools and examined the racial diversity levels of both personnel and students within these schools. The necessary data relating to personnel demographics, student demographics, and achievement on the STAAR examinations was available on HISD's website. For the purpose of this study, the researcher specifically limited the examination of student achievement to reading, math, and science scores of fifth-graders from the 2014-2015 school year.

The researcher hypothesized that schools with high levels of racial congruence would have higher levels of student achievement. Data was analyzed to test this hypothesis and check if data supported or refuted the hypothesis. The researcher hopes her findings can be used to make both scholarly and practical contributions to the field of education. Hopefully, the research will help to further the discussion on how to narrow achievement gaps between minority and majority students.

SECTION TWO:

PRACTITIONER SETTING FOR THE STUDY

Introduction

This section will discuss the practitioner setting of the study, beginning with a history of the organization. The history begins with a broad focus, examining the state of Texas in general, before narrowing the focus specifically to Houston and then HISD. An organizational and leadership analysis will also be provided before examining implications for research in the practitioner setting.

Racial Overview and History of Organization

While this study focused specifically on the Houston Independent School District (HISD), it is important to first start broad and look at the United States of America in general before examining the state of Texas and then Houston in order to better understand the demographics and achievement levels of HISD students.

The United States of America

According to the U.S. Census Bureau (2015b), when the data for the latest census was collected in 2010, there were over 308 million people living within the country. However, the total number of people was expected to grow by over 3% by 2014. Thus, the estimated population of the United States of America for 2014 was over 318 million. Of those 318 million residents, 62.1% were estimated to identify as Caucasian and non-Hispanic. Additionally, 17.4% were estimated to identify as Hispanic, 13.2% as African American, 5.4% as Asian, 1.2% as American Indian or Alaska Native, and .2% as Pacific Islander.

Of the estimated 318 million people within the United States in 2014, nearly 50 million individuals are students at either public elementary or secondary schools. Of these students during the 2014-2015 school year, slightly less than half, or 49.8%,

identified as Caucasian and non-Hispanic. In terms of other racial groups, 25.8% were labeled as Hispanic, 15.4% as African American, 5.2% as Asian or Pacific Islander, and 1.1% as American Indian or Alaska Native. The remaining students identified as two or more races (NCES, 2013). When examining these numbers, it is clear the number of Caucasian students is not a true majority; however, it is still the largest racial group by far, making it so the group continues to possess the power traditionally held by the dominant group.

The nearly 50 million public school students are housed within roughly 90 thousand traditional public schools and roughly 6,000 public charter schools nationwide. Over three million teachers serve these students, making it so that the average class size in 2013 was 16.01 students (NCES, 2015). While the classes of students may be growing more racially diverse, the teaching workforce within American public schools is not. In fact, Bireda and Chait (2011) reported less than 15% of teachers in the United States identified as either African American or Hispanic in 2011, and that percentage was expected to continue decreasing in the following years. Camera (2015) reported the number of African American teachers decreased between 2002 and 2012 in nine major cities within the United States; decreases were as small as 15% in New York City and as large as 62% in New Orleans. In relation to this, minority teachers leave the workforce at higher rates than Caucasian teachers (Achinstein, Ogawa, & Sexton, 2010), making it so the racial makeup of students and educators within the United States of America is growing increasingly incongruent.

The State of Texas

In terms of population, Texas is the second largest state in the United States, housing over 27 million residents within its borders. Of those 27 million, there is much racial diversity. In fact, roughly 11 million residents are Caucasian, and 11 million other residents are Hispanic. African American residents total over 3 million, with the remaining residents identifying as Asian or other (Texas Department of State Health Services, 2015). In a report published by the Office of the State Demographer, Potter and Hoque (2014) projected all racial/ethnic groups will continue to grow during this decade, and it is believed that the Hispanic population will officially surpass the Caucasian population in the state of Texas in the year 2020. Texas, however, is not alone in this population projection. It is predicted that the population of the United States as a whole will be a "majority-minority" in a few decades, meaning "the majority of all Americans will trace their ancestry to somewhere else on this planet than to Europe" (Klineberg, Wu, & Douds, 2013, p. 9). Since Texas will reach this majority-minority state before the nation as a whole, Texas could very well set an example for the rest of the nation as to how to navigate such changes.

This notion of the majority-minority is already evident within Texas public schools. There are over 5 million children who are students within public schools in Texas. Of these students, 51% are Hispanic, 30% are Caucasian, 12.7% are African American, and 3.6% are Asian. Over 60% of students are labeled as economically disadvantaged (Texas Education Agency, 2015). While high school students take End-of-Course (EOC) exams in certain subjects, students in grades three through eight are required to take the State of Texas Assessments of Academic Readiness (STAAR)

examinations. The exams are intended to measure students' achievement levels in reading, mathematics, writing, science, and social studies. A passing score is required on some of the tests in order for students to advance to the next grade level the following school year (Libardi &McGaughy, 2015).

Unfortunately, Texas is not immune to the achievement gaps that exist among students nationwide. Since the STAAR examinations were first implemented in 2012, achievement gaps have been evident between different racial groups, with Hispanic and African American students scoring lower than Caucasian students (Weiss & Lathrop, 2014). For example, 94% of Caucasian students passed the fifth-grade reading test during the 2013-2014 school year, whereas only 83% of Hispanic students and 80% of African American students passed (Texas Education Agency, 2015). This is especially concerning when considering the achievement gaps have not improved since the STAAR exams were implemented (Weiss & Lathrop, 2014) and the tests will become more difficult during the 2015-2016 school year (Libardi & McGaughy, 2015).

The City of Houston

As the largest city in Texas, Houston has experienced tremendous growth in the past two decades (Emerson, Bratter, Howell, Jeanty, & Cline, 2012); however, when studying the Houston metropolitan area, it is important to look back even further in history because prior events still impact Houston today. Overall, growth is not a new concept to Houston. Since the mid-twentieth century, Houston's population has been steadily increasing by 20% every ten years (Perrottet, 2013), with the population of the city officially surpassing a total of one million people in the 1970s (U.S. Census Bureau, 2015a). The growth during the mid-twentieth century was fueled by white American

people of non-Hispanic descent, many of whom moved to the area because they were confident they could secure middle-class jobs in the oil industry with only a high school diploma (Klineberg et al., 2013). The prosperity found in the oil industry and the Caucasian dominance of the city lasted until the 1980s, when the oil industry began to struggle, resulting in over 100,000 lost jobs and a serious recession (Perrottet, 2013).

Many of the changes that can be observed within Houston have roots that can be traced back to the recession of the 1980s. While the majority of the population was still Caucasian in the 1990s, the Caucasian population began to decrease during this time period after the oil industry within Houston lost its strong promise of opportunity (Emerson et al., 2012), and only 33% of residents in Houston today identify as Caucasian (Klineberg et al., 2013). The decline in the Caucasian population of the city, however, did not halt the overall population growth. Instead, Houston saw rapid increases in its population, going from 1,631,766 people within the city in 1990 to over two million people in 2010 (U.S. Census Bureau, 2015a). Part of this growth can be attributed to Hurricane Katrina, which brought nearly a quarter of a million evacuees into the city in 2005, with approximately 100,000 of those people staying and taking up permanent residence in Houston (Turner, 2015). In total, over one million people moved to Houston and its surrounding areas between the years of 2000 and 2010 alone, which was more growth than any other metropolitan area in the United States experienced during that time period (Emerson et al., 2012) and has resulted in over six million inhabitants within the Greater Houston Metropolitan Area during the 2010s (Perrottet, 2013). In terms of population, this makes Houston the fourth largest city in the United States (City of Houston, 2015).

As one would expect to happen with such enormous growth, the demographic composition of the Houston area population has changed over the past few decades and is continuing to evolve today. Gone are the days of the early 1970s, where the majority of Houston citizens were Caucasian, middle-class citizens. Instead, such recent growth can largely be attributed to the rising Hispanic population within the Houston area. While only 20% of the population was Hispanic in the 1990s (Emerson et al., 2012), over 40% of the population in the Houston area identifies as Hispanic today (Klineberg et al., 2013). Although much smaller, the Asian population has also grown, going from 4.1% of the population in 1990 to 7.7% in 2010; the African American population has remained fairly consistent over the past few decades at roughly 20% (Klineberg et al., 2013). These percentages reveal that Houston is not only racially diverse but also that there is no true racial majority group in the city.

It is important to note that Houston, in terms of a population, is a fairly young city. In fact, Houston has one of the youngest populations in the United States (City of Houston, 2015). Much of the racial diversity lies within these younger generations. More than half of Houston residents under the age of 20 are Hispanic, while nearly a quarter of residents under 20 are African American (Klineberg et al., 2013). These ages are important to consider, as these are the individuals who are students within the local school system.

Houston Independent School District

Just as Houston is one of the largest cities in the United States, Houston's school district is the largest in the state of Texas, with over 215,000 students enrolled in a total of 283 schools during the 2014-2015 school year (HISD, 2015a). When compared to

other schools in the nation, HISD is the seventh-largest school district (Klineberg et al., 2015). The demographics of HISD students reflect the demographics of the younger population of Houston, not the population overall. For example, over 60% of students in HISD are Hispanic, nearly 25% are African American, fewer than 10% are Caucasian, and less than 5% are Asian or classified as other (HISD, 2015a). The number of Caucasian students within HISD reached an all-time low in 2010, with only 7.6% of students being Caucasian; however, these numbers are slowing rising, and 8.2% of enrolled students in the 2014-2015 school year were Caucasian (Radcliffe, 2014).

As the racial demographics of HISD students have changed, the socioeconomic statuses of students have also changed, with more HISD students today being labeled as economically disadvantaged than ever before. In fact, over 75% of enrolled students within HISD qualify for free- or reduced-lunches, which is higher than the state average, and over 90% of enrolled students are part of the Title I program (HISD, 2015a). This is unsurprising, considering Hispanic and African American students "are by far the most likely to be living in poverty and to have been the least well served historically by the region's educational and social service institutions" (Klinerberg et al., 2015, p. 8). And while it is not surprising, it is important to note, as these are the groups who traditionally have lower levels of student achievement and experience gaps in achievement when compared to their Caucasian counterparts.

Unfortunately, achievement gaps do exist among the students of HISD, although the general community seems to value education. For elementary and middle school students, academic achievement is measured using the STAAR examinations. Out of all the STAAR tests given to HISD students, fewer than 75% of students passed, which is

lower than the state average (HISD, 2015a). High school students take STAAR End-of-Course (EOC) exams. The percentage of HISD students passing the STAAR EOC was also below the state's average passing rates (HISD, 2015a). While these scores are disappointing, a survey conducted by Klineberg et al. (2013) revealed parents of HISD students want more for their children and view education as a key to success. In fact, 92% of parents surveyed said they hope their children will at least obtain college degrees, and 85% of respondents agreed the economy would benefit from more educated young people.

The district is one of the largest employers of the area, and local stakeholders favorably rate the district in general. Over 29,000 people work to serve the students of HISD, and 11,645 of those employees were teachers in 2014-2015. The teachers receive more than eight hours of professional development for each of the ten months they are contracted to work (HISD, 2015a). When asked to rate the schools their children attended, 74% of parents gave the schools either an A or a B, which is higher than Americans in general give schools. Still, though, parents noted they were aware of the achievement gaps existing within HISD. When asked how important it is to close the achievement gaps, 74% of African American respondents, 67% of Hispanic respondents, 58% of Caucasian respondents, and 51% of Asian respondents said it was very or somewhat important (Klineberg et al., 2013). HISD appears to be effectively working toward closing such gaps, with 98 schools in the district receiving recognition of being in the top 25% of schools in Texas working to close achievement gaps (HISD, 2015a).

Organizational Analysis

Since HISD is so large, the organizational structure is complex. Leaders have been added throughout many levels in order to help carry out operations and provide direct supervision. In order to help better analyze and understand structures of large organizations, Mintzberg (1979/2005) described five basic parts that can be identified within organizations. First, there is the strategic apex, which is the place where the top managers of an organization control decisions. Opposite of this, or at the very bottom, are members of the operating core, which is made up of those individuals who carry out the tasks at the bottom. In between, the middle line connects these two groups, while the technostructure and the support staff serve in the outer realms and help support organizational functions. When examining the organizational structure of HISD, these basic parts can be seen and used to better understand the design of HISD.

The Board of Education is at the top of HISD, and these individuals work closely as a team and with the superintendent of HISD. Together, the Board of Education and superintendent form the strategic apex of the organization. According to Mintzberg (1979/2005), there are three duties of the strategic apex. First, those individuals in the strategic apex must supervise. Second, they must manage the relationships the organization has with the external environment. And finally, they must develop strategy. In carrying out all of these duties, the strategic apex works to uphold the mission. The school board and superintendent of HISD carry out all of these duties. According to Houston Independent School District (HISD, 2015b), the Board of Education oversees the superintendent, and the superintendent supervises chief officers of the district. The board and superintendent communicate with the community, or the external environment,

through school board meetings and committees, such as the Superintendent's Public Engagement Committee. And finally, they develop plans for the school district as a whole that are used to help the district grow, develop, and move forward in alignment with the overarching mission. While this is certainly representative of Bolman and Deal's (2008) structural frame that highlights the hierarchy often existing within an organization, there is also evidence of the human resource frame, as the strategic apex must consider the needs of the stakeholders in relation to the needs of the district when making decisions and conducting business.

Because HISD is so large, the superintendent and Board of Education cannot be expected to supervise all people. Instead, supervisors within the middle line help to provide more direct supervision and closer contact with the operating core (Mintzberg, 1979/2005). However, even within HISD's middle line, there is a chain of authority. First, there are the chief officers. There are fourteen chief officers total, and they are each assigned a specific area. For example, there is a chief financial officer and a chief technology information officer. There are also chief school officers. During the 2015-2016 school year, the district is undergoing structural reorganization; whereas five chief school officers (three at elementary level, one at middle school level, and one at high school level) reported directly to another chief officer before, there will now be six chief school officers (two at elementary level, two at secondary level, and two "transformational" chief officers in charge of struggling schools) who will report directly to the superintendent (HISD, 2015b). While Bolman and Deal (2008) noted that restructuring is difficult, they also pointed out that it is necessary when environments shift, organizations grow, and leadership develops. In the case of HISD, the restructuring

will help the district accommodate the growing needs of the district. Additionally, the chief officers provide leadership to school improvement officers and principals, all of whom also function lower in the chain of the middle line.

Mintzerg (1979/2005) noted "the operating core is the heart of every organization, the part that produces the essential outputs that keep it alive" (p. 223). In the case of HISD, teachers make up the operating core. Although they may be at the bottom of the structure, they are extremely important because they help to transform and meet the needs of students. Plus, as Bolman and Deal (2008) pointed out, people and organizations need each other; just as people need jobs, organizations need talent to complete goals. HISD needs its teachers to meet its goals and serve its students.

These three parts cannot stand and drive a school district alone, though. The technostructure and the support staff are also important. The technostructure is full of analysts who help make workers and strategies more effective, while the support staff provides work that facilitates other work and needs of the organization (Mintzberg, 1979/2005). Computer technicians and educational coaches are examples of technostructure in HISD. Bus drivers, food works, and custodians are examples of support staff within the district. All people in these positions have a purpose and help carry out the goals of the district in some manner.

Leadership Analysis

According to HISD (2015c), the leaders of HISD are united by a common goal: working to serve students. This statement, along with an examination of actions taken by HISD leaders, suggests the leadership team within the district practices servant leadership. Servant leadership was first introduced by Greenleaf (1970), who proposed

that when servants arise as leaders and focus on the well-being of their followers, their leadership abilities will emerge. Thus, a focus of servant leaders is the benefit and growth of others. Many of the leaders within HISD have shown an interest in growing followers.

In describing servant leadership, Northouse (2013) listed ten characteristics often possessed by servant leaders. The first characteristic described was listening; when listening, servant leaders specifically seek input and ideas of others. While many leaders may make it a point to listen, servant leaders specifically listen with the intent to understand the will of others (Spears & Lawrence, 2002). Although the district is large, the leaders still make listening with the intent of understanding a priority. In order to better listen, they have created several advisory committees at many different levels and in many different areas throughout the district. These committees are formed by employees, community members, parents, and even students; they are also formed with the intention of gathering feedback and listening to voices, ideas, and wills of various stakeholders (HISD, 2015b). In fact, HISD (2015c) stated the purpose of collecting data from committees such as these was to benefit teachers, students, and parents. Indeed, the listening efforts by district leaders appear to benefit stakeholders. For example, stakeholders making up the District Advisory Committee raised concerns regarding HISD graduation and dropout rates, especially relating to the disproportionate number of minority students dropping out or not graduating on time. In response to these concerns, district leaders developed several plans of action, including the promotion of a social responsibility program and collaboration with community partners within the area of college and career readiness.

A further examination of leadership practices also shows other characteristics of servant leadership within HISD. For example, Northouse (2013) highlighted how servant leaders have a commitment to people and a commitment to building community. Being committed to people means focusing on the growth of all individuals involved with an organization, while building community means focusing less on large institutions and more on smaller groups of community, even if at first there are only a few servant leaders in tune with the development of community (Spears & Lawrence, 2002). In relation to this aspect of servant leadership, HISD (2015c) develops their leadership practices, in part, with the intent of purposeful community that considers how to set and achieve goals that matter to all stakeholders of a community. The advisory committees within HISD are examples of this, as they focus on helping unique groups of followers and creating a sense of unity among a sprawling district.

The Hispanic Advisory Committee is one such committee that clearly embodies these traits. The leaders of this committee use the committee as a tool to reach out to the Hispanic community and provide them with support relating to issues specifically impacting the Hispanic population (HISD, 2015b). For example, concerns suggesting parents of minority students lacked awareness and understanding of opportunities for both themselves and their students were voiced at a committee meeting. Later, plans for a Family Learning Community were introduced; the goals of the Family Learning Community focus on empowering parents, creating meaningful family-school-community engagement, and providing resources (HISD, 2015b). All of these elements can be traced to servant leadership.

Evidence of servant leadership is not limited to the committees existing within HISD, though. There is more evidence of commitment to the growth of people and building community when looking at the HISD's district improvement plan. Some of the goals focus on increasing achievement of all students, providing safe environments for stakeholders, supporting the human capital of the district, and creating a welcoming culture (HISD, 2015d). While these goals are not being carried out by advisory committees within HISD alone, they do partially derive from conversations and discussions held at the advisory meetings (HISD, 2015b). All of this shows evidence of leading by serving and specifically listening, building community, and growing people.

Of course, one cannot leave out the actions of the superintendent and school board when analyzing leadership practices of the district. Actions taken recently by the superintendent and the Board of Education, such as the expansion of dual language programs within schools and the initiative to put laptops into the hands of high school students, show that they, too, possess servant leadership qualities. These examples particularly highlight conceptualization and foresight (Northouse, 2013), where leaders considered broader-based goals along with past, present, and future consequences of actions (Spears & Lawrence, 2002). When discussing the analysis of servant leaders, Sendjaya and Sarros (2002) explained there are two components of servant leadership that must be examined: "who the leader is and what the leader does" (p. 59). In the case of HISD leaders, it appears they have an altruistic mentality reinforced by the idea that because they lead, they serve.

Implications for Research in the Practitioner Setting

Because the existing achievement gaps affect so many students in so many areas throughout the country, the implications for research are quite vast. On the most obvious level, HISD could benefit from learning the results of this study. The first goal of HISD's 2015-2016 District Improvement Plan is to increase student achievement; more specifically, "HISD student performance will demonstrate gains as evidenced by scores on state and national tests, thus narrowing the achievement gap" (HISD, 2015d, p. 6). Results of this study could help HISD to achieve this goal, as the study specifically focuses on increasing student achievement while narrowing the achievement gap.

In order to share the findings with HISD, school leaders could be contacted. While all school leaders within the district may find value in the findings, the chief officers of transformation schools may find it particularly useful because they are tasked specifically with helping struggling schools to narrow the achievement gaps. Additionally, findings could be disseminated to the various advisory committees, especially those focusing on helping subgroups of students, such as Hispanic or African American students, achieve higher levels of academic success (HISD, 2015b).

Because achievement gaps exist outside of HISD (Austin, 2012; Bali & Alvarez, 2004; Cholewa & West-Olatunji, 2008) and there is a national call to increase student achievement for all students (Ellis, 2007; NCLB, 2003; Wiliam, 2010), communicating findings should not be limited to HISD itself. Instead, any school leader working with elementary schools, especially those leading school districts where there are high levels of racial diversity, could benefit from learning and reviewing the findings. Publications

that are distributed to school leaders, such as *Principal*, could be used as a tool to contact a large portion of elementary school leaders around the country.

While the implications of the study are certainly applicable to leaders at the PK-12 level, the implications are not limited solely to those working at this level. Instead, results should also be shared with institutions of higher education, specifically higher education recruitment programs. Although the number of minority students is increasing, the number of minority teachers is not (Bireda & Chait, 2011). However, the number of minority teachers cannot increase if the number of diverse applicants does not increase. A way to increase diverse applicants is to widen the applicant pool by recruiting more minority individuals into teacher preparatory programs at institutions of higher education. The findings from this study could help to encourage recruitment efforts.

SECTION THREE:

SCHOLARLY REVIEW

Introduction

The achievement gap between minority and majority students in the United States of America's education system is not a new dilemma. Overall, minority students demonstrate lower levels of success pertaining to academic achievement when compared to their Caucasian peers (An, 2011; Austin, 2012; Bali & Alvarez, 2004). The existence of the achievement gap has been documented for centuries, and much research has focused on attempting to explain the reasoning behind the achievement gap and attempting to pinpoint ways to narrow the gap itself. In this scholarly review, the researcher expanded on this problem. Additionally, the researcher presented current literature and provided a synthesis and critique of the research that currently exists regarding this vast, complicated issue.

Review of Current Literature

The researcher chose to separate the review of current literature into four subtopics: (a) the achievement gap, (b) the responsibility of schools in relation to the achievement gap, (c) the effect of racial congruence between school personnel and students on student achievement, and (d) problems relating to the hiring, inducting, and retaining of minority teachers. Within each subtopic, literature related to the problem of practice was provided. By making inferences and drawing conclusions, the researcher provided a synthesis of each subtopic of literature.

The Achievement Gap

Disparities between white and minority citizens can be found continuously throughout the history of the United States, and schools are not immune to such disparities between majority and minority groups. Despite the landmark ruling of *Brown*

vs. Board of Education of Topeka in 1954, which acted as a catalyst in attempting to establish equal opportunities for all students, achievement gaps exist between white and minority students within schools (Carroll, Fulton, Abercrombie, & Yoon, 2004). The gaps occur "when one group of students outperforms another group, and the difference in average scores for the two groups is statistically significant" (NCES, 2015, p. 270), and the reasons why these gaps occur are important to research. While these concerns are not new topics in the realm of educational research, they are still particularly relevant and appropriate, as present research is conflicting and offers no clear answer as to why achievement gaps occur and how achievement gaps can be alleviated.

Throughout the past few decades, the achievement gaps have been persistent but flexible, with the gaps never ceasing to exist but sometimes changing in size. Barton and Coley (2010) explained the narrowing of the achievement gap during the 1970s and 1980s may be attributed to an increase in family income and parents' educational levels, but the researchers were unable to directly identify causes for why the narrowing of the gap stopped in the 1990s. Despite no reduction of the gap during the 1990s, achievement levels did not halt. Instead, all student groups have actually shown improvement in academic achievement, especially in the areas of math and science, since the 1990s; however, the gaps between groups remain consistent even today (Braun, Chapman, & Vezzu, 2010; National Center for Educational Statistics [NCES], 2010).

Although the overall achievements levels of students may be higher now than in past years, the gaps are still large and concerning. After examining data from the National Assessment of Educational Progress (NAEP) report card, Cowan Pitre (2014) reported 46% of fourth-grade Caucasian students demonstrated proficiency in the area of

reading in 2013, whereas only 18% of African American fourth-grade students did so. Other grade levels also measured reading abilities, and such gaps were similar at these levels. The most alarming data, however, may relate to the percentage of majority and minority students being labeled as "below basic" in reading. While greater numbers of Caucasian students are labeled as proficient in reading, greater numbers of African American students are labeled as below basic. In fact, 51% of African American fourth-graders fell into this category in 2011, while only 22% of Caucasian fourth-graders received this label. This highlights the fact that, while gains in student achievement are certainly something to celebrate and focus on continuing, a focus still needs to remain on bringing all groups to the same mark and effectively ending the persistent achievement gap.

How to accomplish a reduction in the achievement gap is difficult to plan, though, because the issue of the achievement gap is immense and complex. Within almost every measurable variable relating to student achievement in public education, such gaps between majority and minority students can unfortunately be observed (NCES, 2010; Williams, 2011). For example, minority students are habitually underrepresented in advanced courses (Corra, et al., 2011; Noguera, 2008) and show lesser amounts of college readiness when compared to their Caucasian peers (An, 2011). Additionally, minority students graduate high school at lower rates (Austin, 2012; Bali & Alvarez, 2004; Cholewa & West-Olatunji, 2008). This can be observed more specifically by reviewing graduation rates from the 2011-2012 school year. While 85% of white students graduated in 2012, only 76% of Hispanic and 68% of black students graduated

from high school (NCES, 2015), which again highlights how the achievement gaps are vast and include multiple facets of student achievement.

However, after reviewing achievement gaps that occur during the high school years, it is especially important to note that achievement gaps do not suddenly begin when students enter high school and prepare for post-secondary life. Instead, achievement gaps start early and generally stay with children as they age (Williams, 2011). Prior studies have revealed such gaps actually exist before students even enter school (Doggett & Wat, 2010; Huang & Invernizz, 2012). Chapin (2006) conducted such a study with a longitudinal sample of more than 20,000 kindergarten and first-grade students. On average, African American children had scores one standard deviation lower than Caucasian children both at the beginning of kindergarten and at the end of first grade on a General Knowledge Test regarding social studies and science. While the amount of instructional time each student received regarding these subjects may have varied and affected results, one important conclusion must be noted: achievement gaps exist before mandatory schooling even begins.

To better understand the cause of achievement gaps existing before mandatory schooling begins, McCoach, O'Connell, Reis, and Levitt (2006) collected longitudinal data of students at different periods of their kindergarten and first-grade school years. They found socioeconomic status, mother's age at first birth, and race influenced students' initial skills upon entering kindergarten and continued to influence students' achievement levels throughout these two grades. The researchers also reported the achievement gap widened during summer months when instruction was not given.

With evidence showing that achievement gaps develop before students enter school, many have sought answers regarding what causes such varied developments among groups. Although there is no definitive answer, achievement gaps have been linked to differences in social and cultural capital among groups (Montes, 2012; Williams, 2011). Miller, Votruba-Drzal, and Setodji (2013) used longitudinal data from a national study to examine the relationship between early academic achievement and poverty in rural versus urban settings. While poverty related to a decrease in early achievement in both settings, the association between income and achievement weakened in larger cities, possibly because of more available resources for families of young children.

In order to better understand the achievement gap, Jeynes (2015) conducted a series of meta-analyses designed to determine which factors best help in reducing the achievement gap between majority and minority students. By analyzing 30 previous studies, the researcher specifically sought to examine if the best methods for relieving the achievement gap stem from psychological, sociological, family-based, faith-based, or educational realms. The research revealed "those factors that were related to a reduction in the achievement gap were family factors, curriculum, religious faith, and religiously oriented schools" (Jeynes, 2015, p. 3). However, the effect size for the overall effectiveness of programs designed to reduce the achievement gap was .11, with $p > .05$, indicating the effect size was not statistically significant. Additionally, cultural factors, classroom structure, and government policy did not help to decrease the achievement gap. In fact, government policy was found to negatively impact the quest to reduce the achievement gap, although the results were not statistically significant.

In another meta-analysis focused on synthesizing findings from 25 quantitative research studies pertaining to the relationship between parental involvement and academic achievement levels of students, Fan and Chen (2001) reported parents' investment in the development of and expectations for their children strongly correlated to the academic success or failure of their children. Interestingly, though, this correlation was stronger when examining academic achievement in broad terms, such as grade point average, than in more subject-specific terms, such as the grade of a certain class. This research is supported by the work of Dearing, Kreider, Simkins, and Weiss (2006), who examined longitudinal data of 281 ethically-diverse, low-income households and found literacy increases and the achievement gap decreases with high family involvement. The researchers even suggested schools should focus on creating more opportunities for family involvement within the school setting. Overall, it appears schools and society must work together to consider and mold factors that can help alleviate gaps in achievement.

There is one clear conclusion that can be made regarding the achievement gap: there is not a single, discernable cause of the gap. This is frustrating but also concerning. For example, if the leading cause was to be identified, it may not be something that can be altered or improved by a school system alone. Certainly, to change variables such as social or cultural capital, large-scale social reform must take place, of which a school system alone cannot and is not qualified to do. However, while schools themselves cannot completely abate the situation, research has focused on steps they can take to alleviate gaps that affect their students.

The Responsibility of Schools in Relation to the Achievement Gap

Undoubtedly, external variables can affect a student's academic achievement levels. However, while external factors certainly have an impact on the achievement of students, the responsibility to narrow the achievement gap cannot solely be placed upon students, their life situations, or their families. The responsibility of schools must also be considered. In relation to this idea, Ladson-Billings (2006) rephrased the achievement gap by referring to it as an "education debt," meaning American schools have let a debt accumulate over time that is driven by the historical lack of services provided to minority students. This researcher called attention to the schools, suggesting they have not fulfilled a promise to close the achievement gaps and effectively educate all students. Cowan Pitre (2014) also emphasized this idea by describing the achievement gap as an opportunity gap, where minority students are being denied access to educational opportunities that help drive success both inside and outside of the classroom.

In order to successfully eradicate the achievement gap, Allen (2008) said stakeholders and school reformers must critically examine the history of public education in the United States of America and use the knowledge to influence practices and policies within current American public schools. For example, the researcher called attention to how slavery, segregation, the Jim Crow era, social and economic disenfranchisement, and racism have had residual effects on minority students within educational settings. According to the researcher, such effects have helped to maintain and grow the achievement gap, and now schools must respond with instructional practices and curriculum that are centered on helping to relieve some of these residual effects.

Certainly, variables within a school can also influence a student's learning. Prior research done by Oates (2009) focused on testing five different hypotheses relating to how differences in social capital, cultural capital, quality of schools, race-contingent treatment of students, and academic engagement affected the achievement gap between African American and Caucasian students. Although the data analyzed was from the early 1990s and could now be outdated, the results indicated "what students 'bring to' high school (i.e., specific levels of academic engagement, cultural and social capital) appear less consequential to the racial gap than those more focused on what 'happens to' them when they get there (i.e., the quality of education provided, and race-contingent treatment they receive)" (p. 436). Thus, while some factors that affect the achievement gap are outside of the school's control, there are other prominent factors that the school does have power to influence and should consider in strategic planning.

Realistically, schools have no choice but to work to narrow the achievement gaps and create more equitable opportunities for success. Since the No Child Left Behind Act (NCLB) of 2001 began to place more pressure on schools to be held accountable for every student's academic progress (NCLB, 2003), achievement test scores have been used to calculate Adequate Yearly Progress (AYP) of individual schools and entire districts. By disaggregating the data used for AYP, the progress of subgroups, such as minority students, can be checked for accomplishments and areas of concern (Gardiner et al., 2009). After analyzing AYP data, Hall, Wiener, and Carey (2003) found schools previously designated as low-performing can improve; additionally, schools serving large populations of minority students are just as capable of reaching high levels of academic achievement as other schools. Their findings bring hope to a complex issue.

Standards have become a key focus of schools attempting to raise student achievement and close achievement gaps (Wright & Harris, 2010). To streamline standards and create more rigor, a majority of states have opted out of No Child Left Behind by instead adopting the Common Core State Standards (CCSS). However, researchers have not found a relationship between the quality of educational standards and scores on achievement scores (Loveless, 2014, 2015). This suggests the standards can only do so much and may be utilized as a first step but not a solution in raising student achievement and narrowing achievement gaps.

Effect of Racial Congruence of School Personnel and Students on Academic Achievement

Although much focus is often placed on how teachers can help to reduce achievement gaps among students, it is not unreasonable to first look at administrators who serve as the leaders of school districts and work to build visions and goals within schools. In fact, previous studies have suggested administrators can help diminish achievement gaps by acknowledging gaps, promoting tangible and possible plans for narrowing gaps, and working toward goals focused on raising student achievement and diminishing gaps (Noguera, 2008; Templeton, 2011). In a qualitative study, Wright and Harris (2010) purposefully selected eight superintendents who had successfully worked to narrow achievement gaps within their school districts. Through a series of interviews, a common theme emerged: all of the chosen superintendents valued cultural proficiency and were committed to developing school cultures that value such diversity. Many of the superintendents shared common thoughts relating to understanding and planning for changing demographics, providing professional development opportunities relating to

culturally proficient teaching, and the importance of reflective hiring practices and a sound vision.

In discussing further ways to close the achievement gap, Austin (2012) went as far to suggest that schools need to recruit minority teachers and minority administrators because such individuals possess tacit knowledge that can be used to better understand minority students and the struggles they face. Bireda and Chait (2011) echoed similar thoughts by calling attention to the decreasing number of minority educators, despite the increasing number of minority students, and the need to reverse the decrease. However, while these researchers cited the recruitment of more minority educators as a way to narrow the achievement gap and raise student achievement, they failed to present research-based reasons as to why this may help to change the current situation. Instead, they only provided generalizations that were not supported with sound research.

Research does support the hiring of more ethnically-diverse individuals within American public schools, though. For example, Pitts (2007) tested data from all Texas public schools from the years 1995 to 2005, using manager and teacher representation as the main independent variable with seven dependent variables, such as student dropout and college-bound rates. While manager representation did not lead to higher levels of performance, teacher representation did so in statistically significant ways, as measured using scores from the state's standardized tests. The researcher also found minority students do better on standardized tests when there are more minority teachers within a school. In relation to this, Villegas and Irvine (2010), reverberated similar calls to increase the number of minority educators and also presented research as to why it is important for more minority individuals to become educators. Their research suggested

minority educators serve as role models and help increase educational outcomes for all students; additionally, they also help to fill the teacher shortage existing within American public school systems.

Research conducted by Klopfenstein (2005) helped to support the idea that minority educators serve as role models for students. While minority students are often underrepresented in upper-level mathematics classes, the researcher found minority students enrolled in such classes at higher rates when the number of minority mathematics teachers increased. This suggests educators can serve as role models for students, and they can use their roles to influence students' expectations for themselves and for their schooling, which in turn may influence levels of student achievement.

While other research does not so boldly call for more minority educators in order to decrease the achievement gap, it does present reasons that help to justify the call. For example, a statistical analysis performed by Montes (2012) showed evidence of the same-race effect, where students experienced a moderate-sized boost in academic performance when paired with a teacher of the same race as them. Research done by Zirkel (2002) could help to explain this change in academic performance. From conducting a longitudinal study of 80 adolescents, the researcher found students performed better academically and possessed more achievement-related goals when they had role models who were of the same race and of the same gender as them.

The idea relating to the benefit of having same-gendered teachers is not new; some prior research has found student achievement levels, as measured on achievement tests, increase when students are placed with teachers of the same gender as them (Dee, 2006, 2007; Paredes, 2014). However, little research exists relating to if or how students

benefit by having teachers of the same race as them. What does exist is limited and conflicts with the aforementioned studies conducted by Montes (2012) and Zirkel (2002). For example, in a mixed methods study, Burt, Ortlieb, and Cheek (2013) measured fourth-grade students' perceptions and feelings regarding reading and their teachers. Additionally, data from the state performance test was collected and analyzed. Unlike the research studies suggesting students matched with teachers of the same gender as them perform better on tests, this study revealed there were no significant differences in relation to student achievements levels in the area of reading when fourth-grade students were paired with a teacher of the same race as them. However, the study did reveal something important about students' perceptions: African American students felt they received more praise and less embarrassment from teachers who were of the same race as them. While the sample size for this study was small, there is justification for further consideration and possible exploration of the subject, as such feelings and perceptions of teachers could potentially impact students' self-efficacy levels, which would in turn impact the students' performances in school.

In relation to this, research conducted by Atkins, Fertig, and Wilkins (2014) examined minority students' self-efficacy levels, hypothesizing students do in fact feel more connected to and more interested in their schools and their future educational careers when there is a larger presence of minority educators within the school. To test this hypothesis, they conducted a mixed methods research study. First, they interviewed a variety of both minority and majority teachers to find out how teachers serve as role models for their students. They found teachers often shared their own educational experiences with students, which can help inspire students in their own endeavors.

Second, the researchers used data from the National Longitudinal Study of Adolescent Health to determine if students are more likely to expect themselves to graduate college and to feel more connected to their schools when higher percentages of minority personnel exist within the schools. The researchers found that increasing the presence of minority teachers helped minority students increase both educational expectations for themselves and their connections to their school environments.

The results of the study conducted by Atkins et al. (2014) and Burt et al. (2013) also lend themselves to other areas of research on the topic. For example, Ouazad (2008) used longitudinal data of teacher assessments and test scores to see if teachers gave preference to students who were of the same race and gender as them. The researcher found teachers gave better grades to students of the same race as them but not of the same gender, and the students paired with teachers of the same race also performed better on tests, which contradicts previous research. Additionally, teachers perceived the abilities of students of the same race as them more positively than they did students of a difference race. This is an idea that is discussed frequently throughout existing literature, as research has shown nonwhite students often receive more negative ratings than white students when evaluated by white teachers, but nonwhite teachers rarely viewed white or nonwhite students differently (DeCastro-Ambrosetti & Cho, 2011; McGrady & Reynolds, 2013).

Overall, research seems to strongly suggest Caucasian teachers perceive minority students differently than they do Caucasian students. However, the research is mainly limited to teacher-student relationships and fails to include other school personnel, such as administrators and staff members. The research is also conflicting; while some

research suggests students' academic achievement levels increase when matched with a teacher of the same race, other research proposes the matching of race only impacts perceptions and not actual academic achievement. When considering the research that suggests students benefit from having role models who look like them, though, it is important to explore the subject further.

Issues Relating to the Recruiting, Inducting, and Retaining of Minority Educators

While much research has focused on the effect of a teacher's race on student achievement, other research has examined issues surrounding efforts to recruit, induct, and retain minority educators within American public schools. This is an especially relevant time to explore this area, as the number of minority teachers is currently decreasing. In the state of Texas specifically, only one-third of educators are part of a racial minority (Bireda & Chait, 2011), and out of all public schools in the United States of America, over one-third have no racial minority faculty or staff members (Ingersoll & May, 2011). With research suggesting that minority educators have positive impacts on minority students, these numbers are especially concerning and require more attention to be placed upon why more minority individuals are not becoming educators.

Researchers are not the only ones who are noticing and discussing the disproportionate number of minority faculty and staff members in American public schools; such discussions are occurring at many different levels. For example, efforts to begin recruiting minority individuals to become teachers sometimes begins as early as the high school level. One study conducted by Schmitz, Nourse, and Ross (2012) examined a program in Washington that focuses on recruiting minority high school students to become teachers. The program selects enthusiastic, committed students who have shown

evidence of being leaders and then immerses them in a Future Teacher Academy for a week at a local university. From there, students partner with higher education institutions and community programs to complete practicum experiences and receive mentoring. To measure the effectiveness of the program, the researchers collected quantitative data regarding success rates of students and also completed interviews with students. The data revealed all students participating in the program graduated high school and continued furthering their educations at either community colleges or universities, and students reported the program both inspired them to become teachers and informed them of how they could help to close achievement gaps within schools. More programs like this could potentially help to recruit and prepare more diverse teachers.

Many minority high school students are not open to the idea of becoming teachers, though. Ramirez (2009) distributed a Likert scale survey to high school students intended to measure students' feelings regarding a possible career in teaching. The results revealed the majority of students did not want to become teachers. Many students noted the low level of teachers' salaries as a deterrent, and the majority agreed teaching is only worth considering if other plans do not work. However, the results also indicated students are not familiar with the variety of career opportunities available within education. To help overcome these obstacles relating to perceptions, funding may need to increase and information regarding career opportunities in education may need to be further distributed.

High schools, though, are not alone in attempting to recruit more minority educators. On a national level, the United States Department of Education (2010) began a campaign to recruit high quality educators, with a specific goal focusing on increasing

the number of minority teachers within the classroom. Some states have responded to this goal by enacting policies and programs to help recruit minority educators. For example, the state of Florida created the Minority Teacher Education Scholars (MTES) program, which helps provide annual scholarships to prospective minority teachers attending either public or private higher education institutions within the state. In turn, students are required to teach one year in a Florida public school for each year the scholarship was awarded (Florida Fund for Minority Teachers, 2014). Similarly, Minnesota has the Minnesota Education Equity Partnership (MnEEP) program, which has a specific goal of increasing the number of minority educators within the state so that the numbers of minority educators and minority students are more congruent. Upon completing a program evaluation of MnEEP, Breen, Bear, Minster, Sanchez, and Schlueter (2015) reported the recruitment, induction, and retention of minority teachers is supported by providing preservice and current teachers with mentoring to help individuals adapt to roles and responsibilities, funding to help individuals go through the training process and stay committed, and collaboration to help individuals find help with needs and stay accountable.

However, the shortage of minority educators is a complex issue, and the problem extends beyond recruiting efforts. To help fully understand the issue, studies have been conducted to explore difficulties minority individuals face when attempting to become inducted as teachers. Such studies often look at the very foundation of educators: teacher certification programs. Epstein (2005) emphasized the shortage of minority teachers is not because minority individuals are not being recruited into teacher preparatory

programs; instead, the researcher blamed certification tests for barring minority individuals from becoming educators.

Although exact requirements on how to become a teacher differ between states, most states administer the Praxis Series tests to assess prospective teachers. Teachers must pass in order to become certified. In studying the effects of the Praxis Series tests on prospective minority educators, Wakefield (2003) found the tests hinder minority individuals from becoming teachers and suggested these tests serve as the largest reason for the reduction of minority educators. Results of the study added support to these statements by highlighting the fact that 93% of Caucasian teacher candidates passed the tests, while only 71% of minority students passed in 2001. While it is, of course, important for teachers to show competency in their subject areas, Milner and Howard (2013) pointed out it is also important for teachers to have an understanding of the sociology relating to their students; they need to be culturally aware in order to effectively teach all groups of students. Unfortunately, such tests as those in the Praxis Series fail to account for this knowledge.

There are many other concerns regarding the negative impacts of the Praxis Series tests on the induction of prospective minority educators. For example, Bennett, McWhorter, and Kuykendall (2006) also presented research indicating the Praxis Series tests put minority students at a disadvantage in comparison to their Caucasian counterparts, who have much lower rates of failure on the tests. Additionally, they suggested the tests actually work against diversifying the faculty and staff of American public schools. The researchers bluntly stated that "Praxis I is an inequitable teacher education program admissions tool because it establishes a single standard to assess the

capabilities of talented students who have had unequal educational opportunities and unequal access to the knowledge needed to attain passing scores on the test" (p. 571). This suggests the achievement gaps evident within K-12 schools follow and continue to affect students in college and as they prepare for future careers.

While the majority of minority teacher candidates do not feel the Praxis Series tests are culturally biased (Graham, 2013), they do report feeling that the tests do not accurately reflect their abilities (Bennett et al., 2006). Graham (2013) also found evidence that stereotype threats exist among the Praxis Series tests. In a mixed methods research study, the researcher found minority teacher candidates are familiar with standardized tests overall but generally do not feel they know how to prepare for such tests. While one group of students was told that a practice Praxis I test indicated intelligence, another group was told that it did not. While the difference in scores between the two groups was not statistically significant, minority students who were told that the test indicated intelligence reported higher levels of anxiety and attempted to answer fewer questions than minority students in the other group. This suggests students taking the Praxis Series tests may indeed experience stereotype threats, occurring when a minority student feels stress in the presence of majority students "because he or she feels their behaviors may affirm negative stereotypes held by the majority" (Graham, 2013, p. 13).

Even if issues surrounding the recruiting and inducting of minority educators are solved, other problems exist in relation to the disproportionate number of minority educators within American public schools. For example, schools struggle to retain all teachers, especially minority teachers (Bireda & Chait, 2011). Research conducted by

Achinstein, Ogawa, and Sexton (2010) highlighted the fact that turnover rates for minority teachers are higher than those of Caucasian teachers. Their research revealed minority educators are more likely to leave the profession if the schools in which they are working have poor resources and facilities, if the human capital needed to support reforms is missing, and if collaboration with colleagues is unsatisfactory. Consequently, it appears that financial, human, and social capital needs to be improved within schools in order to help retain minority teachers.

Aside from examining these issues, research has also focused on specific challenges minority educators face when dealing with students in public schools. Achinstein and Aguirre (2008) interviewed fifteen minority teachers in a qualitative study focused on the trials minority educators face and the ways in which they negotiate such trials. Many of the interviewed teachers reported minority students often questioned the way in which teachers culturally identify. While teachers often reported using these times as opportunities to generate discussion and shape student perceptions, teachers also reported they lacked support from their schools in how to negotiate such issues. This, too, could work against the act of retaining minority educators.

Mentoring may be one solution to helping retain and support minority educators. Souto-Manning and Dice (2007) investigated the effects of a collaborative mentoring approach used by two university professors and a Hispanic teacher. Putting all notions of power aside, all participants reported that they grew professionally as a result of the mentoring model. The university professors, who served as the mentors, positively benefited from the teacher's enthusiasm and innovative ideas. The teacher was better able to develop her pedagogy, solve problems, and collaborate with others as a result of

the experience. Adding such models to other schools could help to address the difficulties minority educators face, which could help to retain these individuals within the schools.

Just as there is not a single, discernable cause of the achievement gap, there is also not one distinct cause of the diminishing numbers of minority educators. The issue is complex, and there are evident problems relating to hiring, inducting, and retaining minority educators. While the abundance of problems makes it harder for the issue to be resolved, a better understanding of the problems can help generate steps that can be taken to alleviate some of the issues. This is especially important, as an increase in the number of minority educators can have positive effects on students and student achievement.

Summary

The achievement gap between minority and majority students is distressing. While all groups have increased levels of academic achievement in recent years, gaps between majority and minority groups remain consistent. Unfortunately, the gaps are not associated with one specific age group; instead, they can be observed throughout all different points of schooling, and there is even evidence that such achievement gaps exist before students even begin mandatory schooling. By the time students enter secondary school, they are significantly underrepresented in advanced courses and have lower high school graduation rates.

There is evidence suggesting parental involvement helps to alleviate achievement gaps between minority and majority students. Additionally, social and cultural capital play a role in the existence of such gaps. Often, though, schools are focused upon as an avenue to narrow the achievement gap and raise achievement levels of all students.

American historical events such as segregation, slavery, and Jim Crow laws have lasting effects on minority students within educational settings. However, there are factors within schools today, such as the quality of education provided, that can help to narrow achievement gaps. Additionally, research shows that schools labeled as low-performing can improve and minority students can reach high levels of academic success.

There is some evidence that minority students may achieve higher levels of academic success if they see educators of the same race as them working within their schools. However, that evidence is conflicting and limited. While some research suggests students truly reach higher levels of academic success when there are more minority educators within the school, other research suggests students simply feel better about themselves when there are more minority educators within the school. Regardless, there is an alarming decrease in the number of minority educators within the United States. Issues regarding this are present within the recruiting, inducting, and retaining phases of educators. Therefore, more attention deserves to be given to the subject in hope that achievement levels for all students can continue to rise while the achievement gap that currently exists will become undetectable in the future.

SECTION FOUR:

CONTRIBUTION TO PRACTICE

Author's Note

The researcher plans to submit this piece to *Principal* magazine. The submission guidelines for this magazine state submissions should be told from a first-person perspective, conversational in tone, and free of jargon. Additionally, authors should avoid using reference lists and should instead use references sparingly and in such a way that the basics of the citations are included within the article. According to National Association of School Principals (2015), articles should be between 1500 and 2000 words.

Before submitting this piece to *Principal* magazine, the researcher plans to first submit a similar but more technical piece to the *Journal for Multicultural Education.* If the *Journal for Multicultural Education* accepts the piece, the researcher understands she will not be able to then submit this piece to *Principal* magazine as planned. If this occurs, the researcher will instead present the main ideas from this article to educators at a local practitioner conference where she has previously presented.

Walking into a school, it is not unusual for one to hear discussions surrounding student achievement levels. What can be done to help students further succeed? What factors should be considered? These types of questions are common among most educators, especially administrators, who undoubtedly feel the pressure to raise achievement levels for all students. In order to do this, school leaders often place much attention on efforts to narrow the achievement gap that traditionally exists among culturally diverse, minority students. Unfortunately, the achievement gap begins before students even enter school and is impacted by various factors, some of which a school has little control. This understanding is documented in an article titled "A Meta-Analysis on the Factors that Best Reduce the Achievement Gap" by William Jeynes, which states factors relating to family, curriculum, religion, and more can affect the development of achievement gaps. Jeynes highlights the fact that there is not one clear cause of the achievement gap and that some factors are beyond a school's ability to manipulate. However, as school leaders are well aware, districts are still held accountable for all students, even if external factors relating to the achievement gap are at work. For this reason, I wanted to explore areas relating to the achievement gap in which we do have influence and encourage us to take action when possible.

One area that is often explored involves how the characteristics of a teacher may relate to outcomes involving student achievement. For example, classrooms around the country have experimented with pairing students with a teacher of the same gender as them, as such pairings are believed to raise student achievement levels. Thomas Dee and Valentina Paredes have documented evidence of this. And, while there is still some argument surrounding the actual size of the effects of teacher and student same-gendered

pairings on student achievement levels, the idea has been scrutinized by researchers frequently over the past two decades.

There is another characteristic of educators, however, that may affect student achievement levels but has not been studied as much. This characteristic is the educator's race. An article titled "Is There a Place for Me? Role Models and Academic Identity among White Students and Students of Color" by Sabrina Zirkel proposes students perform better academically and possess more academic-related goals when they have teachers who look like them, with the idea being that students benefit from race-matched role models. Could this be a key to how schools can narrow the achievement gap and raise achievement levels for all students?

I set out to find the answer to this question by studying previous research relating to how the race of teachers relates to student achievement levels. However, I was disappointed to find that previous research relating to this topic is limited and confusing. While some research, such as that described by Guillermo Montes in "Using Artificial Societies to Understand the Impact of Teacher Student Match on Academic Performance: The Case of Same Race Effects," suggests test scores of students will rise when they are taught by a teacher of the same race as them, other research, such as that presented by Jo Linn Burt, Evan Ortlieb, and Earl Cheek in "An Investigation of the Impact of Racially Diverse Teachers on the Reading Skills of Fourth-Grade Students in a One Race School," claims pairing students with teachers of the same race as them boosts the self-efficacy levels of students but does not actually have an effect on their achievement levels. In order to find a more definitive answer to how the race of school personnel relates to

achievement levels of students, and in order to fulfill degree requirements for my doctoral program through the University of Missouri, I began to build my own research study.

From the beginning, I hypothesized that schools having higher levels of racial congruence between students and school personnel would have higher achievement levels when compared to schools where racial congruence levels of students and school personnel were lower. However, I did not examine each race specifically. Instead, I divided students and personnel into one of two groups: white or non-white. Hispanic and African American students and personnel were labeled as non-white, while all other groups were labeled as white. I recognize that each racial group faces its own set of distinctive challenges and possesses its own unique history, and I also acknowledge that some groups that were labeled as white, such as Asians, are still minorities. However, I chose to group Hispanic people and African American people together because these subgroups are traditionally focused upon in the literature surrounding achievement gaps. And although I realize white and non-white are not races in themselves, I referred to them as races throughout my study for the purpose of having a simple construct to refer to and investigate. Thus, for the purposes of my study, racial congruence existed when a high percentage of both students and personnel of a school were of the same race. In order to test this hypothesis relating to racial congruence, I focused on the Houston Independent School District (HISD) in Houston, Texas, one of the nation's largest and most diverse districts.

For the past few decades, the city of Houston and surrounding metropolitan areas have experienced tremendous growth. The city itself reported over two million residents in 2010, according to the United States Census Bureau. Unsurprisingly, as the city grew,

the city also diversified. According to the *2012 Houston Education Survey* produced by Rice University, Hispanic individuals make up nearly 40% of the city's population, and there is no true majority race within Houston today. The younger population is even more diverse, with more than half of the residents under 20 identifying as Hispanic and nearly a quarter of residents under 20 identifying as African American. Unsurprisingly, the demographics of HISD students reflect the demographics of the younger population of Houston, not the population overall. Over 60% of students in HISD are Hispanic, nearly 25% are African American, fewer than 10% are Caucasian, and less than 5% are Asian or classified as other. As can be expected based on nationwide student achievement trends, HISD is not immune to achievement gaps.

To build my study and further examine factors affecting the achievement gap, I gathered data from 158 elementary schools within HISD. The data, recorded during the 2014-2015 school year, is available to the public on the district's website under a section titled "School Profiles." From the individual school profiles, I collected data highlighting the racial demographics of all students within each school, the racial demographics of all personnel within each school, the percentage of economically disadvantaged students within each school, and State of Texas Assessments of Academic Readiness (STAAR) reading, math, and science exam scores for fifth-grade students within each school.

Originally, I wanted to focus on how the race of a teacher relates to the achievement levels of his or her students. However, the data I acquired from HISD includes the racial composition of all, whether certified or non-certified, personnel. I found this to be advantageous, as I could now examine the relationship of not only a teacher's race but also an administrator's race, an administrative assistant's race, and

more on student achievement. In previous studies, these positions had not been included, but I believe them to be important, as students are likely to view many adults in the school, not just teachers, as role models. This could, consequently, influence their achievement levels.

In order to categorize racial congruence levels of each school, I created a matrix. Within the matrix, the percentage of non-white school personnel was compared to the percentage of non-white students in order to classify each school into one of three groups: (a) slightly congruent, (b) moderately congruent, and (c) highly congruent. Then, with data collection completed, I used Statistical Package for Social Sciences (SPSS) software to study the relationship between racial congruence levels of students and school personnel and student achievement levels, as measured by the STAAR reading, math, and science exams. The statistical analyses revealed mean reading and math scores are significantly higher when higher levels of racial congruence exist within a school, although the relationship between higher racial congruence levels and science scores was not significant. Even when controlling for the effect of the percentage of economically disadvantaged students within a school, these increased reading and math achievement scores held strong.

While these results are certainly important for HISD leaders to consider, they are equally important for individuals across the United States who wish to improve student achievement levels and narrow the achievement gap. For example, while I acknowledge Title VII of the Civil Rights Act of 1964 prohibits employment discrimination based on race and certainly do not advocate for such discrimination, the findings from this study can be used to better inform administrators as they make decisions regarding where to

place hired personnel within districts, as such placements are shown to relate to math and reading scores. Additionally, the results are also important for educator recruitment programs, both at the PK-12 and higher education levels. According to *Increasing Teacher Diversity: Strategies to Improve Teacher Workforce*, a report by Saba Bireda and Robin Chait, the number of minority students is currently increasing while the number of minority educators is currently decreasing within American public schools. In order for schools to be more racially congruent, the number of minority educators must stop decreasing and instead must start increasing so that schools have the ability to mirror levels of diversity between school personnel and students. Thus, higher education institutions must be aware of the need to increase diverse applicants and widen the applicant pool by recruiting more minority individuals into teacher preparatory programs so that PK-12 school districts have the opportunity to at least interview diverse applicants when searching for educators to fill open positions.

Certainly, those discussions within schools regarding how to help underperforming students will continue. As those discussions continue, educators, especially those leading their schools, must be ready to present research-based strategies that can be developed and implemented within schools to help alleviate the achievement gap and raise achievement levels of all students. While there are many factors to consider when examining what can be done to help students further succeed, the results of my study suggest higher levels of racial congruence between school personnel and students could be a key to higher reading and math achievement levels. Thus, school leaders should consider and discuss ways to better align racial congruence levels between

students and school personnel, as this may help to decrease the achievement gap and increase student achievement, especially in the critical areas of reading and math.

SECTION FIVE:

CONTRIBUTION TO SCHOLARSHIP

Author's Note

The researcher plans to submit this article to the *Journal for Multicultural Education*. According to Emerald Publishing Group (2015), all submissions must be between 3000 and 6000 words. Because figures and tables count as 280 words each, the researcher used such illustrations sparingly within the article. References to other publications are to be in Harvard style, with a complete reference list provided at the end of the article. However, for simplicity and clarity, the researcher kept this article in APA style within the dissertation and asks readers to refer to the complete References section at the end of the document. Upon a successful dissertation defense, the content of this article will not change; however, the author has changed the reference style, used select references, and included a structured abstract for the submission-ready article (see Appendix).

As a result of No Child Left Behind's call for accountability, U.S. schools feel more pressure to raise achievement levels and demonstrate that every student, regardless of background, can score at a specified minimum level of performance on each state's summative standardized tests (Wiliam, 2010). With such a focus being placed on the performance of all groups of students and the call having been to leave *no* child behind, both educators and policymakers have concentrated more on how to increase achievement levels for individual students (Ellis, 2007; Jorgensen, 2002). Interestingly, all student groups have actually shown improvement in academic achievement since the 1990s; unfortunately, achievement gaps between groups still remain consistent today (National Center for Educational Statistics [NCES], 2010). Consequently, much attention has been placed on groups of underperforming students and ways to help raise their achievement levels.

Review of Literature

Achievement gaps are frequently evident in groups composed of culturally diverse, minority students. In fact, gaps exist between majority and minority students in almost every measurable variable relating to student achievement (NCES, 2010; Williams, 2011). Overall, African American and Hispanic students demonstrate lower levels of performance on national standardized tests and have lower high school graduation rates when compared to their Caucasian peers (Austin, 2012; Bali & Alvarez, 2004; Cholewa & West-Olatunji, 2008), while also being habitually underrepresented in advanced courses (Corra, Carter, & Carter, 2011). In turn, this negatively impacts the academic performance and college readiness of these groups (An, 2011). For schools where evidence of improved student achievement is mandatory, and in a society where

the expectation is to ensure that all students are college or career ready, these achievement gaps are alarming and require additional research.

Achievement gaps do not suddenly begin when students enter high school and prepare for post-secondary life. Instead, achievement gaps start early, often before children enter school (Huang & Invernizz, 2012) and generally stay with children as they age (Williams, 2011). McCoach, O'Connell, Reis, and Levitt (2006) reported socioeconomic status, mother's age at first birth, and race influenced students' initial skills upon entering kindergarten and continued to influence students' achievement levels throughout later grades.

Unsurprisingly, much research often focuses on ways to alleviate the achievement gap. A series of meta-analyses, which examined 30 previous studies and was designed to determine which factors best help in reducing the achievement gap, revealed "those factors that were related to a reduction in the achievement gap were family factors, curriculum, religious faith, and religiously oriented schools" (Jeynes, 2015, p. 3). However, the effect size for the overall effectiveness of programs designed to reduce the achievement gap was .11, with $p > .05$, indicating the effect size was not statistically significant. Another series of meta-analyses performed by Fan and Chen (2001) examined 25 previously conducted quantitative research studies and echoed the importance family can have in lessening the achievement gap. With a medium effect size of $r = .30$, they found parents' expectations for their children strongly correlated to the academic success or failure of their children.

While external factors have an impact on the achievement of students, the responsibility schools have in narrowing the achievement gap is also frequently

discussed. This is unsurprising considering the demand for accountability that has schools focusing on the academic progress of every student. Allen (2008) traced schools' responsibilities to narrow the achievement gap far beyond No Child Left Behind, though, by citing how slavery, the Jim Crow era, social and economic disenfranchisement, and racism have had residual effects on minority students. Consequently, such effects have helped to maintain the achievement gap, and now schools must respond with instructional practices centered on helping to relieve the residual effects. Thus, the achievement gap can be viewed as an opportunity gap, where minority students are being denied access to educational opportunities that help drive success inside and outside of the classroom (Cowan Pitre, 2014), and schools must work to pay the "education debt" that is driven by the historical lack of services provided to minority students by narrowing the achievement gap (Ladson-Billings, 2006).

In considering how schools can help all students achieve, attention is often placed upon the relationship between characteristics of school personnel and achievement levels of students. While much research has focused on showcasing the importance of characteristics such as a teacher's or administrator's experience in relation to student achievement (Clotfelter, Ladd, & Vigdor, 2010), lesser amounts of research have focused on how the diversity levels of school personnel, especially in regard to race, relate to the performance of students. Currently, the number of minority students within American public schools is steadily increasing (Bireda & Chait, 2011) and was expected to surpass the number of non-Hispanic white students in 2014 (Maxwell, 2014). However, fewer people of color are seeking jobs in education, which is remains a predominantly white field (Bireda & Chait, 2011).

Limited and conflicting research has examined how the race of school personnel relates to student achievement. Some research suggests students attain more when they are taught by a teacher who is of the same race as them (Dee, 2001, 2004; Zirkel, 2002). For example, by using data from the U.S. National Report Card to test the effects of pairing students with a teacher of the same race as them, Montes (2012) showed evidence of the same-race effect, where students experienced a moderate-sized boost in academic performance (*r = .40)* when paired with a teacher of the same race as them. Research done by Zirkel (2002) could help to explain this change in academic performance. From conducting a longitudinal study of 80 adolescents, the researcher found students performed better academically (M = 8.89 for students matched with teachers of the same race and M = 7.15 for students not matched) when they had role models who were of the same race and of the same gender as them.

Other research relating to this topic is limited and conflicts with the aforementioned studies conducted by Montes (2012) and Zirkel (2002). In a mixed methods study, Burt, Ortlieb, and Cheek (2013) measured fourth-grade students' perceptions and feelings regarding reading and their teachers. Additionally, data from the state performance test was analyzed. Although the sample size for this study was small (N = 32), the results revealed there were no significant differences in relation to student achievements levels in the area of reading when fourth-grade students were paired with a teacher of the same race as them. However, the study did reveal something important about students' perceptions: African American students felt they received more praise and less embarrassment from teachers who were of the same race as them, which boosted self-efficacy levels.

In relation to this, mixed methods research conducted by Atkins, Fertig, and Wilkins (2014) examined minority students' self-efficacy levels, hypothesizing students do feel more connected to and more interested in their schools and future when there is a larger presence of minority educators within the school. First, they interviewed minority and majority teachers to find out how teachers serve as role models for students. They found teachers often shared their own educational experiences with students, inspiring students in their own endeavors. Second, the researchers analyzed data from the National Longitudinal Study of Adolescent Health and found that increasing the presence of minority teachers helped minority students increase both educational expectations for themselves and their connections to their school environments, with effects being significant but small ($p < .05$).

The results of the study conducted by Atkins et al. (2014) and Burt et al. (2013) also lend themselves to other areas of research on the topic. For example, Ouazad (2008) used longitudinal data of teacher assessments and test scores to see if teachers gave preference to students who were of the same race and gender as them. The researcher found teachers gave better grades to students of the same race as them but not of the same gender, and the students paired with teachers of the same race also performed better on tests. Additionally, teachers perceived the abilities of students of the same race as them more positively than they did students of a difference race.

Research seems to suggest Caucasian teachers perceive minority students differently than they do Caucasian students. However, the research is mainly limited to teacher-student relationships and fails to include other school personnel. The research is also conflicting; while some research suggests students' academic achievement levels

increase when matched with a teacher of the same race, other research proposes the matching of race only impacts perceptions and not actual academic achievement. Because students and their achievement levels may potentially benefit from having role models who look like them, it is important to explore the subject further.

Conceptual Framework

The conceptual framework for this study consisted of two main constructs being applied to the study: the law of requisite variety and social cognitive career theory. The first concept was used to help gain an understanding of how organizations function in regard to diversity levels. The second concept focused on what drives students within educational organizations. Finally, racial congruence served as a foundation for research and in linking concepts together.

The Law of Requisite Variety

As organizations become more complex, effective leaders of organizations examine ways to best adapt to and thrive among the complexity. Although it originated in the 1950s, Ashby's (1958) law of requisite variety (LRV) still sheds great insight regarding how complex organizations today can succeed. Ashby (1958) provided the following explanation of the LRV:

> The law of requisite variety says that regulation cannot be achieved unless the regulator R, as a channel of communication, has more than a certain capacity. Thus, if D threatens to introduce a variety of 10 bits into the outcomes, and if survival demands that the outcomes be restricted to 2 bits, then at each action R must provide variety of at least 8 bits. (p. 6)

When applying the LRV to an organization, this suggests the internal complexity of an organization must mirror the external complexity if the organization wishes to successfully respond to situations arising within a competitive market.

According to Azadeh, Darivandi, and Fathi (2012), variety is "the number of possible states of a system" (p. 67). Although the term "variety" may not often be used in conjunction with an organization, the term "diversity" often is (Bartel-Radic & Lesca, 2009). Thus, Goldstein (2011) reiterated the ideas regarding the LRV by claiming an organization must be diverse if it expects to deal with diverse problems. Diversity, however, is a broad word and can encompass many different characteristics. While all components of diversity may not be covered within an organization, it is important there is at least some variety (Ashby, 2011) and that members of the organization can see different representations of diversity throughout the system (Bartel-Radic & Lesca, 2009).

Social Cognitive Career Theory

While individuals typically are able to assert some level of choice regarding career development, certain factors can influence the decision-making process. The social cognitive career theory (SCCT) suggests career development is influenced by environmental variables, such as community influences, and person variables, such as race. Together, these variables impact one's self-efficacy, leading to an impact on the decision-making process of an individual (Lent, Brown, & Hackett, 1994), along with an impact on personal goals and outcome expectations (Atadero, Rambo-Hernandez, & Balgopal, 2015). Thus, the variables influence not only one's confidence regarding if he

or she can succeed at a given task but also one's beliefs relating to what will happen if a task is simply attempted.

The SCCT, however, is not limited solely to one's career-related choices or ideas. Logically, occupational status is related to education (Flores & O'Brien, 2002). One can consequently apply the framework to one's education-related choices, as the variables affecting one's career choice can affect the learning experiences and academic experiences of an individual (Gonzalez, 2012). For example, an individual's background may provide or limit experiences in childhood and adolescence that can be used to develop skills that can potentially prove to be beneficial later in life and in school. Additionally, proximal variables, such as the degree to which an individual perceives support of endeavors, continue to influence the academic development of a person. If individuals perceive support from others and see themselves in a position without barriers, this theoretically influences their self-efficacy not only in career-related choices but also in academic achievements (Wright, Perrone-McGovern, Boo, & White, 2014).

Some variables of SCCT can be controlled and can be used to promote academic achievement. Exposing students to certain experiences or ideas can help students to build positive beliefs about themselves and expect positive outcomes. This fosters higher goals being set and active engagement in achieving goals among students (Gonzalez, 2012). Self-efficacy can be further developed by exposing students to role models to which they relate, providing encouragement, and revealing opportunities (Ali & Menke, 2014). Overall, if used strategically, it appears SCCT can be used to guide academic and career developments of individuals (Flores & O'Brien, 2002).

Racial Congruence

In previous studies, the term "racial congruence" has been used to describe a situation when a student attends a school where a high percentage of peers are of the same race as him or her (Byrd & Chavous, 2011). The term "racial congruence" served to help frame the topic in this study. For the matters of this study, however, racial congruence was said to exist when a high percentage of both students and personnel of a school aligned as either white or non-white (see Figure 1). In this study, non-white referred to Hispanic and African American students and school personnel, whereas white referred to all other groups. While the researcher realizes white and non-white are not races in themselves, these two groups are referred to as races throughout the study for the purpose of having a simple construct to refer to and investigate. Thus, the races of school personnel and students were examined and compared; schools were then labeled as slightly congruent, moderately congruent, or highly congruent.

Methods

Sample

A quantitative, quasi-experimental design was used to evaluate the impact of racial congruence levels of students and school personnel on fifth-grade students' achievement levels, as measured by the State of Texas Assessments of Academic Readiness (STAAR) reading, math, and science exams. Thus, one overarching research question drove this study: What is the relationship between racial congruence levels of school personnel and fifth-grade students in Houston Independent School District elementary schools and student achievement, as measured by the STAAR (a) reading, (b) math, and (c) science exams?

Within the Houston Independent School District (HISD), 158 elementary schools were included in this study. There were two groups of people within each of the schools: students and personnel. The 2014-2015 data focused on these two groups. Data involving students included the demographics of all students within the school, the percentage of economically disadvantaged students within the school, and the achievement scores of fifth-grade students. Data involving the personnel focused on demographics of certified and noncertified school personnel. All of the data used for this study is available to the public via HISD's website.

Procedure

A series of one-way ANCOVA tests were used to examine if there were any statistically significant differences, with an alpha level of .05 being used to test significance, regarding racial congruence and student achievement levels. The one-way ANCOVA tests were used to examine the percentage of students passing each STAAR exam and compared means from several different groups, with the percentage of students labeled as economically disadvantaged acting as the covariate. Simple and partial comparison analyses used to measure correlation between variables were also conducted.

Overall, the study included three different groups of schools: (a) slightly congruent (n = 7), (b) moderately congruent (n = 60), and (c) highly congruent (n = 89). These groups were determined using the matrix created by the researcher to categorize levels of racial congruence (see Figure 1). The percentage of non-white personnel was compared to the percentage of non-white students in order to classify each school into one of the groups. As the matrix shows, four different groups were originally created; however, no school fit the description of incongruent.

		Percentage of Non-White Personnel			
		0-25%	26-50%	51-75%	76%-100%
Percentage of Non-White Students	76-100%	Incongruent	Slightly Congruent	Moderately Congruent	Highly Congruent
	51-75%	Slightly Congruent	Moderately Congruent	Highly Congruent	Moderately Congruent
	26-50%	Moderately Congruent	Highly Congruent	Moderately Congruent	Slightly Congruent
	0-25%	Highly Congruent	Moderately Congruent	Slightly Congruent	Incongruent

Figure 1. Matrix tool used to categorize racial congruence level of each school by comparing percentage of non-white (African American of Hispanic) personnel to percentage of non-white students

Using the matrix, the researcher took the percentage of personnel who identified as non-white (meaning African American or Hispanic for the purpose of this study) and compared this to the percentage of students who identified as non-white in order to find the racial congruence level of each school. Thus, the racial congruence score assigned to each school was based on a ratio of demographics. These levels of congruence were then considered when examining achievement data to see if schools with low racial congruence had low academic achievements levels and if schools with high racial congruence had high academic achievement levels.

Results

The study examined the effects of racial congruence levels of students and school personnel on STAAR reading, math, and science scores, as the researcher statistically controlled for the percentage of economically disadvantaged students. First, a series of univariate analysis of variance tests were conducted on each subject of test scores to test

for significant differences between means. With congruence levels as the fixed factor, the covariate for these models was the percentage of economically disadvantaged students within each school. Separate univariate ANCOVAs on the outcome variables revealed significant effects of congruence levels on reading scores, $F(2, 153) = 3.73$, $p = .026$, and math scores, $F(2, 153) = 3.977$, $p = .02$. However, a separate ANCOVA revealed non-significant effects of congruence levels on science scores, $F(2, 153) = 2.1$, $p = .13$.

Because the ANCOVAs indicated a significant difference in the means of reading and math scores, a post hoc comparison was then performed on these variables. A post hoc comparison was not performed on science scores because the original ANCOVA revealed no statistical significance. The covariate, the percentage of economically disadvantaged students, was significantly related to students' reading achievement levels, $F(1, 152) = 68.814$, $p < .01$. Planned contrasts further revealed highly congruent diversity levels between students and school personnel demonstrated significantly higher reading achievement levels compared to having moderately congruent diversity levels $t(152) = 2.48$, $p = .01$, but not compared to having slightly congruent diversity levels, $t(152) = 1.58$, $p = .16$.

The covariate, the percentage of economically disadvantaged students, was also significantly related to students' math achievement levels $F(1, 152) = 34.96$, $p < .01$. Additionally, there was a significant effect of racial congruence levels on math achievement levels after controlling for the effect of the percentage of economically disadvantaged students, $F(2, 152) = 3.98$, $p = .02$. Like with reading achievement levels, planned contrasts further revealed that highly congruent racial levels between students

and school personnel demonstrated significantly higher math achievement levels compared to having moderately congruent diversity levels $t(152) = 2.82$, $p = .01$, but not compared to having slightly congruent diversity levels, $t(152) = .51$, $p = .61$.

After viewing the results of the post hoc comparisons, correlation between achievement levels and racial congruence levels was then measured. A simple correlation analysis was conducted first, accompanied by a partial correlation analysis later in order to support the use of the covariate. A simple correlation analysis revealed a significant relationship between racial congruence levels and reading achievement levels, $r = -.27$, $p < .01$. Similarly, there was a significant relationship between racial congruence levels and math achievement levels, $r = -.24$, $p < .01$. A partial comparison was then used to measure the correlation between these variables while controlling for the effect of the percentage of economically disadvantaged students on achievement levels. With the percentage of economically disadvantaged students acting as the control, there was still a significant relationship between racial congruence levels and reading achievement levels, $r = -.21$, $p = .01$. The same was true of racial congruence levels and math achievement levels, $r = -.18$, $p = .02$.

Discussion

Previous research has provided conflicting ideas regarding the role of racial congruence levels between school personnel and students on achievement levels of students (Atkins et al., 2014; Burt et al., 2013; Montes, 2012; Zirkel, 2002). However, the results of this study attempt to clarify some of the previous contradictions by revealing there are statistically significant relationships between racial congruence levels of school personnel and students in HISD elementary schools and fifth-grade students'

reading and math achievement levels, as measured by the STAAR exams. More specifically, as the level of racial congruence between students and school personnel increases, reading and math achievement levels also increase. However, the effect of racial congruence levels on science achievement levels was non-significant.

The researcher initially chose to examine the effect of racial congruence levels on student achievement levels after reviewing contradictory findings in previous research relating to the topic. While some previous research suggested racial congruence levels impact students' perceptions and feelings but not their actual achievement levels (Atkins et al., 2014; Burt et al., 2013), other research suggested racial congruence levels do, in fact, impact student achievement levels (Dee, 2001, 2004; Montes, 2012; Zirkel, 2002). The findings of this study help to clarify some of the inconsistences presented in the previous literature. For example, the results of this study support the previous research that proposed students reach higher levels of achievement when they are taught by a teacher who is of the same race as them (Dee, 2001, 2004; Montes, 2012; Zirkel, 2002). The study specifically revealed, however, that higher levels of racial congruence are not related to higher levels of student achievement in all subject areas; instead, out of the subject areas tested, they are limited to students' reading and math achievement levels. While higher levels of racial congruence are not related to higher levels of student achievement in all of the subject areas studied, the results do indicate that previous research suggesting racial congruence levels only impact how students feel about themselves (Atkins et al., 2014; Burt et al., 2013) is inaccurate; instead, achievement levels in at least two subject areas are affected.

This study adds credibility to the previously set forth arguments suggesting racial congruence levels do significantly relate to student achievement levels by showcasing the present-day relevancy of findings and using a larger sample size than previous studies. Additionally, unlike previous studies, this study examined the effects of all school personnel, not just teachers.

The conceptual framework used in this study helps to support the findings. When a school has a higher level of racial congruence between students and school personnel, the diversity levels mirror one another better. The LRV suggests diversity levels that are more closely aligned yield greater results (Ashby, 1958; Goldstein, 2011); in the case of student achievement for reading and math, this holds true. Additionally, when students are able to see people in positions of authority who look like them, they may then be able to see themselves in such a position without barriers. The SCCT suggests this may boost student achievement (Lent et al., 1994; Wright et al., 2014). This study supports this idea, as student achievement levels rise when students attend schools where personnel are racially similar to them.

Implications

The fact that there are statistically significant relationships between racial congruence levels of school personnel and students and reading and math achievement levels is not just important for HISD, but potentially school districts nationwide. Achievement gaps are not limited to HISD, or even Texas, but are instead found in every state (NCES, 2010). Thus, all school districts seeking ways to raise student achievement can benefit from learning of these findings.

As levels of racial congruence between school personnel and students rise, student achievements levels increase. This information can be used to better inform school administrators in charge of hiring within districts. Of course, the researcher acknowledges Title VII of the Civil Rights Act of 1964 prohibits employment discrimination based on race and certainly does not advocate for such discrimination. However, the findings from this study can be used to better inform administrators as they decide where to place hired personnel within districts.

The implications of this study are also important for educator recruitment programs, both at the PK-12 and higher education levels. The number of minority students is currently increasing while the number of minority educators is currently decreasing (Bireda & Chait, 2011). In order for schools to be more racially congruent, the number of minority educators must stop decreasing and instead must start increasing so that schools have the ability to mirror levels of diversity between school personnel and students. Thus, higher education institutions must be aware of the need to increase diverse applicants and widen the applicant pool by recruiting more minority individuals into teacher preparatory programs so that PK-12 school districts have the opportunity to at least interview diverse applicants when searching for educators to fill open positions.

Limitations and Future Research

One of the limitations of this study relates to the matrix being used to categorize racial congruence. This tool was created by the researcher after the researcher was unable to locate any sort of tool that could be used to measure racial congruence levels. While the researcher originally designed four categories for this matrix, none of the schools fit the "incongruent" category, resulting in only three categories being used.

Future research could expand on this tool by reconstructing the categories so that they are more specific.

Another limitation relates to the way minorities were grouped within the study. The study examined four groups: non-white students, white students, non-white personnel, and white personnel. While Asian students are technically a minority, they do not traditionally exhibit achievement gaps and were consequently grouped as white. African Americans and Hispanics were also grouped together in the non-white categories. The groups are referred to as the minority, or non-white, groups. While both African Americans and Hispanics are currently minorities within the U.S., each racial group faces its own set of distinctive challenges and possesses its own unique history. However, these differences are not accounted for within the study. Future research could separate these minority groups and examine the relationship between racial congruence levels of individual races and student achievement levels. Additionally, future research could specifically examine the effects of racial congruence levels on the academic achievement levels of other groups not highlighted in this study, such as Native Americans.

Decreasing the achievement gap while raising student achievement levels is of concern to school districts and policymakers nationwide. School districts are held accountable for the performances of their students, and research-based decisions regarding how to increase student achievement levels must be made. The findings of this study suggest higher levels of racial congruence between school personnel and students are significantly related to higher reading and math achievement levels. In order to increase student achievement levels in these areas, school districts should consider how to best align racial congruence levels.

SECTION SIX

SCHOLARLY PRACTITIONER REFLECTION

Influence of the Dissertation on My Practices as an Educational Leader

As I culminate the dissertation process and conclude the time I have spent as a part of the Ed.D. program at the University of Missouri, I begin something new at the organization in which I work. Starting in August, I will officially be leaving the classroom and instead serving in a new leadership position within the school district. While I will no longer be balancing my role as an educator with my role as a student, I know that my learning will not stop as I stop being an official student and begin this new position. In fact, I believe the experiences I have had while working on my dissertation will continue to influence me and help me grow as I continue to read, write, think, converse, and listen in my new assignment.

As I began to work on the topic for my dissertation, I was encouraged to read about my topic, read some more about my topic, and then read even more about my topic. The general idea was that I needed to become very familiar with my chosen subject, as such familiarity and knowledge would ultimately help to inform the decisions I made throughout the dissertation process. This step proved to be vital later, as I began to construct a proposal and eventually conducted my own study, for I felt prepared to make decisions and speak confidently about my dissertation. As an educational leader, I know that I must not stop reading. But more importantly, I must continue to familiarize myself with topics and situations. Doing so with the dissertation process helped me to be more confident and organized. Similarly, doing so in my new position will help me to be better prepared in my own strategic planning and confident in executing my own decisions.

While collecting data for my dissertation, I examined many elements of the Houston Independent School District (HISD), and this experience has also impacted me

as a leader. On the surface, I found HISD to be very different from my own district. For example, it is much, much larger than the district for which I currently work. It is structured differently, with different leadership positions in place. The district is also much more diverse; both the racial demographics of the school personnel and students, along with the percentage of economically disadvantaged students, are quite different from that with which I am familiar. However, as I went past the shallow exterior of HISD, I began to see similarities between it and my own school district. For example, there are educators in both districts who desire progress and are willing to implement change if it will create positive outcomes. There are also struggling students in both districts who need help and can reach higher levels of achievement, although the path to helping them is often challenging and unclear.

While similarities between districts were not obvious at first, the eventual discovery of parallels served as a reminder that it is important and necessary for me, as an educational leader, to be able to assess situations from different viewpoints, even when it means going against the way I am naturally inclined to perceive something. This will help me in problem-solving and in maintaining a progressive path forward, as it forces me to look beyond my own limited perspective and consider what is working in other places that can be transferred or modified to my own surroundings. As the process of the dissertation reminds me, this is not always easy and is often not apparent, but it can be useful as I move forward into a new role. In fact, even the findings of this dissertation can be used to inform my practices within my own district, as I am now more knowledgeable about how the placement of educators may be related to student achievement levels.

Of course, future conflicts that I face as an educational leader will not all relate back to the topics discussed in my dissertation. However, after completing the dissertation, I feel more confident in facing challenges. While I will not create a formal study for every problem, and while I certainly will not write a dissertation regarding my every bit of research, I will apply steps from the dissertation process to solve future problems. This means I will research the problem, analyze both the organization and the leadership, and make recommendations stemming from research-based solutions.

Additionally, the dissertation process reminds me to consider the future and where my district is going. As a district, we may never be as diverse or as large as HISD, but we are undoubtedly changing and are quite different from where we were even one decade ago. Reviewing literature and conducting research for my dissertation forced me to examine areas of education in which I was not entirely familiar. Although these portions of the dissertation are over, it is important for me to remain immersed in educational trends and struggles, as it will help me with changes and transitions in the future. Even though the ideas and theories I read about may not yet apply to me, there will undoubtedly come times in my future position when I face unknowns and can benefit from exposure to other areas and other ideas. Having a diverse bank of knowledge is certainly useful.

As I think about my future position, I also think about how the dissertation process has helped me to consider new ways to encourage my followers and help them meet goals. While I had been exposed to the concept of Bolman and Deal's (2008) symbolic frame before, I did not fully understand the significance or impact of symbolism until I underwent the development of my dissertation and watched my name

travel across a board in my advisor's office as I went through each checkpoint of the process. This helped me to monitor my progress and remember the ultimate goal. I found such use of the symbolic frame highly valuable and wish to utilize elements relating to it more in my new leadership position.

Perhaps above all else, the process of my dissertation reminded me that I am not an expert in everything. While this is certainly obvious, I was humbled to read the ideas and findings of other researchers who are interested in the same topic as me. Familiarizing myself with their ideas and their studies helped me to think about my own study. Additionally, the peer review process gave me a greater appreciation of receiving feedback from others. Comments I received from my committee members during this process helped me to think through issues and contemplate new ideas, both of which proved to be valuable as I wrote and develops plans for my dissertation. While I am entering a new role as an educational leader, I am not the first to have such a role. I can strengthen myself and my leadership practices by examining the experiences of others who are or have been in similar positions.

Additionally, having never written a dissertation before, I was forced to ask many questions and seek valuable information from those who are much more experienced and knowledgeable than me. Additionally, I found myself rereading old sources and reexamining previous notes to help inform my thinking and my work. Much like there was confusion for me during the dissertation process, I know there will be confusion for me as I explore a new territory and new responsibilities associated with being an educational leader. And just like the dissertation process, I must remember that, while I

am a leader, I can certainly grow and be more effective in my own practice by seeking and accepting the wisdom of others who are more experienced than me.

Influence of the Dissertation on Me as a Scholar

The different steps of the dissertation process changed me as a scholar. I am now more open to and see the value in other types of research designs. I also feel more confident in my own abilities as a scholar and feel as if I can conduct research more independently. And most importantly, I feel motivated to continue balancing the roles of being both a practitioner and a scholar.

Before beginning my dissertation, I had a certain image in my mind of what a dissertation would be. It involved a lot of quantitative data collection and analyses of numbers. My dissertation did, in fact, end up being one that is quantitative in nature. However, in preparation of my own study, I read articles that presented quantitative, qualitative, and mixed methods research studies. Doing so helped me to become more familiar with and be able to more easily recognize the value of qualitative research designs. While I still do not consider myself to be a qualitative person, I would be interested in incorporating qualitative design into my future endeavors as a scholar because I recognize how more open-ended data can be helpful in revealing important missing pieces of the topic being studied.

Completing steps of the dissertation process has also helped me to feel more confident in my role as a scholar. Whereas before I mainly identified as a practitioner, I now feel more balanced, and I believe this is related to the development of my skills. For example, the knowledge that I have acquired on various subject matters has led me to believe I can participate in, and sometimes even begin, conversations on these subjects

while contributing positive, thoughtful ideas to my peers. I also feel more self-assured in my abilities to research and cite evidence, especially in accordance to APA style.

Perhaps the pinnacle of the dissertation's impact on me as a scholar occurred as I conducted my data analysis. This stage was when my confidence levels and independence as a scholar really developed. I had previously used the SPSS software while working on my master's degree. However, at that time, I relied heavily on my then-advisor to guide me through the software program and the steps of data analysis. Then, during the quantitative class of summer two of this program, I gained new knowledge but still did not feel like I could fully execute my own data analysis. However, the dissertation was different. While Dr. MacGregor certainly guided me through the process of analyzing data with SPSS, I was determined to complete some steps on my own. This meant constantly referring to Field's (2013) book, *Discovering Statistics Using IBM SPSS Statistics*, and watching YouTube videos produced by masters of statistical analysis. However, it also meant learning self-reliance. There are certainly times where it is necessary and advantageous to seek help from experts, but there are also times where it is beneficial for me to figure things out, or at least attempt to figure things out, on my own. Ultimately, this elevated my confidence levels and helps me to believe that I can continue to do research in the future, even when I no longer have the support of a well-structured program or a well-informed advisor.

Relating to that, I do not want to leave this program and go back to solely being a practitioner. While I strongly value my practice and feel it is important to continue practicing, I also strongly value scholarship and feel it is important to continue learning, researching, and sharing. At this time, I am not entirely sure what my future as a scholar

will look like, but I do know that I will be more open to working in investigatory committees within my own district and that I will also be more enthusiastic about sharing findings. While I hope that the findings of my dissertation are published in either my chosen scholarly journal or magazine, I realize I may not take this approach for the sharing of other future findings. Instead, sharing findings may mean that I present a report at a school board meeting or write a summary of findings for my district's weekly newsletter. What is important to me is that learning continues happening and research-based conversations continue to influence the decision-making process.

Summary

Having completed the dissertation process, I now better identify as both a practitioner and a scholar. I see the importance of both of these roles, and I value how the roles complement each other in order to make me a better-rounded individual. I plan to continue using skills acquired through the dissertation process to help me further develop as an educational leader and as a scholar.

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Appendix

Submission-Ready Article in Harvard Reference Style

SCHOOL PERSONNEL—STUDENT RACIAL CONGRUENCE AND THE ACHIEVEMENT GAP

Abstract

Purpose: The study's purpose was to examine the relationship between student achievement and racial congruence of school personnel and students to help educators and policy makers narrow the achievement gap.

Design: This quasi-experimental, correlational study used publically available data from 158 elementary schools in the Houston Independent School District. The authors analyzed the level of congruence of school personnel and students in relation to reading, math, and science scores with 5th grade students.

Findings: Controlling for the percentage of economically disadvantaged students, separate univariate ANCOVAs on the outcome variables revealed significant effects of racial congruence levels on reading scores, $F(2, 153) = 3.73$, $p = .026$, and math scores, $F(2, 153) = 3.977$, $p = .02$, The effects on science scores approached significance, F (2, 153) = X.XX , $p = .XX$.

Research Limitations: The operationalization of racial congruence had not been previously used. African-Americans and Hispanics were labeled as non-white, Asian-Americans (who do not show the achievement gap) were grouped with white students, and other minority groups were excluded. The study was a natural experiment without randomization or intervention.

Practical Implications: Findings can be used to narrow the achievement gap by encouraging recruitment of Hispanics and African-Americans educators and influencing administrators as they decide where to place hired personnel.

Value: Using a much larger sample size than previous studies, this study found a factor to narrow the achievement gap.

Article Classification: Research Paper

Key Words: Student Achievement, Racial Congruence, Achievement Gap

As a result of No Child Left Behind, U.S. schools feel pressure to raise achievement levels and demonstrate that every student, regardless of background, can score at a specified minimum level of performance on states' standardized tests (Wiliam, 2010). Educators and policymakers have aimed to increase achievement for all students (Ellis, 2007; Jorgensen, 2002). Interestingly, all student groups have actually shown improvement in academic achievement since the 1990s; unfortunately, achievement gaps between groups still remain consistent today (National Center for Educational Statistics, 2010). Achievement gaps have been associated with differential unemployment, the discipline gap, the school to prison pipeline and other negative consequences for society (Bahena et al., 2012). Consequently, much attention has been placed on groups of underperforming students and ways to help raise their achievement levels.

Review of Literature

Achievement gaps are frequently evident in groups composed of culturally diverse, minority students. Gaps exist between majority and minority students in almost every measurable variable relating to student achievement (National Center for Educational Statistics, 2010; Williams, 2011). Overall, African-American and Hispanic students demonstrate lower levels of performance on national standardized tests and have lower high school graduation rates when compared to their Caucasian and Asian-American peers (Austin, 2012; Bali and Alvarez 2004; Cholewa and West-Olatunji, 2008), while also being habitually underrepresented in advanced courses and over-represented in school suspensions (Corra et. al, 2011). This negatively impacts the academic performance and college readiness of these groups (An, 2011). For schools where evidence of improved student achievement is mandatory, and in a society where

the expectation is that all students are college or career ready, these achievement gaps are alarming and require additional research.

Achievement gaps do not suddenly begin when students enter high school and prepare for post-secondary life. Instead, achievement gaps start early, often before children enter school (Huang and Invernizz, 2012) and generally stay with children as they age (Williams, 2011). McCoach et al. (2006) reported socioeconomic status, mother's age at first birth, and race influenced students' initial skills upon entering kindergarten and continued to influence students' achievement levels throughout later grades.

Unsurprisingly, much research focuses on ways to alleviate the achievement gap. A series of meta-analyses, which examined 30 previous studies and was designed to determine which factors best help in reducing the achievement gap, revealed "those factors that were related to a reduction in the achievement gap were family factors, curriculum, religious faith, and religiously oriented schools" (Jeynes, 2015, p. 3). However, the effect size for the overall effectiveness of programs designed to reduce the achievement gap was .11, with $p > .05$, indicating the effect size was not statistically significant. Another series of meta-analyses performed by Fan and Chen (2001) examined 25 previously conducted quantitative research studies and echoed the importance family can have in lessening achievement gaps. With a medium effect size of $r = .30$, they found parents' expectations for their children strongly correlated to the academic success or failure of their children.

While external factors impact the achievement of students, the responsibility schools have in narrowing the achievement gap is also frequently discussed. Allen

(2008) traced schools' responsibilities to narrow the achievement gap far beyond No Child Left Behind, though, by citing how slavery, the Jim Crow era, social and economic disenfranchisement, and racism have had residual effects on minority students. Such effects have helped maintain the achievement gap, and now schools must respond with practices centered on helping to relieve the residual effects. Thus, the achievement gap can be viewed as an opportunity gap, where minority students are being denied access to opportunities that help drive success inside and outside of the classroom (Cowan Pitre, 2014). Schools must work to pay the "education debt" that is driven by the historical lack of services provided to minority students by narrowing the achievement gap (Ladson-Billings, 2006).

In considering how schools can help all students achieve, attention is often placed upon the relationship between characteristics of school personnel and achievement levels of students. While much research has focused on showcasing the importance of characteristics such as a teacher's or administrator's experience in relation to student achievement (Clotfelter et al., 2010), lesser amounts of research have focused on how the diversity levels of school personnel, especially in regard to race, relate to the performance of students. Currently, the number of minority students within American public schools is increasing (Bireda and Chait, 2011) and was expected to surpass the number of non-Hispanic white students in 2014 (Maxwell, 2014). However, fewer people of color are seeking jobs in education, which remains a predominantly white field (Bireda and Chait, 2011).

Limited and conflicting research has examined how the race of school personnel affects students. Some research suggests students achieve more when they are taught by

a teacher who is of the same race as them (Dee, 2001; Dee, 2004; Zirkel, 2002). For example, by using data from the U.S. National Report Card to test the effects of pairing students with a teacher of the same race as them, a statistical analysis performed by Montes (2012) showed evidence of the same-race effect, where students experienced a moderate-sized boost in academic performance (d = .40) when paired with a teacher of the same race as them in 100 simulations. Research done by Zirkel (2002) could help to explain this change in academic performance. From conducting a longitudinal study of 80 adolescents, the researchers found students performed better academically when they had role models who were of the same race and of the same gender as them.

Other research relating to this topic is limited and conflicts with the aforementioned studies conducted by Montes (2012) and Zirkel (2002). In a mixed methods study, Burt et al. (2013) measured fourth-grade students' perceptions and feelings regarding reading and their teachers. Additionally, data from the state performance test was analyzed. Although the sample size for this study was small, the results revealed no significant differences in reading achievements levels when fourth-grade students were paired with a teacher of the same race as them. However, the study did reveal something important about students' perceptions: African-American students felt they received more praise and less embarrassment from teachers who were of the same race as them, which boosted self-efficacy levels.

In relation to this, mixed methods research conducted by Atkins et al. (2014) examined minority students' self-efficacy levels, hypothesizing students do feel more connected to and more interested in their schools and future when there is a larger presence of minority educators within the school. First, they interviewed minority and

majority teachers to find out how teachers serve as role models for students. They found teachers often shared their own educational experiences with students, inspiring students in their own endeavors. Second, the researchers analyzed data from the National Longitudinal Study of Adolescent Health and found that increasing the presence of minority teachers helped minority students increase both educational expectations for themselves and their connections to their school environments, with effects being significant but small ($p < .05$). .

The results of the study conducted by Atkins et al. (2014) and Burt et al. (2013) also lend themselves to other areas of research on the topic. For example, Ouazad (2008) used longitudinal data of teacher assessments and test scores to see if teachers gave preference to students who were of the same race and gender as them. The researchers found teachers gave better grades to students of the same race as them but not of the same gender, and the students paired with teachers of the same race also performed better on tests. Additionally, teachers perceived the abilities of students of the same race as them more positively than they did students of a difference race.

Research seems to suggest Caucasian teachers perceive minority students differently than they do Caucasian students. However, the research is mainly limited to teacher-student relationships and fails to include other school personnel. The research is also conflicting; while some research suggests students' academic achievement levels increase when matched with a teacher of the same race, other research proposes the matching of race only impacts perceptions and not actual academic achievement. Because students and their achievement levels may potentially benefit from having role models who look them, it is important to explore the subject further.

Conceptual Framework

The conceptual framework for this study consisted of two main constructs being applied to the study: the law of requisite variety and social cognitive career theory. The first concept was used to help gain an understanding of how organizations function in regard to diversity levels. The second concept focused on what drives students within educational organizations. Finally, racial congruence served as a foundation for research and in linking concepts together.

The Law of Requisite Variety

As organizations become more complex, effective leaders of organizations examine ways to best adapt to and thrive among the complexity. Although it originated in the 1950s, Ashby's (1958) law of requisite variety (LRV) still sheds great insight regarding how complex organizations today can succeed. Ashby (1958) provided the following explanation of the LRV:

> The law of requisite variety says that regulation cannot be achieved unless the regulator R, as a channel of communication, has more than a certain capacity. Thus, if D threatens to introduce a variety of 10 bits into the outcomes, and if survival demands that the outcomes be restricted to 2 bits, then at each action R must provide variety of at least 8 bits. (p. 6)

When applying the LRV to an organization, this suggests the internal complexity of an organization must mirror the external complexity if the organization wishes to successfully respond to situations arising within a competitive market.

According to Azadeh et al. (2012), variety is "the number of possible states of a system" (p. 67). Although the term "variety" may not often be used in conjunction with

an organization, the term "diversity" often is (Bartel-Radic and Lesca, 2009). Thus, Goldstein (2011) reiterated the ideas regarding the LRV by claiming an organization must be diverse if it expects to deal with diverse problems. Diversity, however, is a broad word and can encompass many different characteristics. While all components of diversity may not be covered within an organization, it is important there is at least some variety (Ashby, 2011) and that members of the organization can see different representations of diversity throughout the system (Bartel-Radic and Lesca, 2009).

Social Cognitive Career Theory

While individuals typically are able to assert some level of choice regarding career development, certain factors can influence the decision-making process. The social cognitive career theory (SCCT) suggests career development is influenced by environmental variables, such as community influences, and person variables, such as race. Together, these variables impact one's self-efficacy, leading to an impact on the decision-making process of an individual (Lent et al., 1994), along with an impact on personal goals and outcome expectations (Atadero et al., 2015). Thus, the variables influence not only one's confidence regarding if he or she can succeed at a given task but also one's beliefs relating to what will happen if a task is simply attempted.

The SCCT, however, is not limited solely to one's career-related choices or ideas. Logically, occupational status is related to education (Flores and O'Brien, 2002). One can consequently apply the framework to one's education-related choices, as the variables affecting one's career choice can affect the learning experiences and academic experiences of an individual (Gonzalez, 2012). For example, an individual's background may provide or limit experiences in childhood and adolescence that can be used to

develop skills that can potentially prove to be beneficial later in life and in school. Additionally, proximal variables, such as the degree to which an individual perceives support of endeavors, continue to influence the academic development of a person. If individuals perceive support from others and see themselves in a position without barriers, this theoretically influences their self-efficacy not only in career-related choices but also in academic achievements (Wright et al., 2014).

Some variables of SCCT can be controlled and can be used to promote academic achievement. Exposing students to certain experiences or ideas can help students to build positive beliefs about themselves and expect positive outcomes. This fosters higher goals being set and active engagement in achieving goals among students (Gonzalez, 2012). Self-efficacy can be further developed by exposing students to role models to which they relate, providing encouragement, and revealing opportunities (Ali and Menke, 2014). Overall, if used strategically, it appears the SCCT can be used to guide academic and career developments of individuals (Flores and O'Brien, 2002).

Racial Congruence

In previous studies, the term "racial congruence" has been used to describe a situation when a student attends a school where a high percentage of peers are of the same race as him or her (Byrd & Chavous, 2011). The term "racial congruence" served to help frame the topic in this study. For the matters of this study, however, racial congruence was said to exist when a high percentage of both students and personnel of a school aligned as either white or non-white (see Figure 1). In this study, non-white referred to Hispanic and African-American students and school personnel, whereas white referred to all other groups. While the researchers realize white and non-white are not

races in themselves, these two groups are referred to as races throughout the study for the purpose of having a simple construct to refer to and investigate. Thus, the races of school personnel and students were examined and compared; schools were then labeled as slightly congruent, moderately congruent, or highly congruent.

Methods

A quantitative, quasi-experimental design was used to evaluate the impact of racial congruence levels of students and school personnel on fifth-grade students' achievement levels, as measured by the State of Texas Assessments of Academic Readiness (STAAR) reading, math, and science exams. Thus, one overarching research question drove this study: What is the relationship between racial congruence levels of school personnel and fifth-grade students in Houston Independent School District elementary schools and student achievement, as measured by the STAAR (a) reading, (b) math, and (c) science exams?

Within the Houston Independent School District (HISD), 158 elementary schools were included in this study. There were two groups of people within each of the schools: students and personnel. The 2014-2015 data focused on these two groups. Data involving students included the demographics of all students within the school, the percentage of economically disadvantaged students within the school, and the achievement scores of fifth-grade students. Data involving the personnel focused on demographics of certified and non-certified school personnel. All of the data used for this study is available to the public via HISD's website.

Procedure

A series of one-way ANCOVA tests were used to examine if there were any statistically significant differences, with an alpha level of .05 being used to test significance, regarding racial congruence and student achievement levels. The one-way ANCOVA tests were used to examine the percentage of students passing each STAAR exam and compared means from several different groups, with the percentage of students labeled as economically disadvantaged acting as the covariate. Simple and partial comparison analyses used to measure correlation between variables were also conducted.

Overall, the study included three different groups of schools: (a) slightly congruent (n = 7), (b) moderately congruent (n = 60), and (c) highly congruent (n = 89). These groups were determined using the matrix created by the researchers to categorize levels of racial congruence (see Figure 1). The percentage of non-white personnel was compared to the percentage of non-white students in order to classify each school into one of the groups. As the matrix shows, four different groups were originally created; however, no school fit the description of incongruent.

		Percentage of Non-White Personnel			
		0-25%	26-50%	51-75%	76%-100%
Percentage of Non-White Students	76-100%	Incongruent	Slightly Congruent	Moderately Congruent	Highly Congruent
	51-75%	Slightly Congruent	Moderately Congruent	Highly Congruent	Moderately Congruent
	26-50%	Moderately Congruent	Highly Congruent	Moderately Congruent	Slightly Congruent
	0-25%	Highly Congruent	Moderately Congruent	Slightly Congruent	Incongruent

Figure 1. Matrix tool used to categorize racial congruence level of each school by comparing percentage of non-white (African American of Hispanic) personnel to percentage of non-white students.

Using the matrix, the researchers took the percentage of personnel who identified as non-white (meaning African-American or Hispanic for the purpose of this study) and compared this to the percentage of students who identified as non-white in order to find the racial congruence level of each school. Thus, the racial congruence score assigned to each school was based on a ratio of demographics. These levels of congruence were then considered when examining achievement data to see if schools with low racial congruence had low academic achievements levels and if schools with high racial congruence had high academic achievement levels.

Results

The study examined the effects of racial congruence levels of students and school personnel on STAAR reading, math, and science scores, as the researchers statistically controlled for the percentage of economically disadvantaged students. First, a series of univariate analysis of variance tests were conducted on each subject of test scores to test for significant differences between means. With congruence levels as the fixed factor,

the covariate for these models was the percentage of economically disadvantaged students within each school. Separate univariate ANCOVAs on the outcome variables revealed significant effects of congruence levels on reading scores, $F(2, 153) = 3.73$, $p = .026$, and math scores, $F(2, 153) = 3.977$, $p = .02$. However, a separate ANCOVA revealed non-significant effects of congruence levels on science scores, $F(2, 153) = 2.1$, $p = .13$.

Because the ANCOVAs indicated a significant difference in the means of reading and math scores, a post hoc comparison was then performed on these variables. A post hoc comparison was not performed on science scores because the original ANCOVA revealed no statistical significance. The covariate, the percentage of economically disadvantaged students, was significantly related to students' reading achievement levels, $F(1, 152) = 68.814$, $p < .01$. Planned contrasts further revealed highly congruent diversity levels between students and school personnel demonstrated significantly higher reading achievement levels compared to having moderately congruent diversity levels $t(152) = 2.48$, $p = .01$, but not compared to having slightly congruent diversity levels, $t(152) = 1.58$, $p = .16$.

The covariate, the percentage of economically disadvantaged students, was also significantly related to students' math achievement levels $F(1, 152) = 34.96$, $p < .01$. Additionally, there was a significant effect of racial congruence levels on math achievement levels after controlling for the effect of the percentage of economically disadvantaged students, $F(2, 152) = 3.98$, $p = .02$. Like with reading achievement levels, planned contrasts further revealed that highly congruent racial levels between students and school personnel demonstrated significantly higher math achievement levels

compared to having moderately congruent diversity levels $t(152) = 2.82$, $p = .01$, but not compared to having slightly congruent diversity levels, $t(152) = .51$, $p = .61$.

After viewing the results of the post hoc comparisons, correlation between achievement levels and racial congruence levels was then measured. A simple correlation analysis was conducted first, accompanied by a partial correlation analysis later in order to support the use of the covariate. A simple correlation analysis revealed a significant relationship between racial congruence levels and reading achievement levels, $r = -.27$, $p < .01$ (equivalent to $d = -.56$). Similarly, there was a significant relationship between racial congruence levels and math achievement levels, $r = -.24$, $p < .01$ (equivalent to $d = -.49$). A partial comparison was then used to measure the correlation between these variables while controlling for the effect of the percentage of economically disadvantaged students on achievement levels. With the percentage of economically disadvantaged students acting as the control, there was still a significant relationship between racial congruence levels and reading achievement levels, $r = -.21$, $p = .01$ (equivalent to $d = -.43$). The same was true of racial congruence levels and math achievement levels, $r = -.18$, $p = .02$ (equivalent to $d = -.37$).

Discussion

Previous research has provided conflicting ideas regarding the role of racial congruence levels between school personnel and students on achievement levels of students (Atkins et al., 2014; Burt et al., 2013; Montes, 2012; Zirkel, 2002). However, the results of this study attempt to clarify some of the previous contradictions by revealing there are statistically significant relationships between racial congruence levels of school personnel and students in HISD elementary schools and fifth-grade students'

reading and math achievement levels, as measured by the STAAR exams. More specifically, as the level of racial congruence between students and school personnel increases, reading and math achievement levels increase. However, the effect of racial congruence levels on science achievement levels was non-significant.

The researchers initially chose to examine the effect of racial congruence levels on student achievement levels after reviewing contradictory findings in previous research relating to the topic. While some previous research suggested racial congruence levels impact students' perceptions and feelings but not their actual achievement levels (Atkins et al., 2014; Burt et al., 2013), other research suggested racial congruence levels do impact student achievement levels (Dee, 2001; Dee, 2004; Montes, 2012; Zirkel, 2002). The findings of this study help to clarify some of the inconsistences presented in the literature by supporting the previous research that proposed students reach higher levels of achievement when they are taught by a teacher who is of the same race as them (Dee, 2001, 2004; Montes, 2012; Zirkel, 2002). The study specifically revealed, however, higher levels of racial congruence are not related to higher levels of student achievement in all subject areas; instead, out of the subject areas tested, they are limited to students' reading and math achievement levels. While higher levels of racial congruence are not related to higher levels of student achievement in all of the subject areas studied, the results do indicate previous research suggesting racial congruence levels only impact how students feel about themselves (Atkins et al., 2014; Burt et al., 2013) is inaccurate; instead, achievement levels in at least two subject areas are affected.

This study adds credibility to the previous arguments suggesting racial congruence levels do significantly relate to student achievement levels by showcasing the

present-day relevancy of findings and using a larger sample size than previous studies. Additionally, unlike previous studies, this study examined the effects of all school personnel, not just teachers. The findings, though, are remarkably similar in size as compared to Zirkel (2002) at d =.47 and Montes (2012) at d = .40. Additionally, the effects of racial congruence appear to be substantially higher than most variables viewed in previous factor analyses by X and Y.

The conceptual framework used in this study helps to support the findings. When a school has a higher level of racial congruence between students and school personnel, the diversity levels mirror one another better. The LRV suggests diversity levels that are more closely aligned yield greater results (Ashby, 1958; Goldstein, 2011); in the case of student achievement, this holds true. Additionally, when students are able to see people in positions of authority who look like them, they may then be able to see themselves in such a position without barriers. The SCCT suggests this may boost student achievement (Lent et al., 1994; Wright et al., 2014). This study supports this idea, as student achievement levels rise when students attend schools where personnel are racially similar to them.

Implications

The fact that there are statistically significant relationships between racial congruence levels of school personnel and students and reading and math achievement levels is not just important for HISD, but potentially policy makers, educator preparation programs, and school districts nationwide. Achievement gaps are not limited to HISD and are found in every state (National Center for Educational Statistics, 2010). Thus, all

levels of government, nonprofits, universities, and school districts seeking ways to raise student achievement can benefit from these findings.

As levels of racial congruence between school personnel and students rise, student achievements levels increase. This information can be used to inform school administrators in charge of hiring and placement (within legal limits) within districts. Government and nonprofits can endeavor to find better ways to entice, mentor, retain, and develop school personnel of color to narrow the achievement gap.

The implications of this study are also important for educator recruitment programs, both at the PK-12 and higher education levels. The number of minority students is currently increasing while the number of minority educators is currently decreasing (Bireda & Chait 2011). In order for schools to be more racially congruent, the number of minority educators must stop decreasing and instead must start increasing so schools have the ability to mirror levels of diversity between school personnel and students. Thus, higher education institutions need to increase diverse applicants and widen the applicant pool by recruiting more minority individuals into teacher preparatory programs so that PK-12 school districts have the opportunity to at least interview diverse applicants when searching for educators to fill open positions.

Limitations and Future Research

One of the limitations of this study relates to the matrix being used to categorize racial congruence. The researchers created this tool after being unable to locate a tool that could be used to measure racial congruence levels. While the researchers originally designed four categories for this matrix, none of the schools fit the "incongruent"

category, resulting in only three categories being used. Future research could expand on this tool by reconstructing the categories so that they are more specific.

Another limitation relates to the way minorities were grouped within the study. The study examined four groups: non-white students, white students, non-white personnel, and white personnel. African-Americans and Hispanics were grouped together in the non-white categories. The groups are referred to as minority, or non-white, groups. While African-Americans and Hispanics are currently minorities within the U.S., each racial group faces its own distinctive challenges and possesses its own unique history. However, these differences are not accounted for within the study. And while Asian-American students are a minority, they do not traditionally exhibit achievement gaps and were consequently grouped as white. All other less frequently occurring groups were also grouped as white given the complexity of using publically available data for racial congruence research. Future research could separate these minority groups and examine the effects of racial congruence levels of individual races on student achievement levels. Additionally, future research could specifically examine the effects of racial congruence levels on the academic achievement levels of other groups not highlighted in this study, such as Native Americans.

Decreasing the achievement gap while raising student achievement levels is of concern to school districts and policymakers nationwide. School districts are held accountable for the performances of their students, and research-based decisions regarding how to increase student achievement levels must be made. The findings of this study suggest higher levels of racial congruence between school personnel and students are significantly related to higher reading and math achievement levels. In order to

increase student achievement levels in these areas, school districts should consider how to best align racial congruence levels.

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VITA

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