

REPRESENTATIVE BUREAUCRACY AND THE INDIRECT EFFECTS OF SUBSTANTIVE CO-
WORKER REPRESENTATION

by

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Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

August 2015

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Acknowledgements

“I can do all things through Christ who strengthens me”. Philippians 4:13. First and foremost, I would like to first like to thank God for getting to me to this point. There were moments when I was not sure I would finish, but you provided me with the resilience and resolve to finish. I am reminded of a quote by John Steinbeck “And now that you don’t have to be perfect, you can be good”. For me there isn’t a more apt quote for writing this dissertation. There are no perfect people and inevitably I screwed up, got knocked down, and wanted to throw in the towel at some point. However by reminding myself of my ultimate goal, I could focus on being just good enough to get to the next round, then before you know it I could outlast any obstacles that stood in my way. Also this journey over four years would not have been possible without my family. They believed in me and saw that I could get through this. At the end you guys were so clutch, and you helped me and encouraged me when I was falling apart; I appreciate you more than you’ll ever know. In addition I want to thank my dissertation chair Dr. Colleen Casey for staying on me and never letting up until my good was better and my better was best. When I look at where I started from, I just laugh because you obviously saw something in me that I wasn’t seeing myself back then. You took so much time to edit and fine tune my work that I can honestly say I wouldn’t have made it to this point if it weren’t for you. I also want to thank the rest of my committee Dr. Cosio-Martinez and Dr. Rodriguez. Your positivity, constructive comments, and feedback helped to make this dissertation what it is today. Lastly I’m not sure who will actually read this dissertation, but if you do please understand that while you see the finished product, this dissertation is also made of rough and tough stuff. Toni Morrison once said “if there is a book you want to read, you must write it”. While everything starts out as an idea, you must have the will to endure the process and see it through or it won’t exist. It may not be always be sunny days and clear skies, but it will be worth it in the end if you stay the course.

August 31 2015

Abstract

REPRESENTATIVE BUREAUCRACY AND THE INDIRECT EFFECTS OF SUBSTANTIVE CO-WORKER REPRESENTATION

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The theory of representative bureaucracy has been suggested as an equity oriented tool that could work to alter the negative aspects of majority rule. Ongoing debates over the best way to ensure and enhance equity for underrepresented groups continue to question the value of representative bureaucracy as it has concentrated on passive (descriptive) and active representation. Such representation where administrators look like the clientele they are serving and subsequently work to generate outcomes for those clients certainly has value. However it is not a certainty that a bureaucrat sharing a similar traits as the group being served (passive representation) will inherently work for policy outputs for groups that share those characteristics (active representation). Questions persist in regards to policy outputs and outcomes, and whether it is purely minority administrators who are facilitating them. The weakness of passive and active representation is that these mechanisms fail to recognize the role that administrators not sharing certain traits as the public they are serving may play in generating equity. Additional research was needed to determine what role indirect representation, which is representation from bureaucrats outside the group being served, played in facilitating substantive representation. The significance of this research is that it filled a lacuna within the representative bureaucracy literature by testing the saliency of indirect substantive co-worker representation. This was done by determining if co-workers of black bureaucrats (in this case indirect sources of representation) played a positive role in Black student performance outcomes. Additionally this dissertation aimed to evaluate the

influence of minority (Black) bureaucrats on their (Hispanic and White) co-workers in facilitating positive substantive representation for Black student performance. This was one of the first studies to look at co-worker representation and its role and value in generating substantive policy outcomes for Black students. To do this, this dissertation went beyond traditional studies in representative bureaucracy in that it employed quantitative data from the Texas Education Agency and qualitative data from interviews with 16 Black high school teachers (eight from higher economically disadvantaged schools and eight from lower economically disadvantaged schools). The results found that an increasing percentage of Hispanic teachers had a positive effect on Black student performance outcomes for Black student dropout and college readiness percentage, and an increasing percentage of White teachers had a positive effect on the Black student performance outcome of college readiness adding value to the assertion that they can potentially play a valuable role in achieving equity. In contrast an increasing percentage of Black teachers had a significantly negative effect on Black students performance outcomes for Black students, related to Black student dropout, graduation, and college readiness percentage, a finding that is counter to the very theory of representative bureaucracy. However, the ability of Black teachers' to generate positive outcomes for black students appears to be mediated by the economic circumstances of the students they teach. Particularly, a greater percentage of Black teachers are responsible for generating outcomes in higher economically disadvantaged (HED) schools, and it is in HED schools where the negative effects result. Furthermore, within HED schools Black teachers are inhibited by external environmental conditions and internal organizational norms that limit the extent to which they advocate for student outcomes as well as the outcomes that are prioritized. In this sense, the conditions under which Black teachers are expected to produce more equitable outcomes is in essence, inequitable. For example, Black teachers are more likely to work in economically disadvantaged schools and in these schools they may face a different set of priorities for which they work to generate favorable student outcomes. These outcomes may not be reflected in the traditional educational goals of preparing students for college or future education. Thus, while active representation may have value in generating

more equitable representation, the theory is incomplete if the structural features of the policy environment, bureaucrats and clients are not also considered. This suggests that those seeking to employ active/sources of representation may be mitigated by mediating factors that serve to undermine them; however through broadening representative bureaucracy to emphasize substantive representation rather than simply active/direct representation, equitable outcomes can still be achieved.

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Chapter 1

Introduction

Statement of the Problem

Within a democracy majority rule can work to the detriment of minority rights as evidenced by discriminatory practices that have historically denied minorities and women meaningful participation in the American workforce and all aspects of society (Feagin, 1991). The theory of representative bureaucracy envisions a role for administrators where they can work to ensure disadvantaged groups can achieve equity when they have been denied meaningful representation in a democracy. It recognizes that representative bureaucracy can be an equity oriented tool that works to advance tenets of democracy related to representation, equity, and minority rights. Representative bureaucracy is defined as a theory that posits that “If administrators and the public share value orientations, then administrators will advocate and pursue [the same] courses of action the public would if it were able to congregate and had the administrators’ expertise and information” (Meier and Nigro, 1976, p. 458). Previously the representative bureaucracy literature has concentrated on passive (descriptive) representation, which means an organization reflects the general population at large or even the demographic characteristics that it is serving and translates it into active representation; supposing that it will lead to these administrators producing a desired output or outcome for a group sharing similar traits (Mosher, 1968). For example, passive representation would evaluate if the number of Black bureaucrats (teachers) in a school is reflective of the students it is serving. If the student population within a school is twenty percent Black, passive representation would look to see if there is a proportional representation of Black teachers. Active representation takes this a step further; supposing that such passive representation by these administrators will lead to a desired output or outcome for a group sharing similar traits (Mosher, 1968). For example, the very presence of Black teachers will result in these teachers working to generate an outcome or an output like increased test scores for Black students.

Yet ongoing debates have been raised over the best way to ensure and enhance equity for underrepresented groups by scholars like Krislov (1974) and Mosher (1968) who point out that there are additional mechanisms that should also be employed in achieving equity for underrepresented groups because it is uncertain that a bureaucrat sharing similar traits to the group being served (passive representation) will inherently work for policy outputs for groups that share those characteristics (active representation). Rather organizational and socializing factors known as mediating factors may ultimately subvert bureaucrats' desires and intentions to generate policy outputs for those sharing similar traits as themselves. Another position more in line with active representation counters that it is indeed the case that minorities "will more closely mirror the needs and wishes of their group, whether overtly or subconsciously, than non-minorities do" (Kranz, 1976, p.435). Many studies from the literature advance this view, seeing a linkage between passive representation and significant policy outputs for minorities (active representation). Yet in seeking to reconcile this ongoing debate within the representative bureaucracy literature, research seems to have derived concessions from both sides for a consensus among scholars studying active representation that while it does occur, it is not impervious to mediating factors (Meier and Bohte, 2001; Meier and Stewart, 1992). Mediating factors would influence a minority administrator's ability to achieve active representation. For example, mediating factors like discretion, the level of the organization, and socialization can influence if minority bureaucrats will undertake an active representative role. Yet perhaps the biggest mediating factor that would affect minority bureaucrats' ability to engage in an active representative role is critical mass. Critical mass postulates that the benefits of a minority presence within an organization (passive representation) can only be obtained when minorities have enough of a presence within an organization to work toward them (Thompson, 1976). What constitutes a critical mass is still a matter of contention within the literature; however many studies seem to indicate that critical mass becomes manifested when a minority group within an organization gets beyond the twenty percent threshold within an organization (Hindera and Young 1998; Meier 1993b; Meier et al. 1999).

A preponderance of research on active representation that seeks to tie it to policy outputs and outcomes is set within school oriented settings (Keiser et al. 2002; Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). This is because public schools have served as ideal settings for analysis because they fit all the criteria previously articulated by Thompson (1976): that active representation is most prevalent where minorities work jobs that have salient ramifications for the well-being of their race, exercise discretion and work in close proximity to one another. Yet as more studies were being conducted within the representative bureaucracy literature, criticism emerged that would have implications for new types of representation. In order to prove active representation it must be conclusively established that minority administrators are the ones affecting policy outputs for the public being served. Questions persist in regards to the policy outputs, and whether it is purely minority administrators who are facilitating these policy outputs. While research on active representation indicates that active representation can occur as a result of having minority administrators, the research is unclear on whether representation on behalf of administrators who do not share the same traits and characteristics as the group being served can occur? As Lim (2006) and Theobald and Haider-Markel (2009) note, many of these studies imply substantive representation effects rather than simply active representation. Substantive representation encompasses active representation, which would be considered a direct source of representation, but also includes indirect sources of representation, which is representation that occurs regardless of shared characteristics. The weakness of active representation is that it does not recognize the role that administrators not sharing certain traits as the public they are serving may play in generating equity. If mediating factors can play as big a role as a shared characteristic like race, then it is possible that bureaucrats not sharing similar traits can approximate similar representation. Research needs to determine what role indirect representation or bureaucrats outside the group being served play in facilitating substantive representation. Are they merely passive/neutral observers who sit on the sidelines while a particular social group works to articulate policy outputs, or are they a significant part in achieving substantive representation in a

representative bureaucracy? If representative bureaucracy as a theory is truly concerned with achieving optimal equity for the underrepresented and underserved then should it not be concerned with maximizing representation? Scholars seeking to maximize representation for the public being served and recognizing the insufficiency of active representation can potentially look to substantive representation as a mechanism that considers direct mechanisms like active representation, but also more indirect ones.

Current research on indirect substantive representation has not looked at “majority”(White) and co-ethnic minority co-workers’ (co-workers who are minority but not of the same ethnicity as the minority group being studied) role in achieving indirect substantive co-worker representation. While many of the authors studying direct/active sources of representation postulate that “majority” and co-ethnic minority bureaucrats may play a role in generating policy outputs for their clients because there is a recognition that “minority” bureaucrats cannot inherently be everywhere at once in their organizations, such a relationship has been implied rather than conclusively proven. Additionally as Lim (2006) notes other indirect substantive benefits can be parsed out not only because of a change in perception by clients but also because of a change in fellow co-workers who may not be from a particular social group yet have their behavior altered in some way by the presence of minority co-workers. Research must also measure the potential potency of the effects of “majority” and co-ethnic co-workers on policy outcomes in addition to active representation. Finally research needs to determine if a critical mass of minority bureaucrats can have an interactive effect on majority and co-ethnic minority bureaucrats to generate minority student outcomes. What is the value of indirect substantive co-worker representation, particularly in comparison to more direct sources?

Purpose and Significance of the Study

The purpose of this dissertation is to test for indirect and direct/active effects of substantive co-worker representation. This dissertation proposes that sources of indirect substantive co-worker representation are an important tool in the arsenal of equity that are not

being measured and thus undervalued. More specifically, the dissertation asks if indirect sources of substantive representation among coworkers have a significant, positive effect on minority policy outcomes and what role do Black bureaucrats play in this process?

Significance of this Study

The significance of this research is that it fills a lacuna within the representative bureaucracy literature by determining the value of indirect substantive co-worker representation. This dissertation contributes to the representative bureaucracy literature by incorporating recent expansions into substantive representation, recognizing that the two main sources of indirect substantive co-worker representation may be playing a significant role in generating outcomes for Black students. It seeks to do so by first determining if the co-workers of minority (Black) bureaucrats, in this case majority (White) and co-ethnic minority (Hispanic) (indirect sources of representation), play a significant role in Black student performance outcomes relative to their Black co-workers (direct representation). Additionally this research aims to evaluate the second sources of indirect substantive co-worker representation, the influence of minority bureaucrats on their co-workers in facilitating substantive representation for Black student performance. This is one of the first studies to look at co-worker representation and its role and value in generating substantive policy outcomes for Black students.

This dissertation employs a mixed methods approach that goes beyond traditional studies in representative bureaucracy, which have been mostly quantitative (Kennedy, 2012), by employing quantitative and qualitative data. This allows for clarification of theoretical issues that emerge as a result of the quantitative data. In addition, it allows for the identification of a wide swath of causal mechanisms that help explain the why and how behind the results. This provides in depth knowledge as to how and why substantive representation is occurring and the motivations underscoring administrators implementing it. This exploratory qualitative analysis may facilitate the emergence of new theoretical and empirical questions that the representative bureaucracy literature can evaluate and test. Ultimately this dissertation hopes to bring about greater insight

into the saliency of indirect co-worker representation by measuring its role in generating more active/direct sources of representation for a group being underserved.

Direct/Active Representation Due to Passive Co-worker Representation

Research Question 1. Is direct/active representation due to the effects of passive representation?

Specifically, do schools with a greater percentage of Black teachers have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H1: Minority (Black) teachers have a significant, positive relationship with Black student policy outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority (Hispanic) Bureaucrats

Research Question 2. Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H2: Majority (White) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

H3: Co-ethnic minority (Hispanic) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Indirect Substantive Effects of Active/Direct Representation on Indirect Sources of Co-Worker Representation

Research Question 3. Do indirect sources of substantive co-worker representation through the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority

(Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and meeting college readiness standards in both English and Math?

Are positive indirect effects on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math produced when active/direct sources of representation interact on indirect sources of representation?

H4: When a critical mass of minority (Black) teachers are present, majority (White) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

H5: When a critical mass of minority (Black) teachers are present, co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards.

Indirect sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation

Research Question 4. How do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math? How do indirect sources of substantive co-worker representation due to the effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H6: A direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats.

H7: Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone.

Methodology and Research Design

This study utilizes a mixed methods research design. The data in this study was collected for explanatory sequential research. It is the quantitative aspect of this research that is prioritized because it did the heavy lifting as it sought to answer if majority and co-ethnic minority bureaucrats played a significant substantive role in generating minority policy outputs in comparison to, and with the aid of Black bureaucrats. The quantitative data for this study was collected from secondary data from the Texas Education Agency (TEA). Schools were selected as the unit of analysis. A school level of analysis has the advantage of helping to make a distinction between direct and indirect linkages when measuring the substantive co-worker representation. The data was longitudinal in nature, as it was collected over a four year period. A Generalized Linear Model (GLM) was used to analyze the data and identify key statistical relationships. The independent variables are the percentage of Black, White, Hispanic teachers in a school. In addition, this study also has interactive independent variables that involve a critical mass of Black teachers, which were Black teachers within schools which had at least a plurality but no more than a majority of African American teachers, interacting on White and Hispanic teachers respectively. The primary dependent variables were the percentage of Black students within a school that graduate, dropout, and meet college readiness standards in both English and Math. The control variables include

teaching, student, and school related variables. Teaching related variables include the number of students per teacher in a school, and the average years of experience of a teacher at the school, teacher salary, and teacher compensatory percentage within a school. In addition this study controls for student related variables such as the percent of students at risk in a school, the percent of students economically disadvantaged within a school, and student mobility within a school (how many students are present stay within that school in a particular year). Finally there were school related control variables that include instructional expenditures per student, the percent of students in gifted and talented, the percent of students in special education, and percentage of disciplinary placements within a school.

The qualitative component in contrast aids and enhances the findings from the quantitative section by seeking to examine the strategies used by Black teachers to achieve positive outcomes in different types of school environments and better understand how the socioeconomic environment influenced their ability to generate positive outcomes for Black students. Sixteen Black teachers participated in the interviews. To increase the validity of findings teachers were selected from schools characterized by different social and economic demographics, (eight from higher economically disadvantaged schools and eight from lower economically disadvantaged schools). All interviews were conducted with Black high school teachers selected from multiple high schools and school districts in the Dallas Fort Worth (DFW) area. Interviews were conducted at the convenience of the interview participants and interview participants were provided a consent form regarding protection of privacy and confidentiality that they had to sign before interviews began. All interviews were, with the permission of the interviewee, recorded and transcribed before they were organized and coded into emerging themes and categories.

Limitations

The biggest limitation of the quantitative research is that teachers and students cannot actually be matched using this dataset, so it is still impossible to connect which teachers are generating which policy outcomes for Black students within the unit of analysis, however this study comes closer than previous studies on representative bureaucracy by conducting its analysis at the school level rather than at the district level. Additionally another major limitation of this quantitative research is the generalizability of these results. As noted by Roch, Pitts, and Navarro (2010) much of the results from this study are largely context-specific making extrapolation or application to other policy arenas and settings uncertain. In addition, the nature of the research that is studied means that in other research settings where Blacks (or any specific group being studied) are not being measured in samples where they have at least a significant presence in the sample on the part of the independent and dependent variable, then results may differ. It is also important to consider that in policy arenas where organizational factors may differ, for example ones in which bureaucrats are less able to exercise discretion, less substantive representation may be observed. A final point of consideration is that since this data is limited to one state, Texas, there is no guarantee that findings regarding co-worker representation will be similar to those found in other states. In another state where racial dynamics are different, for example more homogenous states or those states with greater or less tension in regards to race relations, the results may clearly be different. Nevertheless Texas is a large and diverse state with significant representation of Whites, Hispanics, and Blacks, which has made it an ideal setting for explorations into representative bureaucracy (Bohte 2001; Keiser, 2002; Meier, Wrinkle, and Polinard, 1999; Pitts, 2005).

Most of the qualitative research conducted was filtered through the lens of the teachers interviewed. This means that much of the results from this study are largely context-specific and results may be difficult to replicate. Extrapolation or application to larger settings or other policy arenas may be difficult, however efforts were made to select teachers of different demographics at different schools within the DFW to create a representative sample. Additionally the researcher's

presence may have increased bias, as the researcher's race may have engendered biased responses, however many of the interviewees were surprisingly candid and assured of the confidentiality of their responses. Another important consideration is that the qualitative analysis may have been prone to the personal biases of the researcher, which means it may be afforded lower credibility than the quantitative analysis that was conducted, however the interviewer incorporated methods such as having an external third party look at the analysis and piloting the analysis by a separate group of teachers not included within the study to minimize bias. A final limitation of this study is that it may raise issues of wider implications. Due to the size of the sample, sixteen teachers, results found here may not be transferable to other settings, but this study certainly offers an introductory analysis on an important and controversial finding within the representative bureaucracy literature.

Results

The dissertation results only find partial support for two of the seven Hypotheses. Specifically, support is found for the effects of indirect representation, as White and Hispanic teachers have a positive effect on select Black student outcomes. Overall the results from the quantitative analysis section suggest that overall an increasing percentage of Hispanic teachers seem to have a positive effect on Black student performance outcomes for Black student dropout and college readiness percentage within a school, with no significant effect on Black student graduation percentage. In addition, an increasing percentage of White teachers within a school only seem to have a positive effect on the Black student performance outcome of college readiness, while not having a significant effect on Black student dropout and graduation percentage. This adds value to the assertion from Lim (2006) that indirect sources of representation can potentially play a valuable role in achieving equity. However, quantitatively, the same support is not found for active sources of representation, either direct or indirect. Specifically, schools with a higher percentage of Black teachers are correlated with negative performance outcomes for Black students. Quantitatively, Black teachers also do not appear to mediate the influence of their co-

workers on Black student performance outcomes. This raises questions about why active representation in schools is not working the way the theory suggests. At first glance, it seems to provide evidence for rejecting conceptualizations of representative bureaucracy that exclusively focus on active sources of representation and how passivity leads to more desirable outcomes.

Given the findings in Hypothesis 1 which are highly controversial and seem counter to the very theory of representative bureaucracy (which postulates sharing characteristics will subsequently generate positive outcomes for the group being served), the results dictated further probing to determine why an increasing percentage of Black teachers within a school were not associated with positive performance outcomes for Black students. Were they operating under certain structural conditions that could mediate the potency of any attempts to utilize active representation? Mediating factors like the percentage of students within economically disadvantaged schools may offer an explanation for why an increasing percentage of Black teachers within a school did not generate positive performance outcomes for Black students related to dropout, graduation, and college readiness percentage. In recognizing this, a retest of Hypothesis 1 was performed using the significant models in both high and low economically disadvantaged schools. The results found that for Black student dropout, graduation, and college readiness percentage, an increasing percentage of Black teachers is associated with negative student outcomes in the high economically disadvantaged schools, while increasing Black teachers in low economically disadvantaged schools had no effect on Black student performance outcomes. This suggests that economically disadvantaged student effects serve to mediate the effects of Black teachers. The ability of Black teachers to influence student outcomes in a positive manner is not felt uniformly. However, this finding also presented a new set of challenges. Recognizing this difference between Black teachers within high and low economically disadvantaged schools suggests there is need to better understand the qualitative conditions faced by teachers within these schools that might explain why there is a difference between them in generating outcomes for Black students.

Overall the qualitative analysis findings seek to explore how socioeconomic barriers,

organizational and social constraints affect the belief, ability and influence of Black teachers' to generate positive outcomes for Black students. While Hypotheses one in the quantitative analysis found an increasing percentage of Black teachers (direct sources of representation) is associated with negative outcomes for Black students, a finding that seems to counter the very theory of representative bureaucracy, further probing showed that these findings were only within high economically disadvantaged schools, suggesting socioeconomic factors may mediate the effectiveness of representative bureaucracy. The results in this section help articulate why factors like students being economically disadvantaged work to mediate the effectiveness of representative bureaucracy oriented tools. A greater percentage of high economically disadvantaged (HED) teachers expressed that they were likely to have discretion compared to their lower economically disadvantaged (LED) counterparts on an administrative level; however in regards to personal level discretion the two groups were the same. Teachers within both HED and LED schools deal with different structural considerations that influence its potency. While there seems to be very little difference in teachers employing representative bureaucracy strategies, as they all recognize the value of symbolic, passive and active representation, the difference in the economic circumstances of the students they teach seem to create penetrable differences in HED schools as opposed to LED ones. These differences seem to foster an environment that inhibits the value that can be derived from direct/active sources of representation because these teachers seem to encounter more negative barriers than their counterparts in LED school. This in turn seems to resign HED teachers to adopt a more negative view in regards to Black student achievement and their ability to overcome these obstacles that they face, a finding which may explain why on a macro level there are distinct differences in Black teacher's effect on performance outcomes between HED and LED schools. These structural factors may mediate efforts employed by Black teachers, which is why they are not felt uniformly across the two categories. Thus this research expounded upon the quantitative section, in explaining why there are unique differences between Black teachers in HED and LED schools. It demonstrates how a mediating factor like student economically disadvantaged percentage creates differences in dealing with the Black students

they teach, which ultimately undermined a shared racial identity.

An Overview of the Dissertation Results

On a surface level these results may seem to cast doubt on the very idea of representative bureaucracy. If as the percentage of Black teachers' increases within a school, it correlates with negative outcomes, as opposed to their White and Hispanic co-workers; it would seem to imply that there is very little value that can be derived from making schools more representative. However this would be an overgeneralization of the data. Black teachers are more likely to teach economically disadvantaged Black students than their White and Hispanic co-workers, which means any attempt to compare the groups would not be accounting for the unique school conditions that each group faces when teaching Black students. In addition, it is important to note that all the dependent variables within this study were performance outcomes rather than simply outputs, which has traditionally been the domain of studies on representative bureaucracy. The likely possibility is raised that measuring outcomes limits the discretion and influence that a teacher has to affect an outcome in comparison to an output, since there are so many other factors (like economically disadvantaged percentage that go into an outcome). Furthermore, the socioeconomic circumstances of the students in a particular school may also influence a different set of organizational priorities as to what constitutes success as well as set of social norms under which teachers operate. Thus, this study does not attempt to negate the value of shared racial identity in generating positive outputs for a group. As noted earlier research on representative bureaucracy has found linkages between the presence of minority teachers and positive policy outputs related to ability grouping for example more assignments of minority students to gifted and less minority students assigned to special education programs; it is also associated with a decrease in minority student discipline and positive outcomes related to student performance on standardized tests (Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). When Black teachers have discretion to influence Black student

outcomes in a positive fashion, it is very likely that they do so. However this dissertation is arguing that when it comes to how they impact outcomes they may be inhibited from doing so due to a host of other mediating factors, suggesting that the theory of representative bureaucracy cannot be applied in a blanket one size fits all fashion, rather contextual factors must be considered that may mitigate its influence. In short, in some cases, active and direct sources of representation may face inequitable conditions under which to operate.

In accounting for why Black teachers located in higher economically disadvantaged schools generate more negative outcomes toward Black students than their peers in lower economically disadvantaged schools, as noted by Merton (1940), prevailing bureaucratic norms and an emphasis on middle class values may foster categorization and subsequently alienation with clientele who do not meet these bureaucratic norms. Bureaucrats regardless of shared characteristics like race may be predisposed to view such clientele much more harshly in alliance with research dating back to Rist's (1970) study on African American students in the ghetto, setting up decreased expectation and a self-fulfilling prophecy where Black students in educational settings may face another barrier that prevents them from achieving. This suggests that despite the best of intentions, both mediating factors and the very characteristics of the clientele may work to erode positive effects that may be generated by representative bureaucracy. Ultimately this research calls into question implicit assumptions of representative bureaucracy by echoing caveats in earlier research that mediating factors may serve to mitigate the assumptions within it. Previous researchers recognized the role that organizational factors play in mediating representative bureaucracy. However external factors of the very clientele being served may work to do the same as well, diminishing efforts made by those seeking to utilize more active/direct sources of representation that are advocated within representative bureaucracy. This also suggests the theory of representative bureaucracy and more active/direct sources of representation may have limited effectiveness in generating equality, equity, and educational opportunity if socioeconomic factors and the very nature of the bureaucracy works to mitigate attempts to do so. Rather shared racial identity may not always be enough to

overcome socioeconomic characteristics and bureaucratic norms in regards to impacting Black student policy outcomes.

It is important to note that this dissertation does not invalidate the previous research on representative bureaucracy. Rather it aids the field of representative bureaucracy by providing the field with more context in regards to what may hinder or engender representative bureaucracy. Too much research has accumulated within the field of representative bureaucracy to doubt the value that can be derived from active/direct sources of representative bureaucracy when a bureaucrat has the discretion to do so. However, this research aids the field by expounding upon what factors could mitigate the effects of representative bureaucracy. This suggests that there is some unfinished businesses within the representative bureaucracy literature. It must expand to recognize how mediating factors may erode the value that can be derived from representative bureaucracy. A one size fits all prescription that assumes shared identity will optimize performance outcomes and equity may not do so when there are barriers that work to block it. Achieving equity in regards to representative bureaucracy may be much more nuanced than assuming shared identity like race or gender will inherently generate equity, because the reality is much more complex. The implications of this research suggests that in order to optimize equity bureaucratic norms and mediating factors like socioeconomic considerations need to be considered in addition to shared racial identity.

Additionally this research also demonstrates that there is value that can be derived from representation regardless of shared identity (Lim, 2006). As long as there are people willing to work toward achieving equitable outcomes despite shared identity then the research implies that that they can also be a valuable asset in promoting equity. To be sure, there is value in shared racial identity in fostering empathy and reliability and active/direct sources of representation should never be discounted, as it adds value to the bureaucracy. However if the ultimate outcome is to benefit those being served within the bureaucracy, then strict adherence to theories that see representation as strictly being generated through a shared identity may actually undermine the efforts by administrators who sought to utilize it as a tool to help those same people in the first place. Just as active/direct sources of representation can be a tool used to achieve equity, so too

can indirect sources, which requires moving beyond representative bureaucracy in the strictest sense. Rather representative bureaucracy as a theory must evolve to emphasize substantive representation, recognizing that these sources can also be a valuable tool in generating equity. Substantive representation recognizes the value of both active/direct sources of representation and indirect sources of representation, providing a much more inclusive avenue for which to achieve equity. If the focus is to be ultimately placed on these groups then the ultimate goal should be doing what is best for them, which may mean expanding the field of representative bureaucracy to consider the value of these indirect sources of substantive representation, recognizing that they along with more active/direct sources of representation can work in tandem to generate more equitable outcomes for underrepresented groups.

Organization of the Dissertation

Chapter 1 provides an introduction to the dissertation and includes the purpose of the study, the significance of the study, the research questions and the hypotheses that were tested. A limited discussion of the methodology and research design is presented along with limitations of the study.

Chapter 2 presents a literature review of representative bureaucracy, the theory of representative bureaucracy, and the development of substantive representation to explore the necessity of evaluating indirect sources of substantive representation among coworkers.

Chapter 3 describes the methodology, including the research and design, the process of data collection and analysis, and the statistical testing of the hypotheses, the limitations, and research and validity.

Chapter 4 highlights results on the data being analyzed, describing the quantitative and qualitative results being used to analyze the research questions within this dissertation.

Chapter 5 concludes the Dissertation summarizing the results, offering supporting theories that align with the research findings, providing recommendations and implications of the research within this dissertation, and future research that will need to be conducted in its wake .

Chapter 2

Literature Review

Overview of Literature Review

This literature review will set a framework for evaluating the saliency of indirect substantive co-worker representation. The first section in this literature review will outline the role of a bureaucracy, and the subsequent conflicts that may arise when bureaucracy and democracy prioritize differing aims. The next section will in contrast outline how a bureaucracy, particularly a representative bureaucracy, can also be a tool to advance and even support democracy in its pursuit of equity. The section that follows introduces representative bureaucracy as a theory designed to facilitate equity, while also distinguishing the different types of representation that may fall within representative bureaucracy. This discussion leads to sections highlighting debates within representative bureaucracy as well as an exploration into current research findings. A section highlighting the reconciliation of the two theories precedes a section on active representation within schools. A section on the limitations of active representation will follow which introduces a section on the importance of substantive representation. In concluding this literature review the gaps not being explored within substantive representation will be outlined. This will serve as a precursor to a final section, which expounds upon the importance of creating a framework for measuring and evaluating the significance of indirect substantive co-worker representation.

Bureaucracy and Democracy

Bureaucracy is the reality of modern day political governance. The term is attributed to organizations that display certain traits as noted by Max Weber's "Bureaucracy" which described bureaucracies as impersonal, hierarchal, salaried, having clearly defined roles, and granting esteem on the basis of merit (Weber, 1946). Bureaucracies are organized with a focus on "precision, discretion, speed, unity, and expertise" (Krislov and Rosenbloom, 1981, p.5). In addition, scholars like Allison (1971), Lipsky (1980), Seidman (1970), Waldo (1952) and Wilson

(1989) have long noted that bureaucracies are not just neutral instruments, rather they engage in “politics of the first order” (Meier 1993, 7). This can be problematic because in the words of Abraham Lincoln democracy is conceptualized as a “government of the people, by the people, for the people” (Lincoln, 1863). Bureaucracy with its reliance on an unelected civil service may escape accountability within the democratic process in a way that political officials cannot, promoting the proliferation of bureaucratic power. Few would want government that supplants democratic rule with an unelected bureaucratic one. As Dahl (1967) notes, democratic governance recognizes that governmental institutions are accountable to the democratic process. A bureaucracy insulated from being checked by elected officials can raise serious concerns about the ability of the democratic process to curtail the bureaucracy. Administrators haphazardly pursuing their own agendas and objectives in what they deem is the best interest of the public may evoke questions on bureaucratic responsiveness and legitimacy in regards to whether the bureaucracy is serving as a tool for implementing political and public will.

Representative Bureaucracy: An Avenue for Achieving Equity?

The concerns raised in regards to the bureaucracy subverting democracy are certainly valid. However it is also important to recognize that the bureaucracy can also be a tool that works to advance tenets of democracy related to representation, equity, and minority rights even when concurrent democratic principles related to majority rule may work to suppress them. For example, equity recognizes that the exclusion of certain groups in democratic discourse presents barriers that must be overcome and remedied in order to ensure fairness and justice for those particular groups (ALA, 2001). Yet one of the express aims of a democracy advocating for equality is equal access so that citizens are formulating preferences and signifying them so that politicians may weigh them equally when governing and majority rule can prevail. As James Madison noted in “Federalist No. 51”, there are dangers with majority rule because when, “a majority be united by a common interest, the rights of the minority will be insecure” (Madison, 1788). Granting equality may subvert equity in the sense that those who are now in the majority, through a democratic

process that promotes equality, may deprive those in the minority of their rights through formal and informal channels of discrimination. Examples of this in the United States are the historical precedents that denied women and minorities the opportunity to achieve meaningful participation and advancement in the American workforce and society well into the twentieth century due to discrimination (Naff, 2001). So when a democratic society is incapable of overcoming the will of the majority at the expense of minority rights, then separate mechanisms for engendering equity and representation on behalf of minority rights must be identified and implemented if the principles of democracy are to be upheld. Recognizing the discretionary decision-making ability of bureaucrats can allow for the bureaucracy to be one of those mechanisms for achieving equity.

Movements like New Public Administration championed by Dwight Waldo (1968) and George Frederickson (1970; 1980) demonstrate a precedent for administrators advocating for equity-oriented decision making. This movement recognizes the importance of administrators not simply being neutral beings but rather working to empower those who have been traditionally underrepresented in government to enhance their positions and power within society. One solution that has been offered in keeping with this vein of empowering underrepresented groups in policymaking is representative bureaucracy. As Kenneth Meier notes, “the theory of representative bureaucracy begins by recognizing the realities of politics. In a complex polity such as the United States, not all aspects of policy decisions are resolved in the ‘political’ branches of government” (1975, 527). The theory of representative bureaucracy envisions a role for administrators where they can work to ensure disadvantaged groups can achieve equity when they have been denied meaningful representation in a democracy.

Representative Bureaucracy: What Is It?

Representative bureaucracy can be defined as a theory that posits that “If administrators and the public share value orientations, then administrators will advocate and pursue [the same] courses of action the public would if it were able to congregate and had the administrators’ expertise and information” (Meier and Nigro, 1976, p. 458). The concept of representative

bureaucracy can be traced back to J. Donald Kingsley's (1944) book "Representative Bureaucracy". Kingsley argued that the bureaucracy could come to threaten democracy if the bureaucracy is unrepresentative and undermines or refuses to adhere to the demands and goals of the party in power. The evolution and inversion of the term is the result of Krislov (1974) considering the dynamic of race, noting that a bureaucracy should be representative to facilitate the inclusion of groups previously excluded from American society. In this aspect representative bureaucracy evolves from a concept articulated to ensure that the dominant party in power has adequate representation ensuring that those overlooked and underrepresented are given equitable representation as well. Working to ensure that these groups achieve significant representation within the bureaucracy is thought to be an important means of ensuring equity for these underrepresented groups. This is because a representative bureaucracy aims to promote accountability for an insulated unelected bureaucracy by mirroring the people it is tasked with serving, ultimately making it more responsive. Yet how a representative bureaucracy is thought to translate into responsiveness to the public it is serving becomes a matter of contention. As Naff (2001) notes "how one determines the extent to which the bureaucracy is representative, however, is an issue that has never been fully resolved" (p.22). Representation has been understood from the perspective of passive, active, and is currently being expanded into symbolic and substantive representation.

Parsing Out Representation

Passive (descriptive) representation means an organization reflects the general population at large or even the demographic characteristics that it is serving, what Subramaniam (1967) would label as proportional representation. For example, passive representation would evaluate if the number of Black bureaucrats (teachers) in a school is reflective of the students it is serving. If the student population within a school is twenty percent Black, passive representation would look to see if there is a proportional representation of Black teachers. Active representation takes this a step further; supposing that such passive representation by these administrators will

lead to a desired output or outcome for a group sharing similar traits (Mosher, 1968). For example, the very presence of Black teachers will result in these teachers working to generate an outcomes or an output like increased test scores for Black students. Lim (2006) notes that active representation would be considered a direct source of representation because it is the product of minority bureaucrats' own behavior. Substantive representation encompasses active representation, which would be considered a direct source of representation, but also includes indirect sources of representation, which is representation that occurs regardless of shared characteristics. For example, within a school there may be Black teachers working to increase Black student test scores; however there may also be non-Black teachers who are also working to increase Black student test scores. These non-Black teachers would be considered an indirect source of representation since they do not share the same characteristics or traits as the Black students being served. Symbolic representation means attitudes of those being represented with a particular group change in the affirmative simply because of passive representation regardless of whether any meaningful action is done on the behalf of the represented. For example Black students who report higher satisfaction with a teacher simply because that teacher happens to be Black prior to the teacher even teaching the students would be an example of symbolic representation. Symbolic representation would not be considered a direct source of representation because it requires no behavior on the part of minority bureaucrats. For a diagram outlining the relationship between these different types of representation, please see Figure 2-1 below:

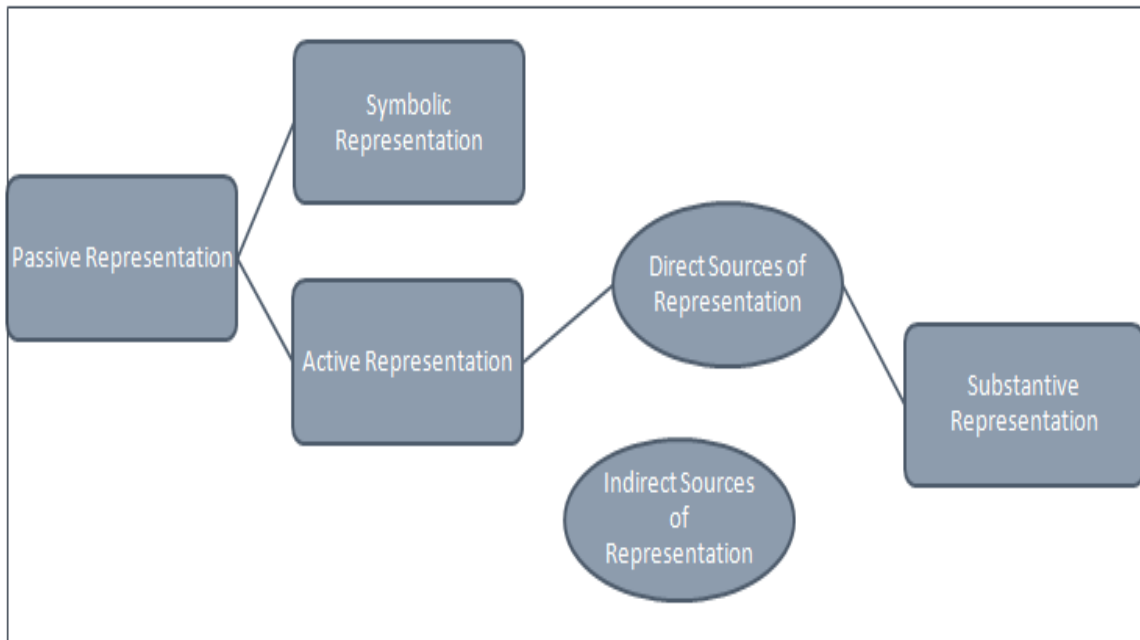


Figure 2.1 Diagram of the relationship between the different types of representation

It is important to note that the representative bureaucracy literature has concentrated on passive and active representation. This is because passive representation was implemented as a way to make up for a historical loss of opportunities to minorities by putting them in positions where they were underrepresented (Krislov, 1974; Rosenbloom and Kinnard, 1977). As Mosher (1968) notes the theory presupposed that passive representation would translate into active representation because underrepresented bureaucrats would work to achieve policy outputs and outcomes for members of the public that share similar traits as themselves. This would then advance equity because these policy outputs and outcomes would benefit a particular group as a whole. For example, it was presumed that the hiring of a Black bureaucrat meant they would work toward more favorable policy outputs and outcomes for Blacks, which would ultimately advance the interests of the Black race as a whole.

More recently the representative bureaucracy literature has come to see the value of additional representational mechanisms such as symbolic and substantive representation (Lim, 2006; Theobald and Haider- Markel 2009). This is largely due to ongoing debates raised over the

best way to ensure and enhance equity for underrepresented groups. Previous research saw the legitimacy of policies being facilitated as a result of passive and active representation, mostly likely as a way to give underrepresented groups an inclusionary stake in policies so as to alter and transform them for the benefit of their group. Yet scholars like Krislov (1974) and Mosher (1968) point out that there are additional mechanisms that should also be employed in achieving equity for underrepresented groups. This may be particularly true when considering that representative bureaucracy's most basic assumption of passive representation translating into active representation is not an absolute. These debates over the different forms of representation are discussed below.

Debates within Representative Bureaucracy

The longest debate within representative bureaucracy is over the question of whether bureaucrats displaying certain characteristics (passive representation) will inherently work for policy outputs and outcomes for groups that share those characteristics (active representation). As some scholars like Mosher (1968) have long pointed out, it is not a certainty that a bureaucrat from a certain "background and social characteristics will ipso facto represent the interests of others with like backgrounds and characteristics in his behavior and decisions" (p. 21). Rather social characteristics like race may be one of many factors that determine whether a bureaucrat is likely to perform active representation for clientele sharing similar traits. Organizational and socializing factors such as discretion, intragroup politics, length of time within an organization, proximity and relevancy of a bureaucrat's background to him/her, how socialized a bureaucrat is within an organization, the type of position, the strength of professional associations and a whole host of other factors contribute as well (Kanter, 1977; Meier and Nigro, 1976; Rosenbloom, 1973; Stillman, 1974; Thompson, 1976). These factors would be known as mediating factors, because they may ultimately subvert bureaucrats' desires and intentions to generate policy outputs and outcomes for those sharing similar traits as themselves. For example, a Black woman bureaucrat who has come from a wealthy background may not inherently seek to represent the interests of

Black welfare clientele seeking aid for a multitude of reasons including a desire to maintain neutrality to the job and/or coming from a different background. Instead factors related to the Black woman's background and socialization may mediate her desire to employ policy outputs and outcomes for Black clientele in the welfare office. Rather a poor white bureaucrat who sees his job from a more activist bureaucratic perspective might be much more empathetic to the plight of poor Blacks within a welfare office seeking aid. The concern is that active representation and the representative bureaucracy literature dismisses such representation.

Another position more in line with active representation countered that it is indeed the case that minorities "will more closely mirror the needs and wishes of their group, whether overtly or subconsciously, than non- minorities do" (Kranz, 1976, p.435). Subscribers to this view would argue that minority administrators may feel particular responsibility for minority communities regardless of specific traits and characteristics because minorities perceive this is a role that is expected of them within the organization and many issues related to race may have particular salience to them. Research supports the belief that minorities may perceive their roles within organizations different from their counterparts. For example, Murray et al. (1994) noted it is minorities who overwhelmingly embrace a view of advocating in favor of policies which address the needs and concerns of minorities under their jurisdiction (Murray et al. 1994). Additionally, research also notes that bureaucrats from minority backgrounds often see themselves as minority representatives. This makes them much more likely to adopt a platform of active representation and undertake action, particularly when they perceive themselves as being expected to increase minority access to programs and services (Brudney, Hebert, and Wright, 2000; Selden, 1998; Coleman-Selden, Brudney and Kellough, 1998). Furthermore, in affirming the saliency of an issue in generating active representation, Thompson (1976) sees a connection between active and passive representation, however only under certain parameters for minorities that include "issues which have patent ramifications for the well-being of their race" (215). Thus, a minority bureaucrat working for the U.S. Department of Energy (DOE) where policies are less racially contentious, may

have less incentive to work for representative bureaucracy than a minority bureaucrat in Housing and Urban Development (HUD) where minorities have historically been significantly more affected by disparities in housing discrimination and home ownership. Therefore a representative bureaucracy link is thought to be much more apparent in jobs where minorities work toward issues related to racial justice, and accept an ideology of minority pride and advancement is espoused by groups and institutions.

Research Findings Regarding Active Representation

So understanding both sides of the debate, is there evidence to suggest that passive representation can transform into active representation? In regards to the literature, yes. Many studies from the literature see a linkage between passive representation and significant policy outputs and outcomes for minorities (active representation) (Hindera 1993a; 1993b; Meier 1993; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999; Seldon, Brudney and Kellough 1998). While the theory of representative bureaucracy can be applied to people sharing a host of characteristics and traits, it has historically been looked at in regards to racial characteristics. Early studies like Rosenbloom and Featherstonhaugh (1977) focused on bureaucratic attitude and noted a linkage between passive and active representation in finding that Black employees within the public sector shared similar values to Blacks in the general public, which holds even when factoring in organizational tenure. An example of this linkage is evidenced in a study by Rosenbloom and Kinnard (1977) regarding minorities and the United States Department of Defense (DOD). It found that high-ranking minorities were inclined to advocate for the needs of their minority groups under their command. Yet attitudes do not precipitate action. A minority employee that displays a favorable attitude toward the minority group they are serving does not provide an assurance that they will actively advocate for the needs of that group. Subsequently a shift occurred that valued measuring action over attitude in regards to policy outputs and outcomes (Hindera 1993a, 1993b). Taylor-Powell and Henry (2008) note outputs are the specific and quantifiable activities or products that

directly result from participants being studied, and outcomes are the cumulative impacts of these activities or services, which often produce a change in behavior; indeed a single outcome is the result of multiple outputs.

Meier and Stewart (1992) and Meier (1993) illustrate this shift to policy outputs and outcomes in their study, which found that the presence of minority teachers was associated with positive performance outputs and outcomes for minority students, including more of these students being placed in gifted programs. Hinderer (1993a, 1993b) conducted a study of the Equal Opportunity Commission in another study elaborating how passive representation may lead to active representation within the bureaucracy and found that the representation of African Americans at the Commission resulted in a greater percentage of charges being filed on behalf of these groups. It is important to note however that while studies looking into representative bureaucracy started with an emphasis on evaluating its influences on race, they have spread to include other areas like gender (Dolan, 2002; Keiser et al. 2002; Meier and Nicholson-Crotty, 2006). Dolan's (2000) study looked at women in the Senior Executive Service (SES) in the federal government, and found that organizations with women executives are more likely to adopt policies favorable to women when they are represented within these agencies in significant numbers, afforded major roles, and feel as if their offices are favorable to such issues. Meier and Nicholson-Crotty (2006) note in their study that an increased percentage of women police-officers is associated with increased reports and arrests for sexual assaults. Keiser et al. (2002) note a link between higher math scores and districts with more female math teachers. In affirming the continued influence of research on race in representative bureaucracy, research in schools has found linkages between the presence of minority teachers and positive policy outputs related to ability grouping for example more assignments of minority students to gifted and less minority students assigned to special education programs; it is also associated with a decrease in minority student discipline and positive outcomes related to student performance on standardized tests (Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and

Stewart 1992; Meier, Wrinkle, and Polinard 1999). While research on representative bureaucracy is beginning to encompass more areas like ethnicity, sexual orientation and even select group identity such as being a veteran (Gade and Wilkins, 2013; Lewis and Pitts, 2009; Meier and Hawes, 2009); it is the continued research on race that provides the most clear-cut and enduring linkages between passive and active representation. Which in all likelihood can be attributed to the length of time the characteristic of race has been studied (Krislov, 1974). Atkins, Fertig, and Wilkins (2013) note that increasing the presence of Black and Hispanic teachers increases feelings of connectedness and educational outcomes for their respective racial group of students they teach.

Factors Influencing Active Representation

In seeking to reconcile the ongoing debate within the representative bureaucracy literature, with the advent of more research there seems to have emerged concessions from both sides and a consensus among scholars studying active representation that while it does occur, it is not impervious to mediating factors (Meier and Bohte, 2001; Meier and Stewart, 1992). Mediating factors would influence a minority administrator's ability to achieve active representation. For example, mediating factors like discretion, the level of the organization, and socialization can influence if minority bureaucrats will undertake an active representative role. Research advances the view that organizational factors like administrative discretion help minority administrators translate passive representation into active representation and subsequently policy outputs that benefit their students (active representation) (Meier and Bohte, 2001). In regards to bureaucratic characteristics, it is important to note that the level of organization may have an impact on if active representation. A policy effect felt at one level of the organization may be mitigated at another level of the organization. For example Keiser et al. (2002)'s study found that female administrators were linked with significant albeit decreased policy outputs related to female student math exit exam scores yet in studying female math teachers found that they were indeed related to significant policy outputs for female math exit exam scores. This suggests that effects felt at one

level of the organization might not be felt at another. Additionally Meier and Stewart (1992) find Black teachers are able to exercise significantly more discretion than Black principals in generating policy outputs for Black students. The authors attribute these findings to greater discretion and less socialization on behalf of teachers in comparison to principals. Indeed it is very unlikely that a minority administrator would be able to facilitate policy change for those that look like him or her if that administrator has very little domain and discretion to do so and is trapped behind organizational constraints.

Finally however, perhaps the biggest mediating factor that would affect minority bureaucrats' ability to engage in an active representative role is the very presence of minority co-workers within an organization. It was Thompson (1976) who first noted that the theory of active representation is contingent upon minorities working jobs where they can be found in significant numbers and work in close proximity to each other. This is because the theory of representative postulates that the benefits of a minority presence within an organization (passive representation) can only be obtained when minorities have enough of a presence within an organization to work toward them, a term labeled 'critical mass' (Kanter, 1977; Thompson, 1976). Scholars view critical mass as a "situational threshold" that posits an increase in a particular group sharing certain characteristics will mean that this particular group will be more likely to assert itself against the dominant group and actively work toward policies that are in the best interest of their particular group (Bacharach and Akins 1976; Henderson, 1978; Herbert, 1974; 8; Kanter 1977). In other words passive and active representation do not share a linear relationship, rather there is a threshold of passive representation that must be met before active representation will ensue (Hindera and Young, 1998).

Meier (1993b) illustrates critical mass's nonlinear relationship in his study of Latino principals in schools, finding that Latino principals must encompass around 25 percent of the principals in a district before significant active representation for Latino students will be generated. Meier et al. (1999) in another study performed in a school setting noted that the critical mass of

minority teachers should be at 22 percent before significant policy outputs for students of color are manifested. In a study of the Equal Employment Opportunity Commission (EEOC), Hinderer and Young (1998) found that active representation occurs on the part of both Black and white bureaucrats when “Black investigators constitute a plurality, but not a majority” (p. 668). While active representation on behalf of Black bureaucrats occurs when Black bureaucrats are in the majority, research finds little evidence that Whites are working to facilitate policy outputs for Blacks in this setting (Hinderer and Young, 1998). Thus while the nonlinear relationship of critical mass prevents researchers from putting an absolute number for critical mass, research indicates that if active representation is to occur for a particular group, it is best that the group being measured be at least a plurality and less than a majority. As Hinderer and Young (1998) note this ensures that the particular group’s presence will be felt, but not to the point where policy outputs can be attributed exclusively to them and whites feel like active representation on their part is not necessary.

Active Representation and Schools

As the research studies above demonstrate, active representation has been conducted within a wide array of organizations. Yet a preponderance of this research on active representation that seeks to tie it to policy outputs is set within school oriented settings (Keiser et al. 2002; Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). This is because public schools have served as ideal settings for analysis because they fit all the criteria previously articulated by Thompson (1976) that active representation is most prevalent where minorities work jobs that have salient ramifications for the well-being of their race, exercise discretion and work in close proximity to one another. The organizational structure of schools meets this criterion in that they offer empirical measures of representation as well as outputs and outcomes that are reflective of discretionary decisions employed by bureaucrats (Meier and Bohte, 2001). Indeed many teachers are street-level bureaucrats with significant discretion in that they make decisions that influence the well-being of

students for example through ability grouping, disciplinary actions, student performance on tests, etc because they are the ones interacting with the students they are teaching day end and day out. The extent of their discretion is evidenced by the sheer number of teachers in a school compared to principals within a school which would limit the scope of oversight by administration given a plethora of duties they must undertake, contingent upon extreme circumstances.

Additionally in adherence to Thompson's criteria of proximity, when minority teachers are represented in significant numbers they may have considerable influence on the educational experience of minority students, making key decisions that affect the educational experience of minority students, serving as role models for students, offering special insight into how to motivate and teach minority students, and generating race neutral outcomes for all students (Cole 1986; Ehrenberg, Goldhaber, and Brewer 1995; Lim, 2006; Meier, Wrinkle, and Polinard, 1999; Theobald and Haider-Markel, 2009). For example, teacher representation is linked with decreased disciplinary sanctions, decreased dropout rates for minority students, higher achievement on the SAT, and even positive policy outputs for co-ethnic minority students which are minorities that may not be of the same race as that teacher (Pitts, 2005; Rocha and Hawes, 2009; Roch, Pitts, and Navarro, 2010). Thus there has long been a precedent that has seen the value of direct linkages of representation. While much of the previous research on representative bureaucracy has been focused on analyzing schools at the district level (Meier and Bohte, 2001; Meier and Stewart, 1991; Meier, Stewart, and England, 1989; Rocha and Hawes, 2009; Meier, Wrinkle, and Polinard, 2009; Pitts, 2005), this is still not sufficient to explain why results are not looked at on the level of the school. Schools can account for organizational factors beyond an individual teacher and give much more definitive linkages in regards to representative bureaucracy than analysis at the district level. Indeed going beyond the district level and using an individual school level of analysis when the data is available can be quite salient as two studies, Keiser et al. 2002 performing their study on 607 high schools and Roch, Pitts, and Navarro (2010) using all the high schools in the state of Georgia for their analysis demonstrated a linkages of passive representation translating into some type of substantive representation (Keiser et. al, 2002; Roch,

Pitts, and Navarro, 2010).

Limits of Active Representation

Yet as more studies were being conducted within the representative bureaucracy literature, a criticism began to emerge that would have implications for new types of representation. Questions emerged as to whether or not these studies actually prove the value of active representation. In order to prove active representation it has to be conclusively established that minority administrators are the ones affecting policy outputs for the public being served. Theobald and Haider-Markel (2009) point out that many studies that claim that minority administrators are the ones affecting policy outputs have not conclusively done so for two main reasons. First in looking at previous studies Theobald and Haider-Markel (2009) note that many studies claiming to exert clear linkages between passive representation and active representation may actually be examples of symbolic representation. For example, the study by Keiser et al. (2002) is looked at as an example of active representation because the study notes a link between higher math scores and single school districts with more female math teachers. Keiser et al (2002) attribute one of the reasons for the linkages between higher math scores and districts with more female math teachers as a result of girl students seeing women teachers as role models. Yet, Theobald and Haider-Markel (2009) argue that this would not be active representation because “this explanation does not address the use of discretion by female math teachers, but instead focuses on a potential response to what female teachers represent for female students” (p. 412). It would instead be symbolic representation which argues that the attitudes of those being represented change in the affirmative simply because the represented share similar characteristics and traits as them regardless of whether any meaningful action is done on the behalf of the represented.

Secondly, questions persist in regards to the policy outputs, and whether it is purely minority administrators who are facilitating these policy outputs. Theobald and Haider-Markel (2009) argue that it is difficult to prove that it is exclusively the administrators sharing traits as the

population being served, in this case female teachers in Keiser's et al (2002) study, who are facilitating the policy outputs. Despite an increasing presence of female teachers, many students in a school may still have male math teachers. It could be the male teachers who (through working with more female teachers) place increased emphasis on female math scores and also play a significant role in the improvement of female math scores. Without explicitly testing if it is the female or male teachers, who are working to address an inequity in female student math scores, it is difficult to prove active representation on behalf of female administrators. As Lim (2006) and Theobald and Haider-Markel (2009) note, many of these studies imply substantive representation effects rather than simply active representation. The weakness of many of these previous studies is that it is difficult to definitively prove active representation when these studies do not disprove that other types of representation are potentially occurring (in fact some even acknowledge other types of representation that is occurring). If these other types of representation are indeed occurring, then are not they also a means of generating equity? A more detailed analysis at the level of the school can allow for studying more direct linkages in regards to substantive representation, at least allowing for research that explores what type of substantive representation is occurring.

So while research on active representation indicates that active representation (or at least symbolic representation) can occur as a result of having minority administrators, as the inadequacies of previous studies indicate, what about representation on behalf of administrators who do not share the same traits and characteristics as the group being served? As highlighted by Mosher (1968) sharing traits and characteristics with a bureaucrat is not an assurance that they will represent those in the public that look like them. The weakness of active representation is that it does not recognize the role that administrators not sharing certain traits as the public they are serving may play in generating equity. If mediating factors can play as big a role as a shared characteristic like race in then it is possible that bureaucrats not sharing similar traits can approximate similar representation. Research needs to determine what role indirect representation or bureaucrats outside the group being served play in facilitating substantive representation. Are

they merely passive/neutral observers who sit on the sidelines while a particular social group works to articulate policy outputs, or are they a significant part in achieving substantive representation in a representative bureaucracy? If representative bureaucracy as a theory is truly concerned with achieving optimal equity for the underrepresented and underserved then should not it be concerned with maximizing representation? Scholars hoping to maximize representation for the public being served and recognizing the insufficiency of active representation can look to substantive representation as a mechanism that considers direct mechanisms like active representation, but also more indirect ones.

The Importance of Substantive Representation

Substantive representation refers to the representation that is acting for and on behalf of others, regardless of shared characteristics (Pitkin, 1967). Pitkin (1967) notes that descriptive (passive) representation may be limited in simply evaluating if it generates active representation in lieu of substantive representation because it does not account for “any kind of representing as acting for, or on behalf of others....” (p. 90). Lim (2006) expands upon this line of thinking in public administration literature because he notes administrators should be emphasizing these type of substantive effects that are resultant from passive representation, rather than merely relying on active representation which may be an incomplete picture of representation. He finds the stringent definition of active representation that scholars see “as the only way bureaucrats can increase substantive benefits for their social group” as fundamentally inhibiting and flawed (Lim, 2006, p. 194). Instead he notes that administrators can produce both direct and indirect substantive influences.

It should be noted that “factors that produce benefits directly (for example through minority bureaucrats' own behavior)” are called direct sources (Lim, 2006, p. 195). These direct benefits can be evidenced through bureaucratic partiality that actively works to increase benefits for his/her own particular group. In addition, direct benefits also include observing impartiality but sharing values and beliefs that would subsequently serve the interest of a particular group through the

bureaucrat's actions. An equally noteworthy direct benefit can also be displayed through empathetic understanding which means minority bureaucrats may be better able to understand the values and beliefs of a minority group, whether they agree or disagree. This would aid minority bureaucrats because they would be able to better articulate and contextualize the interests of these groups as social inputs in decision making. Lim (2006) sees direct sources as divergent from active representation because the author takes issue with Hinderer (1993b) and Hinderer and Young (1998)'s definition of active representation in which the authors attribute active representation is the result of advocacy, attitude congruence, and communication. Lim (2006) takes issue with this classification because he sees bureaucratic partiality and empathetic understanding as more specific and pertinent than advocacy and communication respectively. However this dissertation in utilizing Mosher's (1968) definition sees active representation as passive representation that leads to a desired output or outcome for a group sharing similar traits (Mosher, 1968). This definition makes no value judgment on the motivations underlying why the active representation is occurring, simply that it is. This definition is compatible with how Lim (2006) defines the direct benefits of substantive representation (which are benefits produced through minority bureaucrats own behavior). Due to this compatibility and for the purposes of this research direct benefits and active representation will be referred to as direct/active sources of representation. Research measuring the how of active representation and direct sources of substantive representation would be weary not to use the terms interchangeably given the divergence by these authors on how it occurs. However since this research seeks to measure the strength of its occurrence rather than how it is happening, something both definitions acknowledge occurs through the exclusive action of bureaucrats sharing characteristics with the people they are serving, this is an acceptable umbrella term.

In contrast "factors that produce benefits indirectly or through the behavior of other bureaucrats and minority clients are known as indirect sources" (Lim, 2006, p. 195). The indirect benefits that Pitkin (1967) and Lim (2006) discuss note that minority client groups may also benefit from actions undertaken from the specific actions of employees/bureaucrats who do not share

“like traits”. For example, this would be evidenced by a minority population benefiting from the presence of “majority” bureaucrats. Indirect suggests that a bureaucrat not sharing like characteristics may be inclined to yield favorable outcomes for “minority” clients if they are supportive of such interests. Indirect representation may be evident when a “minority” bureaucrat influences the way “majority” bureaucrats/peers work toward a particular policy issues or actions that are in the best interests of such clients. According to Lim (2006) this indirect representation can occur when a minority bureaucrat works to check, restrain, or re-socialize a colleague regarding a specific policy output. Checking a colleague, regardless of race, differs from restraining in that with the former a minority bureaucrat may display disapproval of a colleague’s actions that they disagree with while the latter means the very presence of a minority administrator means they may not act upon those biases for fear of disapproval. Finally re-socialization means “over a longer period of time, minority bureaucrats can bring about changes in the values and beliefs, not just the behavior, of other bureaucrats” (Lim, 2006, p. 197). Table 2-1 below helps to parse out the different types of representation in order to understand the value of these types of representation.

Table 2-1 Parsing Out Different Types of Representation

Parsing Out Representation	Definition
Passive Representation	Means an organization reflects the general population at large or even the demographic characteristics that it is serving.
Active Representation	Supposes that passive representation by these administrators will lead to a desired output or outcome for a group sharing similar traits.
Substantive Representation	Encompasses active representation, which would be considered a direct source of representation, but also includes indirect sources of representation, which is representation that occurs regardless of shared characteristics.
Direct Sources	Factors that produce benefits directly for example through minority bureaucrats' own behavior.
Indirect sources	Factors that produce benefits indirectly or through the behavior of other bureaucrats.
Symbolic Representation	Means attitudes of those being represented within a particular group change in the affirmative simply because of passive representation regardless of whether any meaningful action is done on the behalf of the represented.

Gaps within Substantive Representation

Current research on indirect substantive representation has not looked at “majority” and co-ethnic co-workers’ (co-workers who are minority but not of the same ethnicity as the minority group being studied) role in achieving indirect substantive co-worker representation. While many of the authors studying direct/active sources of representation (and sometimes symbolic) postulate that “majority” and co-ethnic minority bureaucrats may play a role in generating policy outputs for their clients, there is a recognition that “minority” bureaucrats cannot inherently be everywhere at once in their organizations, and as a result such a relationship has been implied rather than conclusively proven. As the work of Sowa and Selden (2003) suggests, adhering to a minority representative role is linked to generating positive outputs for minority clients. Yet serving as a minority representative is not completely correlated with being a minority, so that leaves room for a significant amount of representation to be undertaken by “majority” bureaucrats. Additionally Rocha and Hawes (2009) note that it is not necessary for a minority bureaucrat to be of the same race as the clientele they are serving in order to generate substantive policy outputs for a particular minority group. For example, the authors note Hispanic teachers can be almost effective as Black teachers in overcoming discriminatory practices for Black students in certain areas. This implies that both “majority” and co-ethnic minority bureaucrats may be capable of engendering significant representation on behalf of minority clientele. Representation mechanisms that fail to consider other types of representation that can be derived from within representative bureaucracy may offer an incomplete strategy for attaining equity.

Additionally as Lim (2006) notes other indirect substantive benefits can be parsed out not only because of a change in perception by clients but also because of a change in fellow co-workers who may not be from a particular social group yet have their behavior altered in some way by the presence through being checked, restrained, or re-socialized. Research must also measure the potential potency of the effects of “majority” and co-ethnic co-workers on policy outcomes in addition to active representation. For example, the authors highlight problems with previous

research such as Meier and Nicholson-Crotty (2006) which identify a variety of rationale for why the presence of female officers on a police force subsequently results in greater sexual assaults. One of those reasons includes female police officers acclimating male police officers to the sensitivity required on issues. Yet Theobald and Haider-Markel (2008) note that this requires little bureaucratic discretion from the woman police officers in facilitating a changed output. This would instead fall under the actions of male police officers. This suggests majority and co-ethnic representation can potentially be an important indirect substantive benefit that needs to be measured. Currently research on the indirect effects within substantive research has not done this; often failing to distinguish which bureaucrats is facilitating this change.

Beaman et al. (2012) is another illustration of the failure to distinguish substantive effects while recognizing the value they have for representation. The study looked at 495 villages in West Bengali, India after the implementation of a quota system requiring a specified number of women serve in village leadership positions. The policy measure resulted in increased aspirations and social expectations for females who live in villages with female leaders, as opposed to those villages that did not have quota system in place. The study attributes one of the factors for these changes to the increased presence of female bureaucrats who may be working to change the attitudes of the majority male bureaucrats, a measure that has seen little research testing the saliency of this effect. Thus these studies raise important questions: What is the value of indirect substantive co-worker representation, particularly in comparison to more direct sources? While researchers postulate the importance of indirect substantive co-worker representation, there has not been empirical evidence supporting this type of representation. Research needs to determine value of indirect substantive representation, the effects majority and co-ethnic minority bureaucrats' play in facilitating substantive representation. Are they merely passive/neutral observers who sit on the sidelines while minority bureaucrats work to articulate policy outputs? Or are they a significant part in achieving substantive representation in a representative bureaucracy? Additionally research needs to determine if the presence of minority (Black) bureaucrats on majority (White) and co-ethnic minority (Hispanic) bureaucrats can be linked with interactive

substantive policy outputs and outcomes for minority students, another important indirect substantive effect. Their role needs to be measured to offer insight into the impact that they potentially have.

A Framework for Measuring Indirect Substantive Co-Worker Representation

My dissertation tested for indirect and direct/active effects of substantive co-worker representation. This dissertation proposed that sources of indirect substantive co-worker representation are an important tool in the arsenal of equity that is not measured and thus undervalued. In recognition of the literature, it was expected that the linkage between majority and co-ethnic minority bureaucrats were a positive source of policy outputs and outcomes for minority students. Additionally given the enduring value of direct/active sources of representation, it was expected that if there is a critical mass of minority bureaucrats, they will interact with their majority and co-ethnic minority co-workers to yield positive indirect substantive effect of co-worker representation that implies socialization. This will be measured through determining the extent to which majority and co-ethnic minority bureaucrats act on behalf of their minority clientele in generating minority policy outputs and outcomes. In addition the role of minority street level bureaucrats played in generating these policy outputs and outcomes for the minorities they serve. This includes evaluating if there are any interactive effects of minority bureaucrats on majority and co-ethnic minority bureaucrats espousing a minority representative role, which would imply the presence of minority socialization as noted by Lim (2006). To measure substantive representation, the research will first establish the presence of direct/active sources of representation. It will be used in comparison to and with majority and co-ethnic co-workers, thus allowing a mechanism for parsing out the potency of the indirect substantive effect of co-worker representation with active) representation. This allowed the research to compare the extent to which a majority and co-ethnic bureaucrat may be engaged in undertaking a minority representative role in comparison to those outputs and outcomes facilitated simply by the presence of minority bureaucrats. It also determined if there was evidence to imply that majority and co-ethnic bureaucrats are being

socialized by their minority co-workers into working for policy and outcomes that benefit that particular group. Research needs to clearly determine whether these co-workers have the potential to display a miniscule substantive indirect effect, or a much larger one in regards to the theory of representative bureaucracy

Chapter 3

Methodology

The previous chapter laid out the theoretical development of representative bureaucracy to set the foundation for this study, which is measuring the effects of indirect substantive co-worker representation on minority student outcomes. The purpose of this dissertation was to determine the value derived from indirect sources of substantive co-worker representation. Specifically, did indirect sources of substantive representation among coworkers have a significant, positive effect on minority policy outcomes? What role did Black bureaucrats play in this process? Or, are these effects due to direct sources related to active representation? The research within this dissertation is concerned with four main areas:

1. Direct/Active Representation Due to Passive Co-Worker Representation
2. Indirect Sources of Substantive Co-worker Representation involving Majority and Co-ethnic Minority Bureaucrats
3. Indirect Sources of Substantive Co-worker Representation involving A Critical Mass of Black Teachers Interacting on Majority (White) and Co-ethnic minority (Hispanic) Bureaucrats
4. Indirect Sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation.

The methodology was used to answer these questions is presented in this section. Specifically, it presents the research design, which is a mixed methods approach that contains both quantitative and qualitative components; a section that details the quantitative methods, which describes the data and sample population being measured, key relationships being measured, dependent, independent, and control variables being used in the research, research questions and hypotheses, and the research analysis and limitations of this research; and a section that details the qualitative methods, including the research questions, participants, data collection and analysis, procedures and recruitment, study limitations. Finally this chapter ends with a concluding section that discusses the validity and reliability of the study.

Research Design

This study utilized a mixed methods research design. Creswell (2009) notes that a mixed research design has gradually become more prevalent in social science research as a means of drawing from the strengths of both quantitative and qualitative research. A mixed methods approach seeks to integrate both quantitative and qualitative components at some point during the research process because utilizing both components is a way to gain greater insight into a research question. For example, a quantitative analysis can indicate if there is a significant relationship with substantive co-worker representation between bureaucrats and minority student outcomes; however it cannot tell how this happens or even why. To ascertain the how and why requires qualitative analysis with bureaucrats which can parse of the nuances of how and why substantive representation is or is not occurring. Therefore in seeking to understand the value of substantive co-worker representation, a mixed methods approach is preferred.

The data in this study was collected for explanatory sequential research. Creswell (2009) notes that explanatory sequential research first collects quantitative data then supplements qualitative data into this research as a means of clarifying and expounding on quantitative findings. It is the quantitative aspect of this research that was prioritized because it did the heavy lifting as it sought to answer if majority and co-ethnic minority bureaucrats played a significant substantive role in generating minority policy outcomes, and how Black bureaucrats influenced these effects. The qualitative component will aid and enhance the quantitative section by seeking to elaborate on a controversial finding within the quantitative section that an increasing percentage of Black teachers is correlated with negative outcomes for Black students in higher economically disadvantaged schools. The qualitative section hopes to elaborate on why this is the case Figure 3-1 below outlines the mixed methods design being used within this study as well as the sequence for data collection, analysis, and integration within this study. The smaller dot under Qualitative Data Collection in comparison to Quantitative data indicates that quantitative data collection is given priority as the integral component within this study. Within this study quantitative data was collected from secondary data with the Texas Education Agency (TEA) to answer the research

question. Afterwards qualitative data was collected using open-ended interviews of minority and majority teachers to help clarify and expound upon the quantitative findings. Qualitative research can be quite diverse consisting of emerging research methods, open-ended interview questions, observation data, document and audiovisual data, in addition to text and image data. Creswell (2009) notes that qualitative research is important because it recognizes the value of the interpretive meaning of participants in the study. This often means getting up close and personal to participants in order to see how they behave in order to form a more holistic meaning of data. After completion of the quantitative section, the qualitative component of this study sought to determine the why and how behind the saliency of active/direct representation. The results were then integrated within the Conclusion section. The interpretation of analysis occurs in the results section. In the following sections, each component of the mixed methods design is discussed individually.

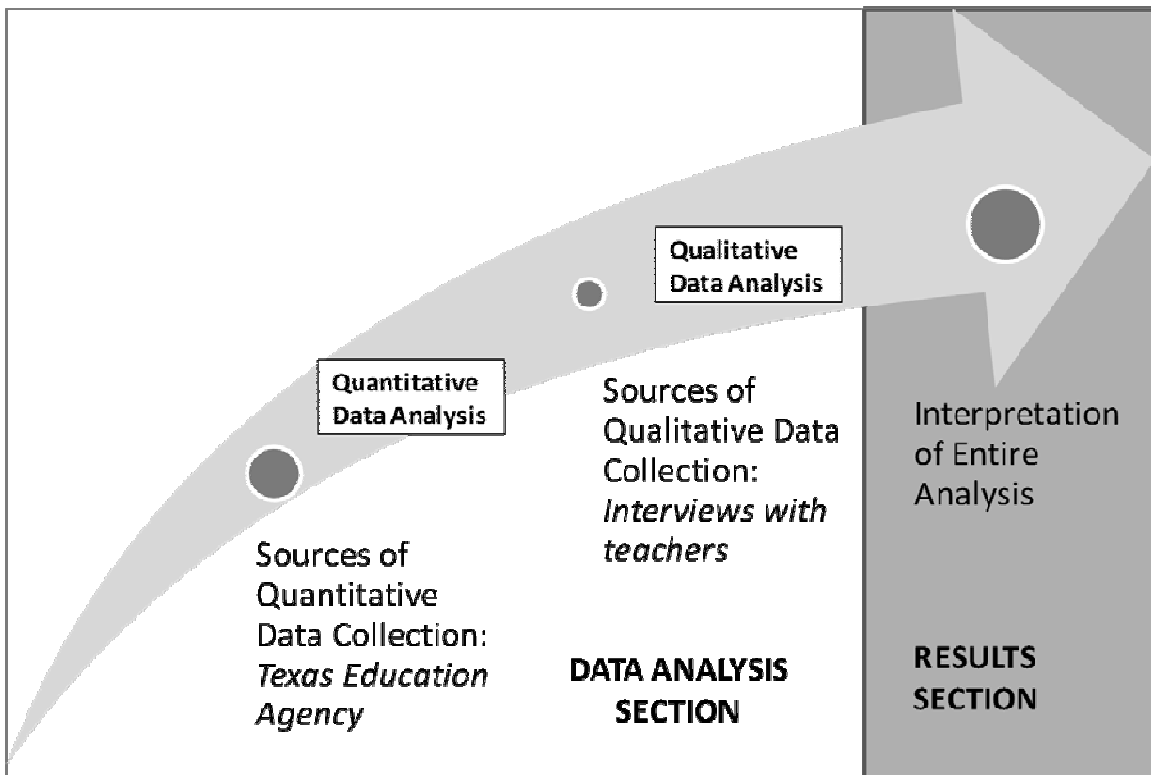


Figure 3-1 Mixed Method Design

Quantitative Research

This quantitative research component of this study was modeled off a correlational research design using a predictive research design framework. Correlational research explores the relationship between two or more variables (Isaac and Michael, 1995; Mertens, 1998), and predictive research design framework aims to predict certain outcomes in the relationships between the characteristics of two or more variables (Creswell, 2009). This study postulated that there is a correlation between teacher race and substantive policy outcomes for Black students based on previous research within the representative bureaucracy literature on active/direct sources of representation. It also aimed to expand upon this correlation in recognition of the work of Pitkin (1967) and Lim (2006) by using a predictive research design framework that assesses the indirect effects of substantive co-worker representation. Pitkin (1967) and Lim (2006) note that indirect sources of substantive co-worker representation include two possible sources: a) majority and co-ethnic minority bureaucrats or b) a critical mass of minority bureaucrats interacting on majority and co-ethnic minority bureaucrats so that they generate positive outcomes for minority students. Measuring these effects were done by analyzing if majority (White) and co-ethnic minority (Hispanic) bureaucrats are a significant source of policy outcomes for Black students in comparison with minority (Black) bureaucrats. Additionally this study utilized a predictive research design framework to analyze if the presence of a critical mass of minority bureaucrats interacting on majority and co-ethnic minority bureaucrats played a significant role in generating minority student policy outcomes. The quantitative analysis aimed to determine the effects of direct and indirect representation on minority student outcomes to see which types of representation are significant sources of representation for co-workers.

Quantitative Data and Sample Population

The quantitative analysis utilized longitudinal secondary data from the Texas Education Agency (TEA). The TEA uses Public Education Information Management System (PEIMS) to amass data on 1,200 school districts and charters making it a prolific source of information on

public high schools (TEA, 2014). Within these districts, PEIMS also collects data on all public high schools in Texas as well as the race of teachers and students within each school. Schools are selected for the unit of analysis. Stratified random sampling was used to select schools in regards to the populations being selected for the quantitative analysis. While much of the previous research on representative bureaucracy has been focused at the district level, potential important factors cannot be captured at the level of the district. Schools can account for organizational factors beyond an individual teacher and give much more definitive linkages in regards to representative bureaucracy than analysis at the district level. District level analysis can say that representation is occurring; however it makes it difficult to determine who to attribute it to. A school level of analysis has the advantage of helping to make a distinction between direct and indirect linkages when measuring the substantive representation of co-majority and minority teachers. Two studies demonstrate that analysis beyond the district level can be quite salient; as using an individual school level of analysis when the data is available has demonstrated linkages between passive representation and some type of substantive representation (Keiser et. al, 2002; Roch, Pitts, and Navarro, 2010). In this study, which hoped to make a distinction between more direct and indirect linkages of co-majority and minority co-workers on representation, this was particularly important.

Schools with at least 1,000 students were analyzed. The study contained schools with at least 1,000 students and a five percent cutoff for African American students to ensure that there was at least a baseline of 50 African American students studied within an observation rather than including samples that could be used to draw conclusions based on merely a handful of African American students within a school. This is in line with many previous studies like Meier and Stewart (1991) and Rocha and Hawes (2009) who studied large public school districts of over 5,000 students at the district level had at least a 1% cutoff for Black students ensuring that they would have a baseline of 50 Black students in a district. Since schools are a smaller unit of analysis this study also wants to ensure that there are enough Black students present to not distort results. As early studies like Meier, Stewart, and England, (1989) and Meier and Stewart (1991)

demonstrate, outlier measures can skew regression results by having that particular observation take on disproportionate weight within a sample e.g. picking schools with very low or very high percentage variables being within a sample. Therefore it was important to pick a sample that takes into account this issue. Since schools are smaller than even districts it was very important that this study had a cutoff that had enough of the studied sample variable to not distort any results. A 5% cutoff of Black students allowed for the incorporation of both racially homogenous and heterogeneous schools and it also ensures that each school being measured had at least 50 Black students.

Longitudinal data was collected as this allowed for capturing changes that can occur within a unit of analysis over time (Janson, 1981). In conducting organizational level research, there is recognition that behavior and processes within a unit of analysis may change over certain time and the best way to accommodate this and increase validity is through the use of a longitudinal study (Kimberly, 1976; Tuma and Hannan, 1984). While there have been studies that have analyzed data from a single year (Meier and Stewart, 1992; Rocha and Hawes, 2009); many others recognize the value of a longitudinal study, and have used a minimum of 4 years of data for analysis (Keiser et. al 2002; Meier and Bohte 2001; Meier and Stewart 1991; Meier, Stewart, and England 1989; Meier, Wrinkle, and Polinard 1999; Pitts, 2005; Roch, Pitts, and Navarro 2010). In echoing this precedent, this study selected school data for a minimum of four years. The research questions were analyzed using a year lag between the independent and dependent variables, or in other words the span of a school year, over a period of four years from 2007-2011. For example 2007-2008 school year, the independent variables of teacher race are reported in Fall 2007, and the dependent variables for Black student outcomes reported in Spring 2008.

Key Relationships Being Measured

Specifically, the quantitative analysis seeks to answer the following research questions:

1. Direct/Active Representation Due to Passive Co-Worker Representation

Is direct/active representation due to the effects of passive representation as demonstrated in Figure 3-2 below?

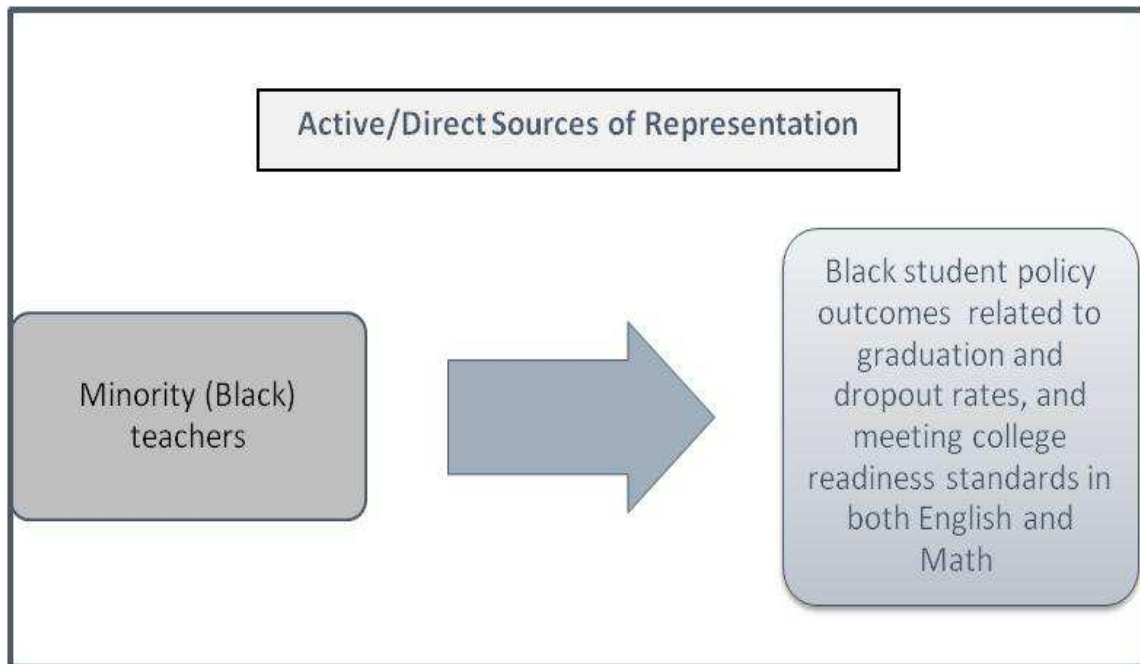


Figure 3-2 Depiction of Active/Direct Representation

2. Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority (Hispanic) Bureaucrats

Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math as demonstrated in Figure 3-3 below?

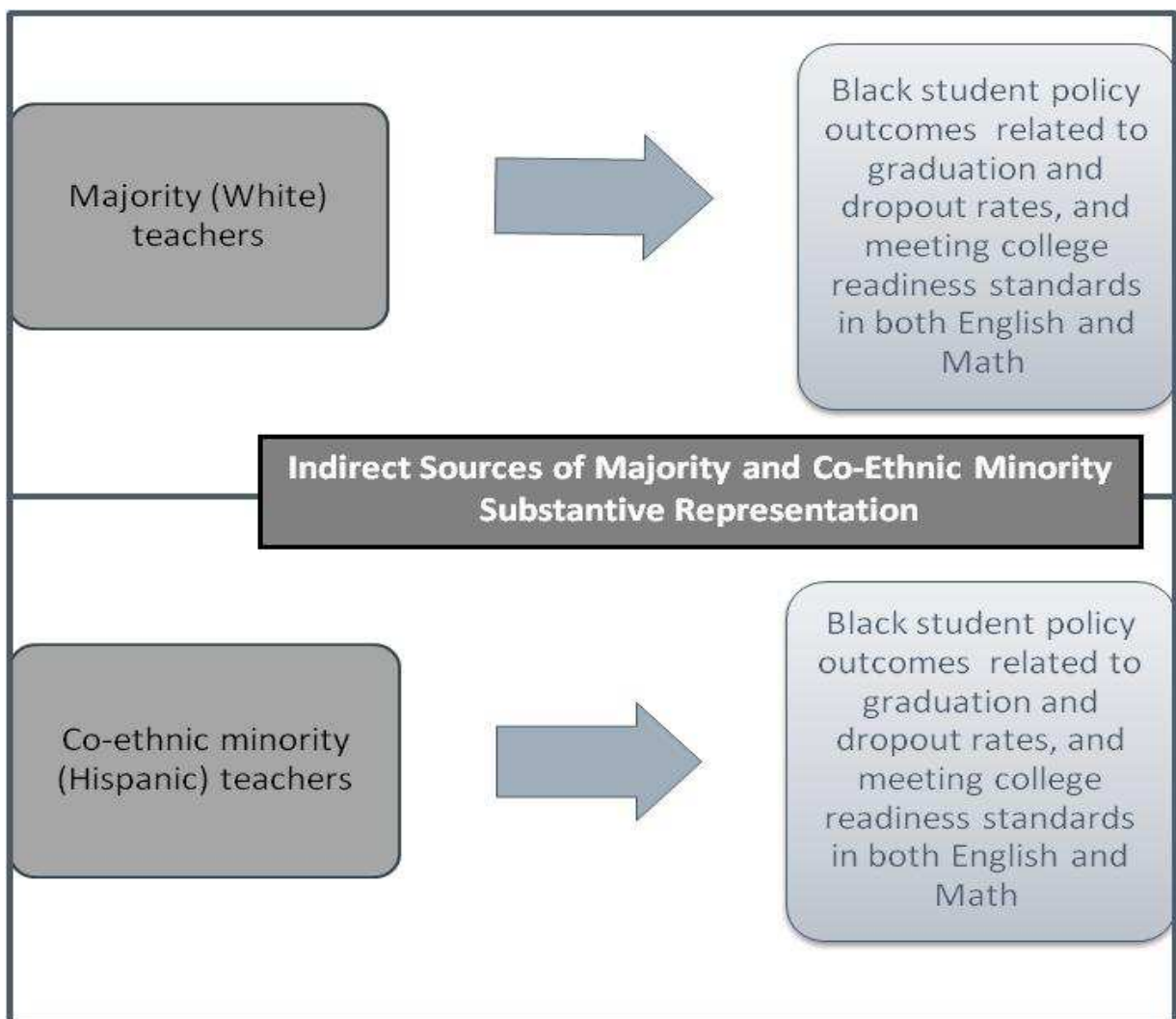


Figure 3-3 Depictions of Indirect Majority and Co-Ethnic Minority Substantive Co-Worker Representation

3. Indirect sources of Substantive Co-worker Representation involving the Indirect Effects of Black Teachers on Majority (White) and Co-ethnic minority (Hispanic) Bureaucrats

Do indirect sources of substantive co-worker representation related to the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math as demonstrated in Figure 3-4 below?

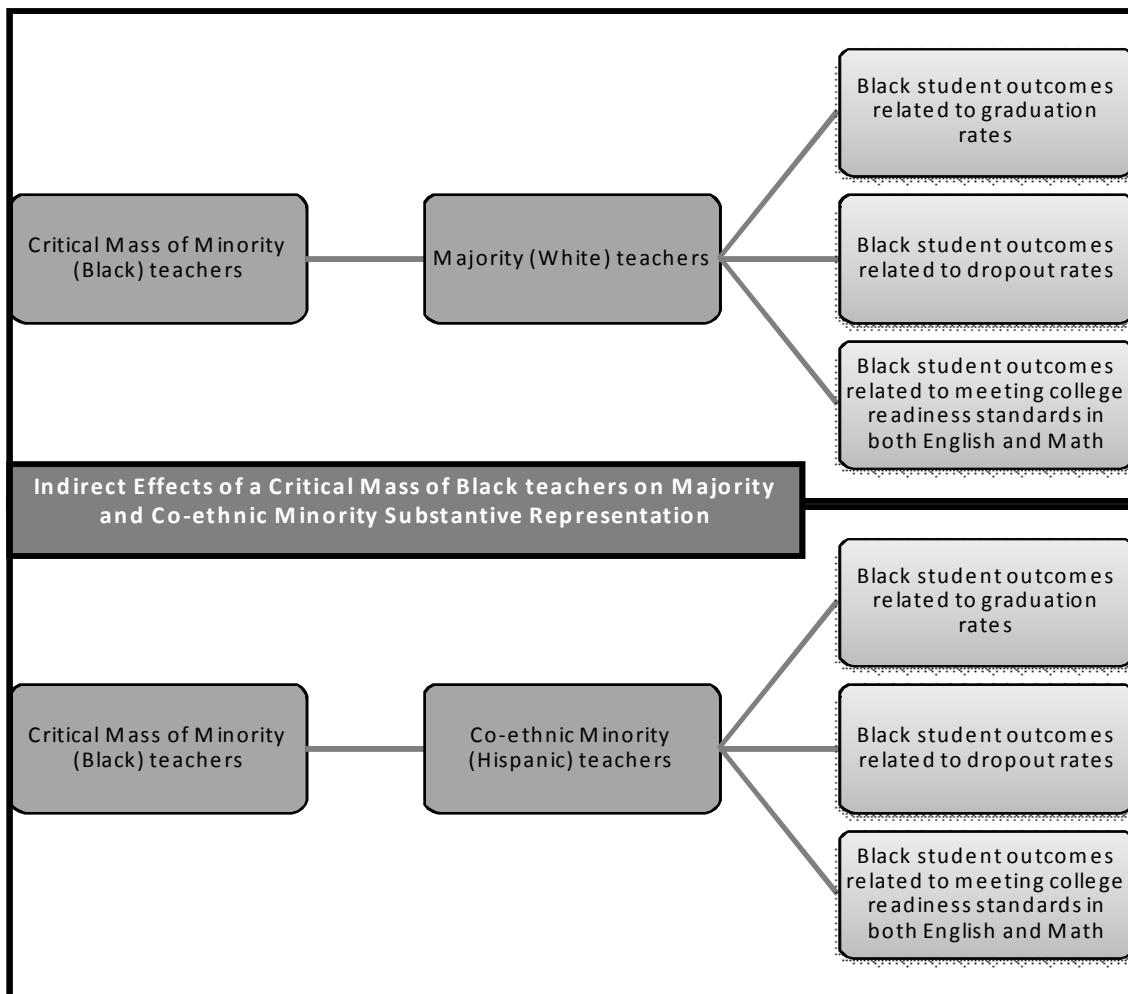


Figure 3-4 Depictions of Indirect effects of a Critical Mass of Minority teachers on Majority and Co-ethnic Minority Substantive Co-Worker Representation

Indirect sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation. Since indirect sources of substantive co-worker representation can come from two distinct sources: a). majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively and b). the critical mass of minority teachers interacting on majority (White) and co-ethnic minority bureaucrats this must be divided into separate questions.

4a. Are indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats stronger predictors than active/direct representation by minority(Black) teachers on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math as demonstrated in Figure 3-5 below?

4b. Are indirect sources of substantive co-worker representation related to the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively stronger predictors than active/direct representation by minority (Black) teachers in regards to having an effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math as demonstrated in Figure 3-5 below?

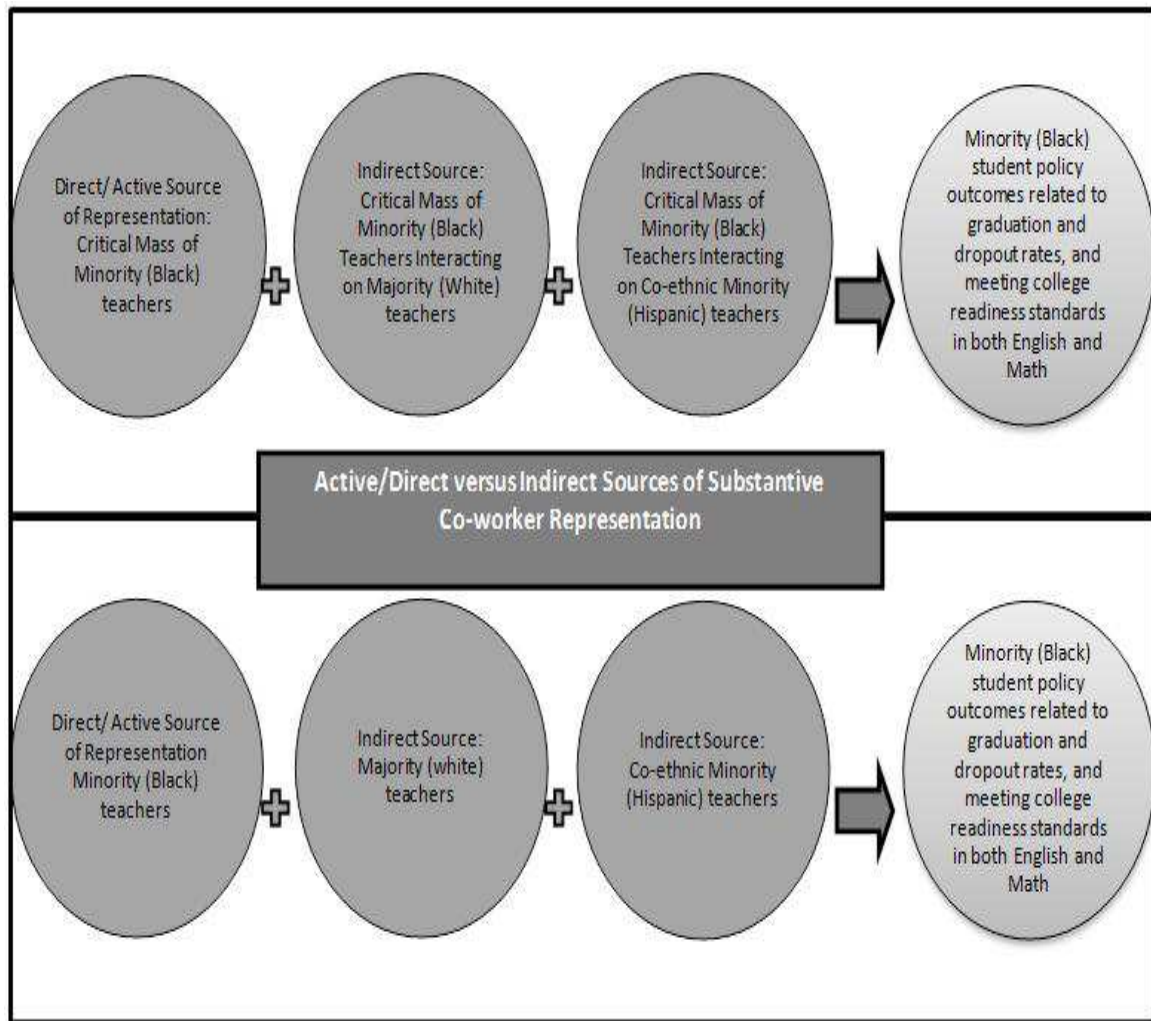


Figure 3-5 Depictions of Indirect versus Active/Direct Sources of Substantive Co-Worker Representation Variables

Independent and Dependent Variables

The primary dependent variables being measured within this dissertation were the percentage of Black students within a school that graduate, dropout, and meet college readiness standards in both English and Math. These dependent variables were selected because they were some of the performance indicators included in previous research on teacher race and student performance when evaluating representative bureaucracy (Meier and Bohte, 2001; Meier, Stewart, and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and

Polinard 1999; Pitts, 2005; Rocha and Hawes, 2009). These dependent variables are also recognized as outcomes, as noted by Taylor-Powell and Henry (2008) who note outputs are the specific and quantifiable activities or products that directly result from participants being studied, and outcomes are the cumulative impact of these activities or services, which often produce a change in behavior; indeed a single outcome is the result of multiple outputs. Black students that graduate, dropout, and meet college readiness standards are obviously cumulative impacts of navigating the educational system, rather than a single activity.

This study's independent variables, the percentage of Black, White, Hispanic teachers in a school are thought to produce changes in the dependent variables. This is in line with many previous studies within representative bureaucracy that have employed percentages of a group by race as a useful way to measure the potency of representative bureaucracy as a theory (Hindera and Young, 1998; Meier, Wrinkle, and Polinard, 1999). These terms are used in this research to understand the value of indirect and active/direct sources of substantive co-worker representation. Black teachers were the independent variable that helped determine active representation since active representation explores if the resultant outcomes are generated by a specific group sharing similar characteristics, which are Black students' performance outcomes (the dependent variable). White teachers and Hispanic teachers respectively represented independent variables that facilitate indirect effects in substantive co-worker representation, and were potentially a significant source of indirect substantive co-worker representation since as noted by Pitkin (1967) representation can occur regardless of shared characteristics. When Black, White, and Hispanic teachers were measured collectively the count of each teacher race within a school was used rather than the percentage to avoid a summation close to one that could skew the results. Additionally a second source of indirect substantive co-worker representation was generated by interaction with a critical mass of Black teachers. As Lim (2006) highlighted another important source of indirect substantive co-worker representation is the interactive effects between racial and ethnic groups, which recognize that one variable being measured is moderated by another variable (Aiken and West, 1991). In this study a critical mass of Black teachers, which are Black

teachers within schools which have at least a plurality but no more than a majority of African American teachers, served as the interacting variable on White and Hispanic teachers respectively to generate policy outcomes for Black students. The operationalization of the independent and dependent variables are described in Table 3-1 below.

Table 3-1 Breakdown of both Independent and Dependent variables being tested within the study.

Source: Texas Education Agency

Independent Variables	Explanation
Percentage of Black teachers	Percentage of teachers reported as Black within a school.
Count of Black teachers	Count of teachers reported as Black within a school.
Percentage of critical mass of Black teachers	Percentage of teachers reported as Black within schools, which have at least a plurality (greater than 25%) but no more than a majority (less than 50%) African American teachers.
Percentage of Hispanic teachers	Percentage of teachers reported as Hispanic American within a school
Count of Hispanic teachers	Count of teachers reported as Hispanic within a school.
Percentage of critical mass Black teachers interacting on Hispanic teachers	Percentage of Black teachers within a school that have at least a plurality (greater than 25%) but no more than a majority (less than 50%) African American teachers acting interactively on Hispanic teachers within a school.
Percentage of White teachers	Percentage of teachers reported as White within a school.
Count of White teachers	Count of teachers reported as White within a school.
Percentage of critical mass Black teachers interacting on White teachers	Percentage of Black teachers within a school that have at least a plurality (greater than 25%) but no more than a majority (less than 50%) African American teachers acting interactively on white teachers within a school.
Dependent Variables	Explanation
Percentage of Black students within a school that graduate	The percent of Black students who received their high school diploma on time or earlier — by August 31 of the fourth year of entry. It is calculated as follows: number of Black students from the cohort who received a high school diploma by August 31 of the fourth year of entry/ number of Black students who began in that four year cohort (with mandated. Exclusions

Table 3.1—Continued

Percentage of Black students within a school that dropout	Percentage of Black student dropouts in grades 9 through 12 during the school year/ Number of grade9-12 Black students who were in attendance at any time during the school year.
Percentage of Black students meeting college Readiness Standards in Both English and Math	These indicators are grouped together to help provide a picture of college preparedness at a given high school. They can be used by educators as they work to ensure that students are able to perform college-level course work at institutions of higher education.

Control Variables

In conducting the quantitative analyses, this study controlled for variables that have been utilized in previous studies related to representative bureaucracy (Meier, Wrinkle, and Polinard 1999; Pitts, 2005), and all represent significant controls that could mitigate the influence of direct and indirect sources of teacher representation on minority performance outputs. This included teaching, student, and school related control variables. Teaching related variables included the number of students per teacher in a school, the average years of experience of a teacher at the school, teacher salary, and teacher compensatory percentage. In addition this study controlled for student related variables such as the percent of students at risk in a school, the percent of students economically disadvantaged within a school, and student mobility within a school (how many students present in stay within that school in a particular year). Finally there were school related control variables that included instructional expenditures per student, the percent of students in gifted and talented, the percent of students in special education, and the percent of disciplinary placements with a school. Meier, Wrinkle, and Polinard (1999) note that previous research recognizes the influence of student related control variables, yet the role of teaching and school related control variables has been much more contentious. While a decline in the student related control variables should increase student performance, e.g. research by Abedi (2004) indicating that student performance on assessment tests decreases with increased enrollment of students in LEP courses, such linkages are not so clear cut with other measures. While some research indicates that an increase in teacher compensatory percentage, teacher salary, and teacher experience is thought to increase student performance, a decrease in the number of

students per teacher has been shown to improve student performance (Hanushek and Pace 1995; Meier, Wrinkle, and Polinard, 1999; Slavin, 1989), suggesting teaching related control variables are not so clear cut. Similarly in regards to school related control variables, there is still not definitive consensus in this regard. While enrollment in gifted classes has long been shown to increase student performance (DeHaan, 1963), enrollment in special education, and disciplinary programs is thought to decrease it compared to students not granted such designations (Boser, 2009; Gold and Mann, 1984; Goodlad, 1984). In addition there is little consensus on per pupil-expenditures and student performance, with Hanushek (1986, 1989, 1996) finding that there is no clear cut relationship to be drawn between money and student performance; a claim countered by Hedges and Greenwald (1996) whose research supports the view that increases in spending can be associated with increases in achievement. Overall all these control variables are thought to play significant roles in education and could potentially mitigate the influence of teacher race and Black student outputs and outcomes and therefore must be controlled for. The data for these control variables is available at the school level on the Texas Education Agency (TEA). For a breakdown of definitions of each of these control variables please see Table 3-2 below.

Table 3-2: Control variables by category and definition being used within the study. Source: Texas

Education Agency

Control Variables	Quantitative Levels of Analysis	Definition
Student Related Control Variables		
	At-Risk	A student is identified as at risk of dropping out of school based on state-defined criteria (§TEC 29.081). At-risk status is obtained from the PEIMS 110 records. The percent of at-risk students is calculated as the sum of the students coded as at risk of dropping out of school, divided by the total number of students in membership: number of students coded as at-risk divided by total number of students.

Table 3.2—Continued

	Economically Disadvantaged	The percent of economically disadvantaged students is calculated as the sum of the students coded as eligible for free or reduced-price lunch or eligible for other public assistance, divided by the total number of students: number of students coded as eligible for free or reduced-price lunch or other public assistance/total number of students.
	Mobility	A student is considered to be mobile if he or she has been in membership at the school for less than 83% of the school year (i.e., has missed six or more weeks at a particular school). Calculated as the number of mobile students in 2010- 11/number of students who were in membership at any time during the 2010-11 school year.
Teaching Related Control Variables		
	Average Actual Salaries of Teachers	For each professional staff type, the total salary is divided by the total FTE count of staff who receives that salary. For teachers this includes regular teachers, special duty teachers, and substitute teachers. Substitute teachers are persons hired to replace a teacher who has quit, died, or been terminated; or, persons permanently hired on an as-needed basis.
	Average Years Experience of Teachers:	Weighted averages are obtained by multiplying each teacher's FTE count by years of experience. These amounts are summed for all teachers and divided by the total teacher FTE count, resulting in the averages shown. This measure refers to the total number of (completed) years of professional experience for the individual in any district.
	Number of Students per Teacher	This shows the total number of students divided by the total teacher FTE count.
	Teacher Compensatory Percentage	Teacher FTE counts are categorized by the type of student populations served in compensatory education.
School Related Control Variables		

Table 3.2—Continued

	Disciplinary Placements	Counts and percents of students placed in alternative education programs under Chapter 37 of the Texas Education Code (Discipline; Law and Order) are shown (for the 2010-11 school year) in the AEIS reports. Disciplinary placement counts are obtained from PEIMS records. Districts report the disciplinary actions taken toward students who are removed from the classroom for at least one day. Although students can have multiple removals throughout the year, this measure counts students only once and includes only those whose removal results in a placement in a disciplinary alternative education program (DAEP) or juvenile justice alternative education program (JJAEP). It is calculated as follows: number of students with one or more disciplinary placements divided by number of students who were in attendance at any time during the school year.
	Instructional Expenditures Per Student	These are all activities dealing directly with the interaction between teachers and students, including instruction aided with computers (11), and expenditures to provide resources for Juvenile Justice Alternative Education Programs.
	Student Enrollment by Program: Gifted and Talented and Special Education	Students are identified as served in programs and/or courses for Special Education and Gifted and Talented Education. In regards to these programs, The percentages do not sum to 100, as a student may be enrolled in more than one of these programs.

Quantitative Research Questions and Hypotheses

This section explains the research questions that were analyzed within this dissertation and operationalizes concepts and hypotheses that were generated in regards to this work. Policy outcomes generated by the percentage of Black, Hispanic, and white teachers for Black students are looked at as a result of what occurred during that school year. Interactive variables involving Black teachers interacting with both White and Hispanic teachers are also looked at as a result of what occurred during that school year. This analysis was conducted analyzing data over a four year period (2008-2011). Hypotheses constructed sought to answer the following research questions:

Direct/Active Representation Due to Passive Co-Worker Representation

Research Question #1, the first relationship of interest will use Model 1 to test whether or not direct/active representation is due to the effects of passive representation. Specifically, do schools with a greater percentage of black teachers have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math? Hypothesis 1 posits that:

H1: Minority (Black) teachers have a significant, positive relationship with Black student policy outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Model 1

$$\hat{Y} = a_0 + \beta_1 X_B + Z + \epsilon$$

\hat{Y} = Black students' outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math.

a_0 = Intercept term

X_W =Percentage of Black teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 1 presents the variables of interest. The independent variable is the percentage of minority (Black) teachers within a school during the school year and the dependent variable is percentage of Black students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. A significance level of .001, .01, and .05 is used to determine whether majority (White) teachers are making a positive effect on Black students outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math. The standardized coefficient is used to determine the extent to which majority (White) teachers contribute to minority (Black) students' outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math.

Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority (Hispanic) Bureaucrats

Models 2 and 3 are used to test Research Question #2. Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math? Specifically, do White and Hispanic teachers respectively act on behalf of minority students regardless of the percentage of Black teachers in the school? Hypothesis 2 posits that:

H2: Majority (White) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Model 2

$$\hat{Y} = a_0 + \beta_1 X_W + Z + \epsilon$$

\hat{Y} = Black students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

a_0 = Intercept term

X_W = Percentage of White teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 2 presents the variables of interest. The independent variable is the percentage of Majority (white) teachers within a school during the school year and the dependent variable is percentage of Black students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. A significance level of .001, .01, and .05 is used to determine whether majority (White) teachers have a positive effect on Black students outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math. The standardized coefficient is used to determine the extent to which majority (White) teachers

contribute to minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

Hypothesis 3 posits that:

H3: Co-ethnic minority (Hispanic) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Model 3

$$\hat{Y} = a_0 + \beta_1 X_H + Z + \epsilon$$

\hat{Y} = Black students outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

a_0 = Intercept term

X_H = Percentage of Hispanic teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 3 presents the variables of interest. The independent variable is the percentage of co-ethnic minority (Hispanic) teachers within a school during the school year and the dependent variable is the percentage of Black students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. A significance level of .001, .01, and .05 is used to determine whether co-ethnic minority (Hispanic) teachers are making a significant contribution to minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math. The standardized coefficient is used to determine the extent to which co-ethnic minority (Hispanic) students contribute to minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

Indirect sources of Substantive Co-worker Representation involving the Indirect Effects of Black Teachers on Majority (White) and Co-ethnic minority (Hispanic) Bureaucrats

Models 4 and 5 are used to test Research Question #3. Do indirect sources of substantive co-worker representation related to the indirect effects of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math? Thus, in schools with a critical mass of Black teachers, do these Black teachers exert an indirect effect on the actions of white and Hispanic teachers respectively, which yields positive outcomes for Black students related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math? Hypothesis 4 posits that:

H4: When a critical mass of minority (Black) teachers are present, majority (White) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Model 4

$$\hat{Y} = a_0 + \beta_1 X_{BC} + \beta_2 X_W + \beta_3 (X_{BC} X_W) + Z + \epsilon$$

\hat{Y} = Black students outputs and outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math

a_0 = intercept term

X_{BC} = Percentage of Black teachers Within a School that meet critical mass criteria (coded as a dummy variable)

X_W = Percentage of White teachers within a school

$X_{BC} X_W$ = Percentage of Black teachers within a school that meets critical mass criteria acting interactively on White teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 4 presents the variables of interest. The independent variables are the percentage of Black teachers within a school that meets critical mass criteria (which will be coded as a dummy variable), the percentage of white teachers within a school, and the percentage of this critical mass of minority (Black) teachers acting interactively on majority teachers within a school during the school year. The dependent variable is the percentage of minority (Black) students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. This is compared to the independent variable of exclusive majority (White) teachers' effects on the dependent variable. A significance level of .001, .01, and .05 is used to determine whether a critical mass of minority (Black) teachers interacting with majority (White) teachers have a positive effect on minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math relative to the exclusive presence of majority (White teachers). The standardized coefficient is used to determine the extent to which a critical mass of minority (Black) teachers interacting on majority (White) teachers have a positive effect on minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math relative to the exclusive presence of majority (White teachers).

Hypothesis 5 posits that:

H5: When a critical mass of minority (Black) teachers are present, co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards.

Model 5

$$\hat{Y} = a_0 + \beta_1 X_{BC} + \beta_2 X_H + \beta_3 (X_{BC} X_H) + Z + \epsilon$$

\hat{Y} = Black students outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

a_0 = intercept term

X_{BC} =Percentage of Black teachers within schools that meet critical mass criteria (coded as a dummy variable)

X_H =Percentage of Hispanic teachers within a school

$X_{BC}X_H$ =Percentage of Black teachers within a school that meets critical mass criteria acting interactively on Hispanic teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 5 presents the variables of interest. The independent variables are the percentage of Black teachers within schools that meet critical mass criteria (which will be coded as a dummy variable), the percentage of Hispanic teachers, and the percentage of minority teachers within schools that meet the critical mass criteria acting interactively on co-ethnic minority (Hispanic) teachers within a school during the school year. The dependent variable is the percentage of Black students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. This is compared to the independent variable of exclusive co-ethnic minority (Hispanic) teachers. A significance level of .05 is used to determine whether a critical mass of minority (Black) teachers interacting on co-ethnic minority (Hispanic) teachers have a significant effect on minority (Black) students' outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math. The standardized coefficient is used to determine the extent to which a critical mass of minority (Black) teachers interacting on co-ethnic minority (Hispanic) teachers have a positive effect on minority (Black) students' outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math.

Indirect sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation

Models 6 and 7 are used to test Research Question #4. How do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively fare against more active/direct representation by minority(Black) teachers in regards

to having an effect on Black student policy outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math? How do indirect sources of substantive co-worker representation related to the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively fare against more active/direct representation by minority (Black) teachers in regards to having an effect on Black student policy outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math? Hypothesis 6 posits that:

H6: A direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats.

Model 6

$$\hat{Y} = a_0 + \beta_1 X_B + \beta_2 X_W + \beta_3 X_H + Z + \epsilon$$

\hat{Y} = Black students outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math

a_0 = intercept term

X_B =Percentage of Black Teachers within a school X_H =Percentage of Hispanic Teachers within a school

X_W =Percentage of White Teachers within a school

Z = Vector of control variables

ϵ = Error term

Model 6 presents the variables of interest. The independent variables are the percentage of minority (Black) teachers within a school, the percentage of majority (Hispanic), teachers within a school, and the percentage of co-ethnic minority (Hispanic) teachers within a school during the school year. The dependent variable is percentage of Black students who graduate, dropout, or

meet college readiness standards in both English and Math during that school year. These three variables are compared against each other to determine the value of the active/direct source of minority (Black) representation against more indirect sources of substantive co-worker representation for majority (White) and co-ethnic minority (Hispanic) teachers. A significance level of .001, .01, and .05 is used to determine whether active/direct sources of representation (Black teachers) are stronger predictors of minority (Black) students outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math relative to majority (White teachers) and co-ethnic minority (Hispanic) teachers respectively. The standardized coefficient is used to determine the extent to which minority (Black) teacher, majority (White) teachers, and co-ethnic minority (Hispanic) teachers to have a significant effect on minority (Black) students outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math.

Hypothesis 7 posits that:

H7: Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone.

Model 7

$$\hat{Y} = a_0 + \beta_1 X_{BC} + \beta_2 X_H + (X_{BC}X_H) + \beta_3 X_W + B_4(X_{BC}X_W) + Z + \epsilon$$

\hat{Y} = Black students outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math.

a_0 = intercept term

X_{BC} =Percentage of Black teachers within schools that meet critical mass criteria (coded as a dummy variable)

X_H =Percentage of Hispanic teachers within a school

$X_{BC}X_H$ =Percentage of Black teachers within a school that meets critical mass criteria acting

interactively on Hispanic teachers within a school

X_W = Percentage of White teachers within a school

$X_{BC}X_W$ = Percentage of Black teachers within a school that meets critical mass criteria acting interactively on white teachers within a school

Z = Vector of control variables with associated coefficients

ϵ = Error term

Model 7 presents the variables of interest. The independent variables are the percentage of Black teachers within schools that meet critical mass criteria (which will be coded as a dummy variable), the percentage of co-ethnic minority (Hispanic) teachers, the percentage of minority (Black) teachers within schools that meet the critical mass criteria acting interactively on co-ethnic minority (Hispanic) teachers within a school, the percentage of majority (White) teachers within a school, and the percentage of minority (Black) teachers within schools that meet the critical mass criteria acting interactively on majority (White) teachers within a school during the school year. The dependent variable is the percentage of Black students who graduate, dropout, or meet college readiness standards in both English and Math during that school year. This will be compared to the independent variable of exclusive co-ethnic minority (Hispanic) teachers. A significance level of .001, .01, and .05 is used to determine whether given a critical mass of minority (Black) teachers, a direct/active source of substantive co-worker representation (Black teachers) are stronger predictors of minority (Black) student policy outcomes related to graduation and dropout rates and meeting college readiness standards in both English and Math than indirect sources of a critical mass of Black teachers interacting on majority (White) with co-ethnic minority (Hispanic) teachers respectively. The standardized coefficient is used to determine the extent to which direct/active source of substantive co-worker representation (Black teachers), and indirect sources of substantive co-worker representation, which includes minority (Black) teachers interacting on majority (White) teachers and co-ethnic minority (Hispanic) teachers have a significant effect on minority (Black) students outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math.

Quantitative Research Analysis

IBM SPSS Statistics Standard Edition 21 was used to evaluate the hypotheses. The individual variables were screened for outliers, normality, multicollinearity, homoscedasticity, and missing values as well as skewness and kurtosis. In order to evaluate each Hypotheses, SPSS was utilized to conduct multiple regression using a Generalized Linear Model (GLM) because tests for normality and homoscedasticity revealed that there were issues with skewness and kurtosis, suggesting the data was not normally distributed. Generalized linear modeling is often used because it can be “regarded as an extension of classical linear regression when the usual assumptions of normality and constant variance do not apply. Because of the additional considerations imposed by the nature of the data, sensible models for mean response may no longer be linear functions of covariates and regression parameters directly. Rather, the mean response is modeled as a function (nonlinear) of a linear combination of covariates and regression parameters (the linear predictor)” (Davidian, p. 432). Additionally another practical benefit of GLM is that it can be fit to data, a form of iteratively re-weighted least squares where the variance is allowed to depend on the mean; thus, the variance depends on the regression parameter. Previous studies on representative bureaucracy recognizing that data within their analysis violated assumptions of normality, sought to transform their data using logarithmic functions (Groeneveld and Verbeek, 2011; Mitchell, 2011). However an issue that emerges is that a “model no longer pertains directly to the original scale of measurement, which is usually of greatest interest. Moreover, it tries to “force” a model framework and distributional assumption that may not be best” (Davidian, p. 424), suggesting that utilizing GLM may be a better strategy for analyzing non-normal distributed data.

Quantitative Research Study Limitations

The biggest limitation of the quantitative research is that teachers and students could not actually be matched using this dataset, so it is still impossible to connect which teachers are generating which policy outcomes for Black students within the unit of analysis, however this

study comes closer than previous studies on representative bureaucracy by conducting its analysis at the school level rather than at the district level. Additionally another major limitation of this quantitative research was the generalizability of these results. As noted by Roch, Pitts, and Navarro (2010) much of the results from this study are largely context-specific, making extrapolation or application to other policy arenas and settings uncertain. In addition, the nature of the research being studied means that in other research settings where Blacks (or any specific group being studied) are not being measured in samples where they have at least a significant presence in the sample on the part of the independent and dependent variable, then results may differ. It is also important to consider that in policy arenas where organizational factors may differ, for example bureaucrats are less able to exercise discretion, less substantive representation may be observed. A final point of consideration is that since this data is limited to one state: Texas and there is no guarantee that findings here regarding co-worker representation would be similar to those found in other states. In another state where racial dynamics are different, different results might be expected, for example more homogenous states or those states with greater or less tension in regards to race relations. Nevertheless Texas is a large and diverse state with significant representation of Whites, Hispanics, and Blacks, which has made it an ideal setting for explorations into representative bureaucracy as there have been numerous studies conducted in this state (Bohte 2001; Keiser, 2002; Meier, Wrinkle, and Polinard, 1999; Pitts, 2005).

Qualitative Research

Research Question Explained by the Qualitative Analysis

This stage of the analysis utilizes qualitative research to delve further into a significant and controversial finding generated within the quantitative research using research methods of interviews. The interview protocol consisted of standardized open-ended questions during these interviews, which explored the quantitative section's most controversial finding which calls into question the very nature of representative bureaucracy. More specifically this research aimed to expound upon the empirical findings generated from testing Hypotheses one, which

found an increasing percentage of Black teachers (direct sources of representation) is associated with negative outcomes for Black students, a finding that seems to counter the very theory of representative bureaucracy. Previous research into representative bureaucracy has shown that Black teachers were associated with positive policy outputs related to ability grouping for example more assignments of minority students to gifted and less minority students assigned to special education programs; it is also associated with a decrease in minority student discipline and positive outcomes related to student performance on standardized tests (Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). Seemingly such outputs would seemingly result with significant outcomes for Black students such as Black teachers having a positive effect on Black students being correlated with positive outcomes for Black students related to Black student dropout, graduation, and college readiness percentage. With the quantitative findings indicating that this is not the case, this controversial finding warrants increased attention to exploring if and why Black teachers can generate significant outputs for Black students, which do not translate into significant outcomes. Perhaps as mentioned, mediating factors prevent Black teachers from turning outputs into outcomes. Further analyses into the quantitative findings indicated only Black teachers at higher economically disadvantaged schools are correlated with negative outcomes for Black students. This does indeed suggest the strength of mediating factors that could potentially impact the potential discretion a Black teacher may have to generate policy outcomes for Black students.

However while the quantitative analysis can indicate that a relationship exists that suggests Black teachers are more likely to teach economically disadvantaged students, more mobile students, and Black students than their Hispanic and White co-workers, which may explain why they are associated with more negative outcomes for Black students related to graduation, dropout, and college readiness percentage than their White and Hispanic co-workers; it cannot explain how and why such a relationship exists. The theory of representative bureaucracy suggests that in order to generate positive outcomes, teachers must have the ability and discretion to take action. While the literature identifies organizational and factors related to the bureaucrat's

job that may influence this, it is less certain as to how factors related to the socioeconomic environment may influence their ability to do so. This is of particular importance when considering the strong link between educational outcomes and student socioeconomic status (Balfanz and Legters, 2004). Balfanz and Legters (2004) found schools labeled “dropout factories” were associated with student populations that were 50% minority and, on average, 68.8% were economically disadvantaged. The use of a qualitative technique can be used to examine the ability, influence, and commitment by black teachers to achieve positive outcomes in different types of school environments and better understand how the socioeconomic environment influences their ability to generate positive outcomes. The qualitative section hopes to answer the research question: (1) how do socioeconomic barriers affect the belief, ability, and influence of Black teachers’ to affect positive outcomes for Black students, which will be explored through interviews with Black teachers.

Specifically, the qualitative section hoped to answer the research question: (1) how do socioeconomic barriers affect the belief, ability and influence of Black teachers’ to generate positive outcomes for Black students, which will be explored through interviews with Black teachers will be explored through interviews. The qualitative research is designed to interview Black teachers that are heterogeneous in terms of their teaching experience, age, gender and the socioeconomic status of the schools in which they teach. The purpose of the qualitative research design is to uncover any differences in ability, influence, and commitment by Black teachers in different types of socioeconomic environments schools. The specifics of the research design are detailed below.

Qualitative Research Design Participants and Site Selection

The qualitative research component of this study conducted standardized open-ended interviews with Black teachers. Sixteen Black teachers were interviewed for this dissertation. To increase the validity of findings teachers will be selected from schools characterized by different social and economic demographics, (eight from higher economically disadvantaged schools and

eight from lower economically disadvantaged schools). The recruitment of interview participants ensured that at least two teachers in each socioeconomic category were male because as Keiser (2002) notes approximately one-fourth of teachers in Texas are male. Additionally efforts were made to recruit teachers with varying degrees of teaching experience ensuring an assortment of age ranges, which may also shape their views and interactions with Black students.

Teachers were selected from multiple high schools (and multiple school districts in the Dallas Fort Worth area). This means that the research was not be able to control for factors related to policies or procedures that may result in teacher responses that vary because of district differences. However picking teachers from multiple districts has the advantage of increasing validity by ensuring responses represent a wide spectrum of teachers dealing with a unique issues in their respective school districts ensuring findings are less likely to be biased, which could be a possibility using one school district. The criteria for selecting the teachers are the percentage of Black students at the school and the socioeconomic status of the students at the school. Teachers were selected from schools that have at least 5% Black students (the same as the quantitative study), increasing the likelihood that these teachers will have interactions with Black students. Teachers were also be selected based on the socioeconomic status of the school. Specifically, the aim was to generate a sample population of teachers from schools that have higher and lower percentages of economically disadvantaged students. The purpose of the research was not to ask Black teachers about any specifics on students they teach within the school or about the school itself. Rather the purpose of this research was to ask Black teachers about what they believe they are able to do in their job.

In order to distinguish between schools that have a high economically disadvantaged percentage and a low economically disadvantaged percentage this study draws upon the work of John Hopkins University researchers Balfanz and Legters (2004) who utilized a term known as promoting power to identify schools where less than 60 percent or fewer of kids who entered a school were still in the senior class, or essentially schools that have been termed “dropout factories” (p.5). These researchers in collaboration with the Associated Press note that schools

labeled dropout factories were more than 50% minority, but on average 68.8% qualify for free or reduced lunch, which is the same measure used to calculate the economically disadvantaged percentage. Nationally the rate is much lower with 34.6 of students in schools qualifying for free or reduced lunch (Balfanz and Legters, 2004). Thus in recognition of this national rate, teacher responses in schools with a lower percentage of students classified as economically disadvantaged, 50 percent or less economically disadvantaged percentage, will be put into one category. This category will be compared to teacher responses in schools with a higher economically disadvantaged percentage that is similar to dropout factory characteristics where 50 percent or higher of students are classified as economically disadvantaged. Essentially the key question driving the qualitative analysis, is do the strategies used by the teachers differ based upon the socioeconomic status of the students they teach?

Procedures and Recruitment

Participants for the study were recruited in compliance with the University of Texas at Arlington's Institutional Review Board (IRB) policies. In compliance with federal law, the University of Texas at Arlington requires that research on human subjects be approved through the IRB. An IRB request was submitted to ensure that the research being conducted was supported by the University of Texas at Arlington in ensuring the rights and welfare of the human subjects being used within this study were being adequately protected. This dissertation requested and received expedited review, as it required feedback from human subjects but imposed no more than minimal risk on each interviewee (see Appendix C and D). Each interviewee was required to submit a signed consent form prior to the interview either through email or in-person before an interview could be conducted (see Appendix B). The consent form explained to potential interviewees how their information would remain confidential. The consent form also outlined the steps that were implemented to ensure the participant's privacy. Steps that were taken to protect the anonymity of the participants included assigning a pseudonym to ensure confidentiality of their responses. Additionally, data from the interviews was stored on a USB port containing only this research and

all recorded interviews were stored on the recorder containing only dissertation research. Once the recorded information was transcribed and incorporated into my dissertation, the taped information was destroyed and then disposed of.

In regards to the recruitment of teachers for study participants, gatekeepers, people within the Dallas, Plano, Arlington and Irving ISDs, within the Dallas Fort Worth area that the researcher knew were contacted. They put the researcher in contact with teachers who were willing to be interviewed and were utilized to allow the researcher a way to establish relationships with teachers for participation in the interviews being conducted. Since the researcher needed two distinct groups that differ by socioeconomic status, the researcher also utilized purposive, or judgment sampling to ensure a non-probability sampling of teachers who teach at schools with a high and low percentage of economically disadvantaged students. While such samples may be prone to researcher bias and make it difficult to defend the representativeness of the sample (Galloway, 2006), it is important to note that since this is a preliminary exploration into representative bureaucracy within a field that has been criticized for its lack of qualitative research, the value of this research is that it allowed for the identification of tentative hypotheses that could be tested more rigorously in further research. Since this recruitment technique did not yield a sufficient sample size, additional teachers were then recruited by asking teachers already interviewed for additional study participants using a snowballing technique for more participants. Snowballing sampling, which is also known as chain referral sampling is made through a series of referrals made within a circle of people who know one and other until a sample is created (Wright and Stein, 2005). While the technique of snowballing is criticized for being unrepresentative, utilizing multiple gatekeepers rather than just one for initial recruitment of study participants means that the sample of interview participants is more likely to be representative because it will not just be coming from one chain of referrals. These teachers were contacted using an assortment of recruitment strategies including Facebook, phone calls, email, and a formal letter. To expedite the recruitment of teachers a small monetary reward was offered for participation in this study.

Qualitative Data Collection and Analysis

Interviews were the primary means of qualitative data collection for the study. The interview protocol was designed to ask Black teachers in depth questions about their teaching experiences with Black students. The qualitative interview questions for this study explored the why and how behind the quantitative section's most controversial findings generated from the first Hypothesis that Black teachers do not have a significant effect on (Black) student policy outcomes related to graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Mathematics, calling into question the very theory of representative bureaucracy. The qualitative data within this study was collected using an open-ended interview procedure (found in the Appendix A) that is set up in a standardized format to ensure that each interviewee gets similar questions in the same format. These questions were piloted and tested by a separate group of three Black middle school teachers who are not a part of the interviews to ensure that the questions being used in the interviews were viewed as fair and impartial. Interviews with the teachers participating in the study were conducted at the convenience of the interviewees by either person or telephone. All interviews were recorded, and with participant agreement transcribed.

The qualitative data was then read through before being organized and coded from emerging themes and categories. Coding is a process that organizes data into a segment so that meaning can be transfixed into the data and oftentimes a codebook is developed to aid in this process (Creswell, 2009). The codes to be created in this study in line with the suggestions of Miles and Huberman (1994) come from emergent themes and categories identified within the literature and both the quantitative and qualitative data. The representative bureaucracy literature notes that in order for shared racial identity to generate substantive results, those seeking to employ such tools for the benefit of their group must recognize the value of that shared identity, as well as an ability to work toward those outcomes (Krislov, 1974; Thompson, 1976). Thus qualitative research exploring representative bureaucracy should consider the belief, ability, and

influence of any group in relation to active/direct sources of representation. In recognition of this, the qualitative research question asks how do socioeconomic barriers affect the belief, ability, and influence of Black teachers' to generate positive outcomes for Black students? Categories were created in support of these themes based off the representative bureaucracy literature, such as symbolic, passive, and active representation. In addition other categories that may represent barriers for achieving representation were Black students were also created. Three categories, discretion, attitude toward Black student achievement, and symbolic representation, fall under the theme "beliefs of Black teachers to affect positive outcomes for Black students". Two other categories, passive and active representation, are within the theme "ability of Black teachers to affect positive Black student outcomes for Black students". The category substantive indirect representation is under the theme "influence of Black teachers to affect positive outcomes for Black students". Three categories, economically disadvantaged effects, student mobility effects, and other barriers are within the theme "effect of socioeconomic and other negative barriers in affecting positive outcomes for Black students". Finally the category Other is under the theme miscellaneous issues that may affect positive outcomes for Black students. The themes and categories used to create the codes are identified in Table 3-3. Once the coding is done, analysis was conducted on the emergent themes and conclusions were drawn from the results generated. The codes that were used in this study were created to answer the following research question that was generated as a result of the primary quantitative finding:(1) How do socioeconomic barriers affect the belief, ability and influence of Black teachers' to generate positive outcomes for Black students? The themes and categories used within the qualitative analysis are provided in Table 3-3.

Table 3-3 Themes and Categories Guiding the Exploration of Substantive Representation within the Qualitative Analysis

Themes	Category	Examples of issues within Category/Theme
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Table 3.3 — *Continued*

Beliefs of Black Teachers to affect positive outcomes for Black students	1. Discretion	<ul style="list-style-type: none"> •Feelings of discretion to affect Black student outcomes •Feeling of lack of discretion to affect Black student outcomes •Feelings about barriers that may affect discretion
	2. Attitudes toward Black student achievement	<ul style="list-style-type: none"> •Admission of academic achievement gap •Lack of admission of academic achievement •Opinion on what needs to be done to improve Black student achievement •Opinion on what needs to be done to improve Black student achievement •Opinion on who bears the burden for improving Black student outcomes
	3. Symbolic Representation	<ul style="list-style-type: none"> •Black teachers' feelings on their ability to influence Black student outcomes
Ability of Black Teachers to affect positive outcomes for Black students	4. Passive Representation	<ul style="list-style-type: none"> •Black teachers' feelings on their value for Black students
	5. Active/Direct Sources of Representation	<ul style="list-style-type: none"> •Specific strategies used by teachers to support, sponsor, promote, engage, and advocate for programs that will increase Black student outcomes
Influence of Black teachers to affect positive outcomes for Black students	6. Indirect Substantive Representation	<ul style="list-style-type: none"> •Specific strategies used by teachers to influence teachers of other races •Feelings on the ability of Black teachers to influence their White and Hispanic co-workers
Role that teachers feel socioeconomic barriers play in generating positive outcomes for Black students	7. Economically Disadvantaged Effects	<ul style="list-style-type: none"> •Agreement with economically disadvantaged effect influencing teacher effectiveness •Disagreement with economically disadvantaged effect influencing teacher effectiveness •Degree of economically disadvantaged effect influencing teacher effectiveness •Impact of economically disadvantaged effect influencing teacher effectiveness

Table 3.3 — *Continued*

	8. Student Mobility Effects	<ul style="list-style-type: none"> •Agreement with student mobility effect influencing teacher effectiveness •Disagreement with student mobility effect influencing teacher effectiveness •Degree of student mobility effect influencing teacher effectiveness •Impact of student mobility effect influencing teacher effectiveness
	9. Other Negative Barriers	<ul style="list-style-type: none"> •Agreement with other barriers inhibiting teacher effectiveness •Disagreement with other barriers inhibiting teacher effectiveness •Degree other barriers inhibit teacher effectiveness •Impact of other barriers inhibiting teacher effectiveness
Miscellaneous issues that may have positive outcomes for Black students	10. Other	<ul style="list-style-type: none"> •Anything not covered in a previous category

Qualitative Research Study Limitations

One of the major limitations of this qualitative research is the generalizability of these results. Most of the research conducted was filtered through the lens of the teachers being interviewed. This means that much of the results from this study are largely context-specific to the teachers being interviewed, and results may be unique to context and difficult to replicate. Extrapolation or application to larger settings or other policy arenas may be difficult. In addition the recruitment of participants using limited avenues may bias the research results. It is also important to note that the researcher's presence may have increased bias, as the researcher's presence may engender responses that the interviewee feels are socially acceptable, however this did not seem to be the case as many interview participants were very candid. Another consideration is that the qualitative analysis may have been prone to the personal biases of the researcher, which means it may be afforded lower credibility than the quantitative analysis being conducted. A final limitation of this study is that it may raise issues of wider implications. Due to the size of the sample, sixteen teachers, results found here may not be transferable to other settings or people and given little credence unless further research is undertaken. Nevertheless as mentioned above,

this study provides an excellent introductory analysis into the value that can be derived from qualitative research within the representative bureaucracy literature.

Qualitative Research Validity and Reliability

In order to increase validity of this research multiple strategies were employed. First the interview format outlined in Appendix A was reviewed by a separate group of teachers who had no part in the interviews to identify potential biases and strengthen the rigor of the questions used in the interviews. These questions were amenable to their suggestions and feedback they gave was incorporated. The questions were also piloted by Additionally in order to increase validity of this research the interviews with teachers was piloted by a separate group of middle schoolteachers that were not included in the results to determine if the questions would generate adequate responses. Another validity measure incorporated was to conduct interviews with Black teachers of different demographics and different schools to ensure that the research does not merely incorporate the biases of one school or particular group. Another strategy that was employed in consideration of validity is that the researcher assured all respondents of the confidentiality of their interview responses is maintained to try to limit the impact of the researcher's presence in generating biased responses. To account for a social desirability bias where interview participants provide socially acceptable responses to the interviewer; Pearson (2009) notes that an interviewer should use "forgiving" wording in questionnaires and a self-reporting medium such as the telephone which has been shown to get participants to be more forthcoming in interviews (p. 59). Most importantly, the researcher had an external third party look at the results to ensure that the researcher's personal biases were not having an impact on interpretation of the data. In consideration of reliability, the qualitative research component set up interview questions in a standardized format to ensure that each interviewee received similar questions in the same format to increase reliability and limits bias of this interviewing technique. While the use of a survey rather than interviews would eliminate some of the potential biases that may emerge as a result of the interview questions, using such a technique would yield much more close-ended questions. The benefit of

interviews is that it provided much more detailed accounts of information from teachers than what is traditionally derived from surveys and other data collection methods (Boyce and Neale, 2006). Additionally, despite the limitations of utilizing interviews, for example the generalizability of the results and the implications that the qualitative research is context-specific to the teachers that were interviewed, this research has value because it explores the strategies Black teachers may use to influence Black student outcomes and the barriers that may work to inhibit them in order to determine why active/direct sources of co-worker representation may be correlated with negative outcomes. This is a finding that necessitates in-depth inquiry because it contradicts the very nature of the theory of representative bureaucracy. Since most of the studies within the representative bureaucracy literature have been quantitative in nature, this qualitative study provides greater insight into the representative bureaucracy and the strategies and barriers that may be promoting or inhibiting it .

Chapter 4

Data Analysis

This chapter explains the results of the data analysis that was conducted in this study. Quantitative and qualitative methods were both utilized to analyze the data. Using explanatory sequential research, the quantitative analysis was given precedence in the data analysis. Qualitative analysis is then used to further analyze one of the most controversial findings in the quantitative analysis. First, the results of the quantitative analysis are presented followed by the results of the qualitative analysis.

Quantitative Analysis.

Overall, partial support for Hypotheses 2, and 3 but no support is found for Hypotheses 1, 4, 5, 6, and 7. In summary, the quantitative analysis finds that active/direct sources of representation (Black Teachers) are not significantly correlated with positive outcomes related to dropout, graduation, and college readiness percentage for Black students (Hypothesis 1). Furthermore, active/direct sources of representation (Black Teachers) do not appear to significantly interact with indirect sources (Hispanic and White teachers) to generate these positive outcomes (Hypotheses 4, 5, and 7). However, indirect sources of representation (White and Hispanic teachers) are significantly correlated with positive outcomes for Black students (Hypotheses 2, 3 and 6). Ultimately, the results suggest that direct sources of representation are not more likely to have a positive effect on Black students than more indirect sources of representation. The significance and magnitude of the relationships are presented below. The relationships are presented in accordance with the four research questions and seven hypotheses that direct the study.

Direct/Active Representation Due to Passive Co-Worker Representation

Research Question 1. Is direct/active representation due to the effects of passive representation?

Specifically, do schools with a greater percentage of black teachers have a positive effect on Black

student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H1: Minority (Black) teachers have a significant, positive relationship with Black student policy outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority (Hispanic) Bureaucrats

Research Question 2. Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H2: Majority (White) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

H3: Co-ethnic minority (Hispanic) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Indirect Substantive Effects of Active/Direct Representation on Indirect Sources of Co-Worker Representation

Research Question 3. Do indirect sources of substantive co-worker representation through the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage meeting college readiness standards in both English and Math?

Are positive indirect effects on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both

English and Math produced when active/direct sources of representation interact on indirect sources of representation?

H4: When a critical mass of minority (Black) teachers are present, majority (White) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

H5: When a critical mass of minority (Black) teachers are present, co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards.

Indirect Sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation

Research Question 4. Research Question How do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math? How do indirect sources of substantive co-worker representation due to the effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H6: A direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats.

H7: Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone.

Quantitative Analysis

The data in the study are characterized by a school-year time lag. The independent variables included data reported for the fall of each school year, while the dependent variable was reported for the subsequent spring that following year. For example, during the 2007-2008 school year the TEA reports teacher race (the independent variables) in the Fall of 2007 but does not report Black student outcomes (dropout, graduation, and college readiness percentage) until the Spring of 2008 or later when data on these measures is made available. The independent variables are the percentage of Black, White, Hispanic teachers in a school (or count when taken collectively). In addition, interactive independent variables are also analyzed that involve a critical mass of Black teachers, which are Black within schools which have at least a plurality but no more than a majority of African American teachers, interacting on White and Hispanic teachers respectively. The primary dependent variables were the percentage of Black students within a school that graduate, dropout, and meet college readiness standards in both English and Math. IBM SPSS Statistics Version 21 Standard was used to analyze the data.

To test the independent variables of interest, the study controls for variables that have been utilized in previous studies related to representative bureaucracy (Meier, Wrinkle, and Polinard 1999; Pitts, 2005), and all represent significant controls that could mitigate the influence of direct and indirect sources of teacher representation on minority performance outputs and outcomes. This includes teaching, student, and school related control variables.

Teaching related variables include the number of teachers per student in a school, teacher salary, teacher compensatory percentage, and the average years of experience of a teacher at the school. As discussed in earlier chapters, these variables have been found to have an effect if

teaching related control variables such percentage number of teachers per student and average years of experience of a teacher at the school influenced the change in the percentage of Black students who dropout, graduate, and demonstrate college readiness.

Student related variables include the percent of students at risk in a school, the percent of students economically disadvantaged within a school, and student mobility within a school (how many students are present stay within that school in a particular year). As discussed in earlier chapters, these variables have been found to have an effect on the outcomes of interest. For example, student related control variables such the percent of students at risk in a school, the percent of students economically disadvantaged within a school, and student mobility within a school (how many students are present stay within that school in a particular year) influence the change in the percentage of Black students who dropout, graduate, and demonstrate college readiness.

School related control variables include instructional expenditures per student, the percent of students in gifted and talented, the percent of students in special education, and the percent of disciplinary placements with a school.

Tables 4-1, 4-2, and 4-3 lists a summary of basic descriptive statistics on the independent, dependent, and control variables for each of the performance measures being analyzed.

Table 4-1 Summary of Descriptive Statistics Being Analyzed in Relation to Black Student Dropout Percentage

Variable Name (N=1072)	Range		Mean	Std Error	Std Dev	Skewness	Std. Error	Kurtosis	Std. Error
	Min	Max							
Centered Black Teacher Count	-17.95	102.65	1.6964	.65141	21.32794	2.001	.075	3.929	.149
Centered Black Teacher Percentage	-16.22	71.48	-1.3494	.52971	17.34331	2.289	.075	5.156	.149
Centered Hispanic Teacher Count	-11.78	73.62	1.7703	.37291	12.20951	2.479	.075	7.184	.149
Centered Hispanic Teacher Percentage	-10.31	46.91	-.6773	.25594	8.37995	2.768	.075	9.295	.149
Centered White Teacher Count	-80.90	124.69	17.2426	1.17160	38.35983	-.208	.075	-.151	.149
Centered White Teacher Percentage	-64.79	29.20	2.1619	.59317	19.42135	-1.405	.075	1.581	.149
Centered Critical Black Teacher Percentage	-.13	.87	-.0248	.00927	.30359	2.623	.075	4.888	.149
Centered Critical Black Teacher Count	-.13	.87	-.0248	.00927	.30359	2.623	.075	4.888	.149

Table 4.1—Continued

Centered Critical Black Teacher Percentage Interacting on White Teacher Percentage	.00	10536.82	457.3344	35.58462	1165.09075	4.532	.075	24.224	.149
Centered Critical Black Teacher Percentage Interacting on Hispanic Teacher Percentage	.00	5109.68	302.3307	23.30046	762.89003	4.219	.075	17.891	.149
Centered Black Teacher Percentage Interacting on Black Teacher Critical Mass Percentage	.00	5420.05	152.0671	14.86230	486.61267	5.453	.075	36.489	.149
Centered Black Teacher Count Squared	0.00	3273.90	162.9479	11.59463	379.62462	4.844	.075	26.026	.149
Centered Black Teacher Percentage Squared	.00	15547.60	1767.4110	67.81476	2220.35081	1.889	.075	4.684	.149

Table 4.1—Continued

Centered Hispanic Teacher Count Squared	36.16	10000.00	5700.2827	71.89118	2353.81860	-.713	.075	-.355	.149
Centered Hispanic Teacher Percentage Squared	4.7	94.5	46.034	.6317	20.6814	.200	.075	-.910	.149
Centered White Teacher Count Squared	0	46	9.43	.190	6.207	2.608	.075	9.322	.149
Centered White Teacher Percentage Squared	1.8	23.3	10.568	.0939	3.0729	.676	.075	.687	.149
Student Economically Disadvantaged Percentage	0	64	1.49	.128	4.178	8.113	.075	85.861	.149
Student Gifted Percentage	0	17	11.56	.060	1.959	-.360	.075	1.945	.149
Student Special Education Percentage	10	20	15.23	.053	1.748	-.133	.075	-.108	.149
Teacher Compensatory Percentage	35583	58718	49948.09	104.667	3426.943	-.343	.075	-.031	.149
Years of Teaching Experience	4	38	17.73	.174	5.686	.593	.075	.521	.149

Table 4.1—Continued

Number of Teachers Per Students	0	50	8.76	.302	9.881	1.882	.075	2.770	.149
Teacher Salary	1964	8764	4252.28	17.245	564.634	.838	.075	4.463	.149
Student Mobility Percentage	-1	46	8.98	.215	7.045	1.231	.075	2.175	.149
Student Disciplinary Percentage	-17.95	102.65	1.6964	.65141	21.32794	2.001	.075	3.929	.149
Student Instructional Expenditures	-16.22	71.48	-1.3494	.52971	17.34331	2.289	.075	5.156	.149
Student Dropout Percentage	-11.78	73.62	1.7703	.37291	12.20951	2.479	.075	7.184	.149

Table 4-2 Summary of Descriptive Statistics Being Analyzed in Relation to Black Student Graduation Percentage

Variable Name (N=1072)	Range		Mean	Std Error	Std Dev	Skewness	Std. Error	Kurtosis	Std. Error
	Min	Max							
Centered Black Teacher Count	-17.95	102.65	1.6964	.65141	21.32794	2.001	.075	3.929	.149
Centered Black Teacher Percentage	-16.22	71.48	-1.3494	.52971	17.34331	2.289	.075	5.156	.149
Centered Hispanic Teacher Count	-11.78	73.62	1.7703	.37291	12.20951	2.479	.075	7.184	.149
Centered Hispanic Teacher Percentage	-10.31	46.91	-.6773	.25594	8.37995	2.768	.075	9.295	.149
Centered White Teacher Count	-80.90	124.69	17.2426	1.17160	38.35983	-.208	.075	-.151	.149
Centered White Teacher Percentage	-64.79	29.20	2.1619	.59317	19.42135	-1.405	.075	1.581	.149
Centered Critical Black Teacher Percentage	-.13	.87	-.0248	.00927	.30359	2.623	.075	4.888	.149
Centered Critical Black Teacher Count	-.13	.87	-.0248	.00927	.30359	2.623	.075	4.888	.149

Table 4.2—Continued

Centered Critical Black Teacher Percentage Interacting on White Teacher Percentage	.00	10536.82	457.3344	35.58462	1165.09075	4.532	.075	24.224	.149
Centered Critical Black Teacher Percentage Interacting on Hispanic Teacher Percentage	.00	5109.68	302.3307	23.30046	762.89003	4.219	.075	17.891	.149
Centered Black Teacher Percentage Interacting on Black Teacher Critical Mass Percentage	.00	5420.05	152.0671	14.86230	486.61267	5.453	.075	36.489	.149
Centered Black Teacher Count Squared	0.00	3273.90	162.9479	11.59463	379.62462	4.844	.075	26.026	.149
Centered Black Teacher Percentage Squared	.00	15547.60	1767.4110	67.81476	2220.35081	1.889	.075	4.684	.149

Table 4.2—Continued

Centered Hispanic Teacher Count Squared	36.16	10000.00	5700.2827	71.89118	2353.81860	-.713	.075	-.355	.149
Centered Hispanic Teacher Percentage Squared	4.7	94.5	46.034	.6317	20.6814	.200	.075	-.910	.149
Centered White Teacher Count Squared	0	46	9.43	.190	6.207	2.608	.075	9.322	.149
Centered White Teacher Percentage Squared	1.8	23.3	10.568	.0939	3.0729	.676	.075	.687	.149
Student Economically Disadvantaged Percentage	0	64	1.49	.128	4.178	8.113	.075	85.861	.149
Student Gifted Percentage	0	17	11.56	.060	1.959	-.360	.075	1.945	.149
Student Special Education Percentage	10	20	15.23	.053	1.748	-.133	.075	-.108	.149
Teacher Compensatory Percentage	35583	58718	49948.09	104.667	3426.943	-.343	.075	-.031	.149
Years of Teaching Experience	4	38	17.73	.174	5.686	.593	.075	.521	.149

Table 4.2—Continued

Number of Teachers Per Students	0	50	8.76	.302	9.881	1.882	.075	2.770	.149
Teacher Salary	1964	8764	4252.28	17.245	564.634	.838	.075	4.463	.149
Student Mobility Percentage	-1	100	83.55	.328	10.735	-1.283	.075	4.106	.149
Student Disciplinary Percentage	-17.95	102.65	1.6964	.65141	21.32794	2.001	.075	3.929	.149
Student Instructional Expenditures	-16.22	71.48	-1.3494	.52971	17.34331	2.289	.075	5.156	.149
Student Graduation Percentage (n=1072)	-11.78	73.62	1.7703	.37291	12.20951	2.479	.075	7.184	.149

Table 4-3 Summary of Descriptive Statistics Being Analyzed in Relation to Black Student College Readiness Percentage

Variable Name (N=1126)	Range		Mean	Std Error	Std Dev	Skewness	Std. Error	Kurtosis	Std. Error
	Min	Max							
Centered Black Teacher Count	-17.95	102.65	1.3463	.62903	21.10765	2.025	.073	4.058	.146
Centered Black Teacher Percentage	-16.22	71.48	-1.6252	.51111	17.15093	2.314	.073	5.315	.146
Centered Hispanic Teacher Count	-11.78	73.62	1.6567	.35925	12.05506	2.517	.073	7.430	.146
Centered Hispanic Teacher Percentage	-10.31	46.91	-.7579	.24582	8.24860	2.806	.073	9.622	.146
Centered White Teacher Count	-80.90	124.69	17.7494	1.13394	38.05034	-.223	.073	-.136	.146
Centered White Teacher Percentage	-64.79	29.20	2.5590	.57333	19.23851	-1.430	.073	1.675	.146
Centered Critical Black Teacher Percentage	-.13	.87	-.0271	.00896	.30061	2.664	.073	5.104	.146
Centered Critical Black Teacher Count	-.13	.87	-.0271	.00896	.30061	2.664	.073	5.104	.146

Table 4.3—Continued

Centered Critical Black Teacher Percentage Interacting on White Teacher Percentage	.00	10536.82	446.9498	34.00893	1141.20094	4.621	.073	25.324	.146
Centered Critical Black Teacher Percentage Interacting on Hispanic Teacher Percentage	.00	5109.68	296.5347	22.24564	746.47298	4.312	.073	18.829	.146
Centered Black Teacher Percentage Interacting on Black Teacher Critical Mass Percentage	.00	5420.05	147.9402	14.25880	478.46705	5.521	.073	37.516	.146
Centered Black Teacher Count Squared	0.00	3273.90	159.2209	11.08776	372.06018	4.935	.073	27.155	.146
Centered Black Teacher Percentage Squared	.00	15547.60	1761.5844	65.61607	2201.80766	1.881	.073	4.655	.146

Table 4.3—Continued

Centered Hispanic Teacher Count Squared	36.16	10000.00	5751.3344	69.80554	2342.38944	-.739	.073	-.319	.146
Centered Hispanic Teacher Percentage Squared	4.6	94.5	45.128	.6251	20.9767	.208	.073	-.908	.146
Centered White Teacher Count Squared	0	46	9.37	.182	6.117	2.611	.073	9.568	.146
Centered White Teacher Percentage Squared	1.8	23.3	10.486	.0909	3.0500	.696	.073	.751	.146
Student Economically Disadvantaged Percentage	0	64	1.47	.122	4.109	8.178	.073	87.767	.146
Student Gifted Percentage	0	17	11.50	.062	2.073	-.572	.073	2.597	.146
Student Special Education Percentage	10	20	15.25	.052	1.751	-.157	.073	-.142	.146
Teacher Compensatory Percentage	31601	58718	49861.97	103.910	3486.797	-.474	.073	.833	.146
Years of Teaching Experience	4	38	17.60	.170	5.689	.588	.073	.488	.146

Table 4.3—Continued

Number of Teachers Per Students	0	50	8.71	.292	9.808	1.874	.073	2.768	.146
Teacher Salary	1964	8764	4230.66	17.066	572.678	.776	.073	4.057	.146
Student Mobility Percentage	-3	80	32.09	.364	12.213	.219	.073	.196	.146
Student Disciplinary Percentage	-17.95	102.65	1.3463	.62903	21.10765	2.025	.073	4.058	.146
Student Instructional Expenditures	-16.22	71.48	-1.6252	.51111	17.15093	2.314	.073	5.315	.146
Student College Readiness Percentage	-11.78	73.62	1.6567	.35925	12.05506	2.517	.073	7.430	.146

Prior to analysis the data were screened for outliers, normality, homoscedasticity, multicollinearity, and missing values. Plotting residuals of the dependent variables to test for normality revealed potential issues with normal distribution of the data and possibly heteroscedasticity, a finding confirmed by the skewness and kurtosis measures found in Tables 4-1, 4-2, and 4-3. Tabachnick and Fidell (1989) note that values ± 3 indicate that the data is not normally distributed, while George and Mallery (2010) note that values between -2 and + 2 can be considered an acceptable range that indicates normal distribution of data. As the descriptive tables indicate, many of the dependent variables outside these ranges, which suggest that the data is not normally distributed and necessitates an analytical tool that will account for this non-normal distribution of the data. Thus, a Generalized Linear Model (GLM) was selected for the analysis. GLM differs from Ordinary Least Squares (OLS) regression in that it is a robust and adaptable generalization of ordinary linear regression that allows for response variables that have error distribution models other than a normal distribution (Nelder and Baker, 1972, pp 372-384). In contrast, more commonplace models like OLS assume that errors be normally distributed and display homoscedasticity, which means that the error term, has the same variance in each observation. For a more detailed explanation of how the GLM works as an estimation tool, please see Appendix E. Previous studies on representative bureaucracy recognizing that data within their analysis violated assumptions of normality, sought to transform their data using logarithmic functions (Groeneveld and Verbeek, 2011; Mitchell, 2011). However an issue that emerges is that a “model no longer pertains directly to the original scale of measurement, which is usually of greatest interest. Moreover, it tries to “force” a model framework and distributional assumption that may not be best” (Davidian, 2007, p. 424), suggesting that utilizing GLM may be a better strategy.

Additionally, in testing the data for multicollinearity, initial screening of the data

using the Variance Inflation Factor (VIF), a collinearity diagnostic used to identify multicollinearity (an occurrence where predictor variables are too highly correlated), indicated a potential problem with the data. In a test case, Black teacher percentage was included with other predictor variables using a VIF analysis for each respective dependent variable, Black student dropout percentage, Black student graduation percentage, and Black student college readiness percentage as shown in Table 4-4 below.

Table 4-4 Variance Inflation Factor (VIF) for Predictor Variables

Predictor Variable Measures	Variance Inflation Factor (VIF) Black Student Dropout Percentage	Variance Inflation Factor (VIF) Black Student Graduation	Variance Inflation Factor (VIF) College Readiness Percentage
Black Teacher Percentage	1.701	1.701	1.690
Student Economically Disadvantaged Percentage	2.971	2.971	3.066
Student Gifted Percentage	1.199	1.199	1.197
Student At-Risk Percentage	3.925	3.925	3.951
Student Special Education Percentage	1.819	1.819	1.805
Teacher Compensatory Percentage	1.048	1.048	1.045
Years of Teaching Experience	1.332	1.332	1.384
Number of Teachers Per Students	2.597	2.597	2.647
Teacher Salary	1.900	1.900	1.936
Student Mobility Percentage	2.490	2.490	2.491
Student Disciplinary Percentage	1.079	1.079	1.078
Student Instructional Expenditures	2.368	2.368	2.465

Allison (1999) notes that a VIF threshold above 2.5 suggests that there may be issues with multicollinearity. Since the Table 4-4 suggested multicollinearity further analysis was warranted to determine which variables were highly correlated. To do this, a bivariate analysis was run among the variables. Tabachnick and Fidell (1996) note that

bivariate correlations above .70 among the predictors imply a high correlation between two variables, and raises concerns about multicollinearity. The control variable percentage of at-risk students within a school was found to be highly correlated with percentage of economically disadvantaged students and student mobility within a school, as shown in Table 4-5 below, leading to potential issues with multicollinearity. Such a finding seems logical because conventional knowledge is that a school with a high percentage of at-risk students would be likely to have a high percentage of economically disadvantaged and mobile students. To correct for this potential problem the percentage of students at-risk within a school was subsequently dropped from all future analysis.

Table 4-5 Bivariate Correlation of Student At-Risk Percentage with Other Control Variables

Measure	<u>M</u>	<u>SD</u>	Bivariate Correlation Student At-Risk Percentage
Student Economically Disadvantaged Percentage	44.643	21.261	.749**
Student Gifted	9.460	6.095	-.230**
Student Special Education	10.472	3.034	.379**
Teacher Compensatory	1.450	4.048	.096**
Years of Teaching Experience	11.420	2.089	-.014
Number of Teachers Per Students	15.250	1.735	-.194**
Teacher Salary	49852.570	3444.767	.086**
Student Mobility	17.400	5.760	.766**
Student Disciplinary	8.610	9.721	.185**
Student Instructional Expenditures	4229.990	567.257	.190**

Finally, it was necessary to identify and address any data issues related to missing values. . Some cases had to be dropped due to missing values as reported by the

TEA. Even though 1164 cases were collected, data had to be excluded due to a lack of data. This resulted in testing 1072 cases of schools for dropout and graduation percentage measures and 1126 cases for the college readiness percentage measure that met the parameters required in the methodology that a school have at least 1,000 students and have at least 5 % Black students.

Quantitative Results.

To aid in interpretation, all variables in regards to teacher race have been centered against the mean to aid in standardization of interpretation. The test for significance within each model being used to evaluate the Hypotheses is a p-value less than .05, .01, and .001. Each Hypothesis is provided with initial summary regarding the data being analyzed within the model.

Direct/Active Representation Due to Passive Co-Worker Representation

Research Question 1. Is direct/active representation due to the effects of passive representation?

Specifically, do schools with a greater percentage of black teachers have a positive effect on Black student policy outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math?

Hypothesis 1 tests if minority (Black) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math. The effects of direct representation are tested across three dependent variables, Black student dropout percentage (Table 4-6), Black student graduation percentage (Table 4-7), and Black student college readiness percentage (Table 4-8). Three models are run for each dependent variable, Model 1A contains Black teacher percentage, Model 2A contains

Critical Mass of Black teachers' percentage, and Model 3A contains Black Teacher Percentage interacting with Critical Mass of Black Teacher Percentage. The effects of these independent variables of interest are tested on each dependent variable, while controlling for teaching, student, and school related variables that may also affect the dependent variable. The results are presented by each dependent variable. A summary of the effects are then provided.

Black Teachers → Black Student Dropout Percentage

The results of the effects of Black teachers on Black student dropout percentage can be found in Table 4- 6. The first analysis within Hypothesis 1 is designed to test Black teachers' effect on Black student dropout percentage considering Black teachers respectively (Model 1A), a critical mass of Black teachers respectively (Model 2A), and the effect of both taken interactively (Model 3A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage. The key variable of interest is Black teacher percentage. This independent variable is significant ($p < .01$) and has a positive effect (.036) on the change in the dependent variable. A one percent change in the percentage of Black teachers leads to a .036 increase in the percentage of Black students who dropout. More simply, as the percentage of Black teachers increases within Texas high schools, so too, does the percentage of black students who dropout. As the percentage of active sources of direct representation increase, it does not automatically translate into positive effects for students of the same race.

Nine of ten control variables are significant as well. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged

students within a school is significant ($p < .001$) and has a positive effect (.053) on the change in the dependent variable percentage of Black students who dropout. The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.715) on the change in the dependent variable percentage of Black students who dropout.

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.087) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.042) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.465) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience, number of teachers per students within a school, and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.491) on the change in the dependent variable (percentage of Black students who dropout). However teaching factors like the number of teachers per student

and teacher salary are associated with a decreased Black student dropout percentage. The number of teachers per student within a school is significant ($p < .05$) and has a negative effect (-.323) on the change in the dependent variable (percentage of Black students who dropout). Teacher salary within a school is significant ($p < .01$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). Teacher compensatory percentage is the only control variable not significant ($p = .595$) with a -.021 association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-6. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable). A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage, which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass of Black teachers' percentage is significant ($p < .001$) and has a positive effect (2.654) on the change in the dependent variable (percentage of Black students who dropout). A one percent change in the percentage of critical mass Black teachers leads to a 2.654 increase in the percentage of Black students who dropout. Thus, as the number of Black teachers concentrated within a school increases, the percentage of black students who dropout increases. As the concentration of active sources of direct representation increase in a school, more positive outcomes do not result. Again nine of ten control variables are significant, as is the case with Model 1A. The coefficients and standard errors of all control variables are presented in table 4-6.

Model 3A. Model 3A presents the results from the GLM estimation in relation to Black student dropout percentage. This model differs in that the key variables of interest include the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage. There are no significant interaction effects between the percentage of Black teachers and a critical mass of black teachers on the percentage of Black students who dropout. A review of the interactive effect of Black teacher percentage overall and a critical mass of Black teachers percentage reveals a -.020 association between the two variables that does not have a significant ($p = .813$) effect on the percentage of Black students who dropout. This suggests that the effects of critical mass of Black teachers are independent of percentage of Black teachers in regards to Black student dropout percentage. Additionally, as is the case with the two previous models 1A and 2A, nine out of ten control variables are significant. The direction and significance of the control variables remain the same in this model. The coefficients and standard errors of all control variables are presented in table 4-6.

Table 4-6 Black Teachers' Effect on Black Student Dropout Percentage

	(1A)	(2A)	(3A)
Intercept	15.481 (4.0212)	13.767 (3.8045)	16.589 (4.0422)
School Variables			
Economically Disadvantaged Student Percentage	.053 (.0112)***	.053 (.0108)***	.045 (.0114)***
Gifted Student Percentage	.087 (.0291)**	.085 (.0288)**	.090 (.0289)**
Special Education Student Percentage	-.465 (.0718)***	-.413 (.0712)***	-.434 (.0717)***
Compensatory Teacher Percentage	-.021 (.0404)	-.036 (.0401)	-.030 (.0401)
Years of Teacher Experience	.491 (.0970)***	.493 (.0964)***	.505 (.0965)***
Number of Teacher Per Student	-.323 (.1511)*	-.344 (.1504)*	-.351 (.1501)*
Teacher Salary	-.0002 (.0001)**	-.0002 (.0001)**	-.0002
Student Mobility Percentage	.715 (.0402)***	.721 (.0396)***	.709 (.0399)***
Student Disciplinary Percentage	.042 (.0172)*	.041 (.0172)*	.039 (.0171)*

Table 4.6—Continued

Student Instructional Expenditures	-.002 (.0004)***	-.002 (.0004)***	-.002 (.0004)***
Teacher Race School Variables			
Black Teachers' Percentage (BITeaPer)	.036 (.0124)**		.025 (.0154)
Critical Mass Black Teachers' Percentage (CriBITea Per)		2.654 (.5897)***	2.744 (1.5159)
Black Teacher Percentage * Critical Black Teacher			-.020 (.0849)
Model Goodness of Fit			
Pearson Chi-Square	31210.36***	30879.83***	30741.64***
degrees of freedom	1060	1060	1058
Akaike's Information Criterion (AIC)	6682.50	6670.74	6669.94

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Black Teachers → Black Student Graduation Percentage

The second analysis within Hypothesis 1 considers the relationship between Black teachers' percentage and Black student graduation percentage. The results are presented in Table 4-7. It considers Black teachers respectively (Model 1A), a critical mass percentage of Black teachers respectively (Model 2A), and potential interaction effects (Model 3A).

Model 1A. Model 1A contains the results from the GLM estimation in relation to Black student graduation percentage. The key variable of interest is Black teacher percentage respectively, which results in a -.029 association that is not significant ($p = .136$). The percentage of Black teachers does not have a significant effect on the percentage of Black students who graduate. This suggests that increasing sources active representation does not automatically have a significant effect on the percentage of black students who graduate.

Eight of ten control variables are significant however. In regards to the variables

that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The percentage of economically disadvantaged students within a school is significant ($p < .01$) and has a negative effect (-.048) on the change in the dependent variable (percentage of Black students who graduate). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-1.173) on the change in the dependent variable (percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p < .01$) and has a negative effect (-.127) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.068) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.709) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching

experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-.534) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factor teacher salary is associated with an increase in Black student graduation percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.0004) on the change in the dependent variable (percentage of Black students who graduate). The teaching factor the number of teachers per student within a school comes close to approximating significance (.053) leading to a positive effect (.455) on the change in the dependent variable (the percentage of Black students who graduate). Finally the control variable teacher compensatory percentage is not significant (.192) with a .082 association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student graduation percentage in Table 4-7. This model differs in that the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable). A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition.

A critical mass percentage of Black teachers' is significant ($p < .01$) and has a negative effect (-2.815) on the change in the dependent variable. A one unit change in the percentage of critical mass Black teachers leads to a -2.815 decrease in the percentage of

Black students who graduate. As the percentage of critical mass Black teachers increases within Texas high schools, the percentage of Black students who graduate decreases. This association suggests that increasing active representation in a school does not automatically generate more positive outcomes in terms of graduation rates. As is the case with Model 1A, the direction and significance of the eight control variables remain the same in this model, however a ninth control variable number of teachers per students is also significant. The teacher related control variable number of teachers per student within a school is significant ($p < .05$) and has a positive effect (.481) on the change in the dependent variable (percentage of Black students who graduate). The results are presented in Table 4-7.

Model 3A. Model 3A presents the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage along with Black teacher percentage respectively, and a critical mass of Black teachers' percentage respectively in relation to Black student graduation percentage in Table 4-7. A review of interactive effect of Black teacher percentage overall and a critical mass of Black teachers percentage reveals a .124 association between the two variables that is not significant ($p = .350$). This suggests that the effects of a critical mass percentage of Black teachers are independent of percentage of Black teachers in regards to Black student graduation percentage. As is the case with Model 2A, nine of ten control variables are significant. However the percentage of economically disadvantaged students goes from significant to marginally significant ($p < .05$) and continues to have a negative effect (-.037) on the change in the dependent variable (percentage of Black students who graduate). The coefficients and standard errors of all control variables are presented in table 4-7.

Table 4-7 Black Teachers' Effect on Black Student Graduation Percentage

	(1A)	(2A)	(3A)
Intercept	66.101 (6.2525)	66.837 (5.9974)	64.495 (6.2599)
School Variables			
Economically Disadvantaged Student Percentage	-.048 (.0175)**	-.044 (.0169)**	-.037 (.0178)*
Gifted Student Percentage	-.127 (.0452)**	-.128 (.0449)**	-.129 (.0451)**
Special Education Student Percentage	.709 (.1116)***	.661 (.1110)***	.678 (.1119)***
Compensatory Teacher Percentage	.082 (.0628)	.096 (.0625)	.091 (.0626)
Years of Teacher Experience	-.534 (.1509)***	-.542 (.1502)***	-.543 (.1506)***
Number of Teacher Per Student	.455 (.2349)	.481 (.2343)*	.487 (.2342)*
Teacher Salary	.0004 (.0001)***	0.0004 (.0001)***	.0004 (.0001)***
Student Mobility Percentage	-1.173 (.0624)***	-1.174 (.0617)***	-1.167 (.0623)***
Student Disciplinary Percentage	-.068 (.0268)*	-.066 (.0267)*	-.065 (.0267)*
Student Instructional Expenditures	.003 (.0007)***	.003 (.0007)***	.003 (.0007)***
Teacher Race School Variables			
Black Teachers' Percentage (BITeaPer)	-.029 (.0192)		-.005 (.0240)
Critical Mass Black Teachers' Percentage (CriBITea Per)		-2.815 (.9187)**	-4.684 (2.3651)*
Black Teacher Percentage *Critical Black Teacher Percentage			.124 (.1325)
Model Goodness of Fit			
Pearson Chi-Square	75454.57***	74974.32***	74830.12***
degrees of freedom	1060	1060	1058
Akaike's Information Criterion (AIC)	7628.50	7621.37	7623.59

*p<.05. **p<.01 ***p<.001

Note: standard error in parentheses

Black Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 1, considers the relationship between Black teachers' percentage and Black student college readiness percentage. The results are presented in Table 4-8. It considers Black teachers respectively (Model 1A), a critical mass percentage of Black teachers respectively (Model 2A), and potential interaction effects (Model 3A).

Model 1A. Model 1A contains the results from the GLM estimation. The key variable of interest is Black teacher percentage respectively, and the independent variable is significant ($p < .01$) and has a negative effect (-.071) on the change in the dependent variable. A one percent change in the percentage of Black teachers leads to a -.071 decrease in the percentage of Black students who demonstrate college readiness. As the percentage of Black teachers increases within Texas high schools, the percentage of Black students who demonstrate college readiness decreases. This association suggests that increasing active representation in a school does not automatically generate more positive outcomes in terms of college readiness percentage.

Eight of ten control variables are significant as well. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect (-.087) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-.741) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary

percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (- .100) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to be significant include student gifted percentage and student special education percentage. The control variable gifted student percentage within a school is not significant ($p = .869$) with a .008 association. Finally the control variable special education student percentage within a school is not significant ($p = .418$) with a -.101 association.

The teacher factors that are significant include all four control teacher related control variables: years of teaching experience, teacher salary, teacher compensatory percentage, and the number of teachers per students. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teacher experience within a school is significant ($p < .01$) and has a negative effect (- .456) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary, teacher compensatory experience, and number of teachers per student are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school within a school is significant ($p < .01$) and has a positive effect (.233) on the change

in the dependent variable percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p < .01$) and has a positive effect (.744) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student college readiness percentage in Figure 4-5. This model differs in that the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable). A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass of Black teachers' percentage results in a -1.553 association that is not significant ($p = .138$). The percentage of critical mass Black teachers does not have a significant effect on the percentage of Black students who demonstrate college readiness. As is the case with Model 1A, the direction of the eight control variables remains the same in this model and all eight control variables retain significance, however the control variables teacher compensatory percentage and years of teacher experience sees a slight change in strength of significance. Teacher compensatory percentage sees a more marginal significance. The teacher compensatory percentage within a school is significant ($p < .001$) and has a positive effect (.249) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). On the other hand student disciplinary percentage went from significant to marginally significant. Years of teacher experience within a school is significant ($p < .05$) and has a negative effect (-

.416) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

Model 3A. Model 3A presents the interactive effect of Black teachers' percentage and a critical mass of Black teachers' percentage along with Black teacher percentage respectively, and a critical mass of Black teachers' percentage respectively in relation to Black student college readiness percentage in Figure 4-8. A review of interactive effect of Black teacher percentage overall and a critical mass of Black teachers percentage reveals a .206 association between the two variables that did not have a significant ($p = .155$) effect on the percentage of Black students who demonstrate college readiness. This suggests that the effects of critical mass of Black teachers are independent of percentage of Black teachers in regards to Black student college readiness percentage. As is the case with Models 1A, nine of ten control variables are significant. The direction and magnitude of the control variables remain the same in this model. The coefficients and standard errors of all control variables are presented in table 4-8.

Table 4-8 Black Teachers' Effect on Black Student College Readiness Percentage

	(1A)	(2A)	(3A)
Intercept	-17.135 (6.8361)	-11.409 (6.5732)	-18.502 (6.8765)
School Variables			
Economically Disadvantaged Student Percentage	-.087 (.0195)***	-.102 (.0189)***	-.081 (.0199)***
Gifted Student Percentage	.008 (.0512)	.020 (.0512)	.010 (.0512)
Special Education Student Percentage	-.101 (.1252)	-.160 (.1255)	-.107 (.1259)
Compensatory Teacher Percentage	.233 (.0712)**	.249 (.0715)***	.235 (.0713)**
Years of Teacher Experience	-.456 (.1625)**	-.416 (.1625)*	-.452 (.1626)**
Number of Teacher Per Student	.744 (.2644)**	.742 (.2656)**	.760 (.2643)**
Teacher Salary	.001 (.0001)***	.001 (.0001)***	.001 (.0001)***
Student Mobility Percentage	-.741 (.0701)***	-.766 (.0698)***	-.741 (.0701)***
Student Disciplinary Percentage	-.100 (.0302)**	-.102 (.0303)**	-.098 (.0302)**
Student Instructional Expenditures	.003 (.0008)***	.003 (.0008)***	.003 (.0008)***
Teacher Race School Variables			

Table 4.8—Continued

Black Teachers' Percentage (BITeaPer)	-.071 (.0217)**		-.046 (.0267)
Critical Mass Black Teachers' Percentage (CriBITea Per)		-1.553 (1.0469)	-4.372 (2.6417)
Black Teacher Percentage * Critical Black Teacher Percentage			.206 (.1450)
Model Goodness of Fit			
Pearson Chi-Square	104035.09***	104818.01***	103777.62***
degrees of freedom	1114	1114	1112
Akaike's Information Criterion (AIC)	8317.79	8326.23	8319.00

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Summary of Active/Direct Representation

Overall Black teachers are associated with negative outcomes for Black students in regards to the Black student dropout, graduation, and college readiness percentage. For Table 4-6, Model 1A, Black teachers' percentage respectively, and Model 2A, a critical mass of Black teachers' percentage respectively are significant and correlate with negative outcomes in regards to Black student dropout percentage. For Table 4-7, Model 2A, a critical mass of Black teachers' percentage respectively correlates with negative outcomes in regards to Black student graduation percentage. Finally for Table 4-8 Model 1A, Black teachers' percentage respectively is significant and correlates with negative outcomes in regards to Black student college readiness percentage. So for the three models, there is at least one measure regarding Black teachers (though never an interactive effect) that is significant, suggesting increasing Black teachers, rather than leading to positive outcomes for Black students, may lead to more adverse effects for Black students in all three policy outcomes. Overall the results provide no support for

Hypothesis 1 that minority (Black) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math.

Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority Teachers

Research Question 2. Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student policy outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

Hypothesis 2 tests if majority (White) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage, and the percentage of Black students who meet college readiness standards in English and Math. Table 4-9 contains all the models used to analyze Hypothesis 2.

Hypotheses 3 tests if co-ethnic minority (Hispanic) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in both English and Math. Table 4-9 contains all the models used to analyze Hypothesis 3.

The effects of indirect representation are tested across three dependent variables, Black student dropout percentage, Black student graduation percentage, and Black student college readiness percentage for both White (Table 4-9) and Hispanic (Table 4-10) teachers. Both tables contain the results from the estimation of the linear (Models 1A, 2A, and 3A) and nonlinear models (1B, 2B, 3B), which are estimated for each dependent and independent variable of interest. In total, six models are run: Black student dropout percentage using both linear (1A) and nonlinear (1B) models, Black student graduation

percentage is analyzed using both linear (2A) and nonlinear (2B) models as well as Black student college readiness using both linear (3A) and nonlinear (3B) models for both White and Hispanic teachers. Both linear and nonlinear models are run in regards to White and Hispanic teacher race characteristics because there is ambiguity in regards to whether the relationship between teacher race and student outputs and outcomes is linear or nonlinear. Meier, Wrinkle, and Polinard (1999) argue in their study that the relationship between Black teachers is nonlinear because at lower levels Black teachers are correlated with negative outputs but as the concentration of Black teachers increases they are associated with positive outputs (due to what the authors identify as crossing a critical mass threshold). However Nielsen and Wolf (2001) counter that the relationship is instead linear, a claim Meier, Eller, Wrinkle, and Polinard (2001) vigorously dispute in advocating for a nonlinear relationship. Complicating this picture is the fact that there is even more uncertainty when considering teachers of other races and their effects on Black student outputs and outcomes given the lack of research. In recognition that there is still ambiguity in regards to whether teacher race should be analyzed from a linear or nonlinear model, both measures will be analyzed using goodness of fit measure Akaike Information Criterion (AIC) to arbitrate which model is a better model. The AIC is a measure that allows for assessing the quality of models by comparing related models. While the measure is not individually meaningful and interpretable in its own right like a R-squared measure, its value is that imposes a penalty when unrelated predictors are added into a model, thus the model with the smallest AIC when comparing models is the best fit (Turner, 2008). For White teachers' effects, two of the measures being analyzed, Black student dropout and graduation percentage, the linear models (Models 1A and 2A) have a smaller AIC suggesting these models are the best fit for analysis; however for White teacher's effect on college readiness the nonlinear model (Model 3B) has the smallest AIC, suggesting

this model is the best fit for analysis (Table 4-9). Thus these are the analyses that the interpretation of Hypothesis 2 expounds upon (the interpretations of the other Models can be found in Appendix F.). For Hispanic teachers' effects, all three measures being analyzed: Black student dropout, graduation, and college readiness percentage, the linear models (Model 1A,2A, and 3A) have the smaller AIC suggesting these models are the best fit for analysis (Table 4-10) Thus these are the measures that the interpretation of Hypothesis 3 expounds upon (the interpretation of the other models can be found in Appendix F). The effects of these independent variables of interest on each dependent variable will be tested in the respective models, while controlling for teaching, student, and school related variables that may also affect the respective dependent variable. A summary of the effects are then provided.

White Teachers → Black Student Dropout Percentage

The results of the analysis of the effects of White teachers on Black student dropout percentage is found in Table 4-9. The first analysis within Hypothesis 2 is designed to test White teachers' effect on Black student dropout percentage using a linear model. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage. The key variable of interest is White teacher percentage, which results in a -.013 association that is not significant ($p = .313$). The linear measure for percentage of White teachers within a school does not have a significant effect on the percentage of Black students who dropout.

Nine of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased

Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect (.059) on the change in the dependent variable (percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.725) on the change in the dependent variable (percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.082) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.044) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.447) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience, number of teachers per students within a school, and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.481) on the change in the dependent variable (percentage of Black

students who dropout). However teaching factors like the number of teachers per student and teacher salary are associated with a decreased Black student dropout percentage. The number of teachers per student within a school is significant ($p < .05$) and has a negative effect (-.341) on the change in the dependent variable (percentage of Black students who dropout). Teacher salary within a school is significant ($p < .05$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). Teacher compensatory percentage is the only control variable that is not significant ($p = .453$) with a -.030 association.

White Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 2 is designed to test White teachers' effect on Black student graduation percentage using a nonlinear model. Model 3B presents the results from the GLM estimation in relation to Black student dropout percentage in table 4-9.

Model 3B. Model 3B presents the results from the GLM estimation in relation to Black student college readiness percentage in Table 4-9 using a nonlinear quadratic model. In this model, the key independent variables of interest are White teacher percentage and White teacher percentage squared. In order to determine if there is a nonlinear relationship between White teachers and Black student dropout percentage, both White teacher percentage and White teacher percentage squared (the quadratic term) must be significant. The independent variable White teacher percentage is significant ($p < .01$) and has a positive effect (.260) on the change in the dependent variable. A one percent change in the percentage of White teachers leads to a .260 increase in the percentage of Black students who demonstrate college readiness. As the percentage of White teachers increases within Texas high schools, the percentage of Black students who demonstrate college readiness increases. In addition, White teachers

percent squared is also significant ($p < .01$) and has a negative effect (-.002) on the change in the dependent variable. This suggests that while increasing White teachers is associated with an increase in the college readiness percentage for Black students, however this increase is mitigated by a downturn in the curve that levels off with an increasing percentage of White teachers (rather than the effects simply being greater as the percentage of white teachers increases as would be the case with a linear model).

Seven of the ten control variables that were in Model 3A retain significance and retain the same direction, the control variable years of teaching experience loses significance in this model. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect (-.133) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-.776) on the change in the dependent variable percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.106) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .001$) and have a positive

effect (.003) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to be significant include student gifted percentage and student special education percentage. The control variable the gifted student percentage is not significant ($p = .668$) with a .009 association. Finally the control variable special education student percentage within a school is not significant ($p = .262$) with a -.063 association.

The teacher factors that are significant include teacher related control variables: teacher salary, teacher compensatory percentage, and the number of teachers per students. However teacher salary, teacher compensatory experience, and number of teachers per student are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .01$) and has a positive effect (.209) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p < .001$) and has a positive effect (.601) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The teacher control variable years of teacher experience within a school is not significant ($p = .105$) with a -.273 association.

Table 4-9 White Teachers' Effect on Black Student Performance Measures

	(1A) Dropout Percentage (N=1072)	(1B) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(2B) Graduation Percentage (N=1072)	(3A) College Readiness Percentage (N=1126)	(3B) College Readiness Percentage (N=1126)
Intercept	13.488 (4.2677)	13.814 (4.9508)	64.659 (6.6119)	63.490 (7.6699)	-11.113 (7.2465)	3.175 (8.4547)

Table 4.9—Continued

Teacher Race						
School						
Variables						
White Teachers' Percentage	-.013 (.0130)	-.007 (.0461)	.031 (.0201)	.010 (.0715)	.007 (.0228)	.260 (.0812)**
White Teachers' Percentage Squared		-.0001 (.0004)		.0002 (.0006)		-.002 (.0007)**
School						
Variables						
Economically Disadvantaged Student Percentage	.059 (.0122)***	.058 (.0131)***	-.042 (.0190)*	-.040 (.0203)*	-.106 (.0213)***	-.133 (.0228)***
Gifted Student Percentage	.082 (.0292)**	.081 (.0293)**	-.128 (.0452)**	-.127 (.0453)**	.022 (.0515)	.009 (.0514)
Special Education Student Percentage	-.447 (.0718)***	-.445 (.0732)***	.704 (.1112)***	.697 (.1134)***	-.141 (.1255)	-.063 (.1271)
Compensatory Teacher Percentage	-.030 (.0406)	-.031 (.0410)	.094 (.0628)	.096 (.0636)	.246 (.0717)**	.209 (.0722)**
Years of Teacher	.481 (.0977)***	.484 (.1005)***	-.543 (.1514)***	-.554 (.1557)***	-.408 (.1642)*	-.273 (.1686)
Teacher Per Student	-.341 (.1545)*	-.344 (.1564)*	.515 (.2393)*	.527 (.2423)*	.739 (.2703)**	.601 (.2742)*
Teacher Salary	-.0002 (.0001)*	-.0002 (.0001)*	.0004 (.0001)***	.0004 (.0001)***	.001 (.0001)***	.001 (.0001)***
Student Mobility Percentage	.725 (.0407)***	.725 (.0408)***	-1.167 (.0631)***	-1.166 (.0631)***	-.769 (.0710)***	-.776 (.0707)***
Student Disciplinary	.044 (.0173)*	.044 (.0173)*	-.071 (.0268)**	-.070 (.0268)**	-.104 (.0303)**	-.106 (.0302)***
Student Instructional	-.002 (.0005)***	-.002 (.0005)***	.003 (.0007)***	.003 (.0007)***	.003 (.0008)***	.003 (.0008)***
Model						
Goodness of						
Pearson Chi-Square	31433.36***	31432.87** *	75448.62***	75442.26***	10514.29** *	104044.75***
degrees of freedom	1060	1059	1060	1059	1114	1113
Akaike's Information Criterion (AIC)	6689.79	6691.77	7628.41	7630.72	8328.34	8319.89

*p<.05. **p<.01 ***p<.001

Note: standard error in parentheses

Overall AIC was used to interpret if a linear or nonlinear model was a stronger predictor in regards to White teacher effects on Black student dropout, graduation, and college readiness percentage. For White teachers effects, two of the measures being analyzed, Black student dropout and graduation percentage, the linear models (Models 1A and 2A) have a smaller AIC suggesting it is a better fit for analysis; however for White teacher's effect on college readiness the nonlinear model (3B) has the smallest AIC, suggesting it is the better fit (Table 4-6). Using these measures, White teachers do not have a significant effect on Black student outcomes in two of the three measures using (Black student dropout and graduation percentage) in Table 4-9 (Models 1A and 2A). The only measure where it is demonstrated that White teachers have a significant and positive effect on Black student performance outcomes is the Black student college readiness percentage (Model 3B). A nonlinear quadratic measure of White teachers is significant and has a positive effect increasing Black student college readiness. This suggests a mixed bag for the Hypothesis that White teachers have a significant and positive effect on Black student performance outcomes. While White teachers do not have a significant effect on Black student outcomes related to Black student dropout and graduation percentage, White teachers are correlated with a significant and positive effect for at least one measure, Black student college readiness percentage, providing partial evidence in support of Hypothesis 2, that majority (White) teachers play a positive role in Black student outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math.

Hispanic Teachers → Black Student Dropout Percentage

The results of the analysis of the effects of Hispanic teachers on Black student dropout percentage is found in Table 4-10. The first analysis within Hypothesis 2 is

designed to test Hispanic teachers' effect on Black student dropout percentage using a linear model. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage. The key variable of interest is Hispanic teacher percentage, which is significant ($p < .01$) and has a negative effect (-.064) on the change in the dependent variable. A one percent change in the percentage of Hispanic teachers leads to a .064 decrease in the percentage of Black students who dropout. As the percentage of Hispanic students increase within a school, the Black student dropout percentage decreases.

Eight of ten control variables are also significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect (.072) on the change in the dependent variable (percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.745) on the change in the dependent variable percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.078) on the change in the dependent variable

(percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.040) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.450) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.469) on the change in the dependent variable (percentage of Black students who dropout). However teacher salary is associated with a decreased Black student dropout percentage. Teacher salary within a school is significant ($p < .05$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). The teaching control variables that are not significant are teacher compensatory experience and the number of teachers per students. The control variable teacher compensatory percentage is not significant ($p = .998$) with a -.0001 association. Finally the control variable the number of teachers per student is not significant ($p = .234$) with a -.187 association.

Hispanic Teachers → Black Student Graduation Percentage

The second analysis within Hypothesis 2 is designed to test Hispanic teachers' effect on Black student graduation percentage using a linear model. Model 2A presents the results from the GLM estimation in relation to Black student dropout percentage in

table 4-10.

Model 2A. Model 2A contains the results from the GLM estimation in relation to Black student graduation percentage. The key variable of interest is Hispanic teacher percentage, which results in a .019 association that is not significant ($p=.579$). The linear measure for the percentage of Hispanic teachers within a school does not have a significant effect on the percentage of Black students who graduate.

Eight of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The percentage of economically disadvantaged students within a school is significant ($p <.001$) and has a negative effect (-.059) on the change in the dependent variable percentage of Black students who graduate). The student mobility percentage within a school is significant ($p <.001$) and has a negative effect (-1.190) on the change in the dependent variable percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p<.01$) and has a negative effect (-.121) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant (.011) and has a negative effect (-.068) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with

an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.694) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and has a positive effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .01$) and has a negative effect (-.518) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factor teacher salary is associated with an increase in Black student graduation percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.0004) on the change in the dependent variable (percentage of Black students who graduate). The control variable the number of teachers per student comes close to approximating significance ($p = .096$) leading to a positive effect (.407) on the change in the dependent variable (the percentage of Black students who graduate). Finally the control variable teacher compensatory percentage is not significant ($p = .226$) with a .078 association.

Hispanic Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 2 is designed to test Hispanic teachers' effect on Black student graduation percentage using a linear model. Model 3A presents the results from the GLM estimation in relation to Black student college readiness percentage in table 4-10.

Model 3A. Model 3A contains the results from the GLM estimation in relation to

Black student college readiness percentage. The key variable of interest is Hispanic teacher percentage, which is significant ($p < .001$) and has a positive effect (.167) on the change in the dependent variable. A one percent change in the percentage of Hispanic teachers leads to a .167 increase in the percentage of Black students who demonstrate college readiness. As the percentage of Hispanic teachers increases within Texas high schools, the percentage of Black students who demonstrate college readiness increases.

Seven of ten control variables are also significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect (-.128) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-.803) on the change in the dependent variable percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.094) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .01$) and have a positive effect (.002) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to

be significant include student gifted percentage and student special education percentage. The control variable the gifted student percentage within a school is not significant ($p=.619$) with a .025 association. Additionally the control variable special education student percentage within a school is not significant ($p=.319$) with a -.124 association.

The teacher factors that are significant include all four control teacher related control variables: years of teaching experience, teacher salary, teacher compensatory percentage, and the number of teachers per students. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teaching experience within a school is significant ($p < .05$) and has a negative effect (-.388) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary and teacher compensatory experience are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .05$) and has a positive effect (.170) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Finally the control variable number of teachers per student within a school is not significant ($p=.139$) with a .405 association.

Table 4-10 Hispanic Teachers' Effect on Black Student Performance Measures

	(1A) Dropout Percentage (N=1072)	(1B) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(2B) Graduation Percentage (N=1072)	(3A) College Readiness Percentage (N=1126)	(3B) College Readiness Percentage (N=1126)
Intercept	9.400 (3.8683)	9.282 (3.9083)	69.851 (6.0182)	68.721 (6.0758)	-4.657 (6.6051)	-3.341 (6.6669)
Teacher Race Variables						
Hispanic Percentage	-.064 (.0225)**	-.076 (.0619)	.019 (.0350)	-.097 (.0962)	.167 (.0397)***	.308 (.1087)**

Table 4.10—Continued

Hispanic Percentage Squared		.0003 (.0013)		.003 (.0020)		-.003 (.0023)
School Variables						
Economically Disadvantaged Student Percentage	.072 (.0109)***	.073 (.0109)***	-.059 (.0170)***	-.057 (.0170)**	-.128 (.0188)***	-.131 (.0188)***
Gifted Student Percentage	.078 (.0290)**	.078 (.0290)**	-.121 (.0451)**	-.125 (.0451)**	.025 (.0509)	.030 (.0509)
Special Education Student Percentage	-.450 (.0714)***	-.450 (.0714)***	.694 (.1111)***	.689 (.1111)***	-.124 (.1243)	-.118 (.1242)
Compensatory Teacher Percentage	-.0001 (.0415)	.001 (.0416)	.078 (.0645)	.085 (.0647)	.170 (.0731)*	.162 (.0732)*
Years of Teacher Experience	.469 (.0968)***	.465 (.0984)***	-.518 (.1506)**	-.554 (.1530)***	-.388 (.1611)*	-.345 (.1640)*
Number of Teachers Per Student	-.187 (.1573)	-.185 (.1577)	.407 (.2447)	.430 (.2451)	.405 (.2742)	.377 (.2747)
Teacher Salary	-.0002 (.0001)*	-.0002 (.0001)*	.0004 (.0001)***	.0004 (.0001)***	.001 (.0001)***	.001 (.0001)***
Student Mobility Percentage	.745 (.0399)***	.746 (.0400)***	-1.190 (.0621)***	-1.185 (.0622)***	-.803 (.0695)***	-.810 (.0697)***
Student Disciplinary Percentage	.040 (.0173)*	.040 (.0173)*	-.068 (.0269)*	-.070 (.0269)**	-.094 (.0302)*	-.093 (.0302)**
Student Instructional Expenditures	-.002 (.0005)***	-.002 (.0005)***	.003 (.0007)***	.003 (.0007)***	.002 (.0008)**	.002 (.0008)**
Model Goodness of Fit						
Pearson Chi-Square	31229.92***	31228.63***	75588.91***	75469.70	103398.35	103220.99
degrees of freedom	1060	1059	1060	1059	1114	1113
Akaike's Information Criterion (AIC)	6682.83	6684.78	7630.40	7630.71	8310.88	8310.94

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Overall AIC was used to interpret if a linear or nonlinear model was a stronger

predictor in regards to White teacher effects on Black student dropout, graduation, and college readiness percentage. For Hispanic teachers all three measures being analyzed, Black student dropout, graduation, and college readiness percentage, the linear models (Model 1A, 2A, and 3B) have a smaller AIC suggesting it is a best fit for analysis, (table 4-10). Using these measures, Hispanic teachers have a significant positive effect on Black student outcomes in two out of the three measures (Black student dropout and college readiness percentage) in Table 4-10 (Models 1A and 3A). The only measure that demonstrates Hispanic teachers do not have a significant and positive effect on Black student performance outcomes is the Black student graduation percentage (Models 2A). The findings on the indirect effects of Hispanic teachers are similar to that of White teachers in that the effects are not consistent across all three dependent variables. This suggests a mixed bag for the Hypothesis that Hispanic teachers have a significant positive effect on Black student performance outcomes. Whereas white teachers were found to have a positive effect on improving college readiness, Hispanic teachers are correlated with significant and positive effects for Black student dropout and college readiness percentage, but not on graduation percentage. This again provides partial support for Hypothesis 3 that co-ethnic minority (Hispanic) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in both English and Math.

Indirect sources of Substantive Co-worker Representation involving the Indirect Effects of Black Teachers on Majority (White) and Co-ethnic minority (Hispanic) Bureaucrats

Research Question 3. Do indirect sources of substantive co-worker representation related to the indirect effects of a critical mass percentage of Black teachers interacting on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student policy outcomes related to dropout and graduation

percentage and the percentage of Black students who meet college readiness standards? Hypothesis 4 tests if when a critical mass percentage of minority (Black) teachers are present, majority (White) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math. Table 4-11 contains all the models used to analyze Hypothesis 4.

Hypothesis 5 tests if when a critical mass of minority (Black) teachers are present, co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards. Table 4-12 contains all the models used to analyze Hypothesis 5.

The effects of indirect representation are tested by evaluating the interaction effects between critical mass of active representation and indirect sources of representation across three dependent variables, Black student dropout percentage, Black student graduation percentage, and Black student college readiness percentage. The effects of indirect representation are tested across three dependent variables, Black student dropout percentage (Model 1A), Black student graduation percentage (Model 2A), and Black student graduation percentage (Model 3A). Each model contains an interaction term of a critical mass percentage on White (Table 4-11) or Hispanic Teachers (Table 4-12). All models control for teacher, student, and school related variables that may also affect the dependent variable. The effects of these independent variables of interest are tested on each dependent variable, while controlling for teaching, student, and school related variables that may also affect the dependent variable. The results are presented by each dependent variable. A summary of the effects are then provided.

Critical Mass Percentage of Black Teachers Interacting on White Teachers → Black Student Dropout Percentage

The results of the effects of a critical mass percentage of Black teachers interacting on White teacher percentage can be found in Table 4-11. The first analysis within Hypothesis 4 is designed to test a critical mass percentage of Black teachers interacting on White teachers' effect on Black student dropout percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar group (White teachers) to affect a policy output or outcome, and this variable tests that supposition. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 1A. Model 1A contains the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and White teacher percentage. Analyzing the effect of a critical mass Black teachers interacting on White teachers percentage reveals a .018 association between the two variables that is not significant ($p=.783$). This suggests that that the effects of critical mass percentage of Black teachers are independent of White teacher percentage in regards to Black student dropout percentage.

However nine of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect (.051) on the

change in the dependent variable (percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.718) on the change in the dependent variable (percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.085) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.040) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.417) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience, number of teachers per students within a school, and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.496) on the change in the dependent variable (percentage of Black students who dropout). However teaching factors like the number of teachers per student

and teacher salary are associated with a decreased Black student dropout percentage. The number of teachers per student within a school is significant ($p < .05$) and has a negative effect (-.356) on the change in the dependent variable (percentage of Black students who dropout). Teacher salary within a school is significant ($p < .01$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). Teacher compensatory percentage is the only control variable that is not significant ($p = .355$) with a -.037 association. Table 4-11 below outlines these results.

Critical Mass Percentage of Black Teachers' Interacting on White Teachers → Black Student Graduation Percentage

The second analysis within Hypothesis 4 is designed to test a critical mass percentage of Black teachers interacting on White teachers' effect on Black student graduation percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar group (White teachers) to affect a policy output or outcome, and this variable tests that supposition. Model 2A presents the results from the GLM estimation in relation to Black student graduation percentage.

Model 2A. Model 2A contains the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and White teacher percentage. Analyzing the effect of a critical mass percentage of Black teachers interacting on White teachers' percentage reveals a .078 association between the two variables that is not significant ($p = .433$). This

suggests that that the effects of critical mass percentage of Black teachers are independent of White teacher percentage in regards to Black student graduation percentage.

Eight of ten control variables are significant however. In regards to the variables that control for student factors, student mobility percentage is significant and associated with a decreased Black student graduation percentage. The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (- 1.160) on the change in the dependent variable percentage of Black students who graduate). The control variable the percentage of economically disadvantaged students within a school comes close to approximating significance ($p = .080$) leading to a negative effect (-.033) on the change in the dependent variable (the percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p < .01$) and has a negative effect (-.134) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant (.011) and has a negative effect (-.068) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.667) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive

effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-.563) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factors number of teachers per student and teacher salary is associated with an increase in Black student graduation percentage. The number of teachers per student within a school is significant ($p < .05$) and has a positive effect (.530) on the change in the dependent variable (percentage of Black students who graduate). Teacher salary within a school is significant ($p < .001$) and has a positive effect (.0004) on the change in the dependent variable (percentage of Black students who graduate). Finally the control variable teacher compensatory percentage is not significant ($p = .112$) with a .100 association. Table 4-11 below outlines these results.

Critical Mass Percentage of Black Teachers Interacting on White Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 4 is designed to test a critical mass percentage of Black teachers interacting on White teachers' effect on Black student college readiness percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar group (White teachers) to affect a policy output or outcome, and this variable

tests that supposition. Model 3A presents the results from the GLM estimation in relation to Black student college readiness percentage.

Model 3A. Model 3A presents the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and White teacher percentage. Analyzing the effect of a critical mass percentage of Black teachers interacting on White teachers' reveals a $-.086$ association between the two variables that is not significant ($p=.452$). This suggests that that the effects of critical mass percentage of Black teachers are independent of White teacher percentage in regards to Black student college readiness percentage.

Eight of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p <.001$) and has a negative effect ($-.102$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p <.001$) and has a negative effect ($-.766$) on the change in the dependent variable percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p <.01$) and has a negative effect ($-.100$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student

instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school control variable student gifted percentage is not significant ($p = .671$) with a .022 association. Finally the control variable student special education percentage is not significant ($p = .222$) with a -.154 association.

The teacher factors that are significant include all four control teacher related control variables: years of teaching experience, teacher salary, teacher compensatory percentage, and the number of teachers per students. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teacher experience within a school is significant ($p < .05$) and has a negative effect (-.414) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary, teacher compensatory experience, and number of teachers per student are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .001$) and has a positive effect (.251) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p < .01$) and has a positive effect (.747) on the change in the dependent variable percentage of Black students who demonstrate college readiness). Table 4-11 below outlines these results.

Table 4-11 Critical Mass Percentage of Black Teachers' Interacting on White Teachers and Its Effects on Black Student Performance Outcomes

	(1A) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(3A) College Readiness Percentage (N=1126)
Intercept	14.545 (4.2368)	63.699 (6.5958)	-11.840 (7.2515)
School Variables			
Economically Disadvantaged Student Percentage	.051 (.0123)***	-.033 (.0191)	-.102 (.0215)***
Gifted Student Percentage	.085 (.0290)**	-.134 (.0451)**	.022 (.0518)
Special Education Student Percentage	-.417 (.0716)***	.667 (.1115)***	-.154 (.1261)
Compensatory Teacher Percentage	-.037 (.0402)	.100 (.0626)	.251 (.0717)**
Years of Teacher Experience	.496 (.0969)***	-.563 (.1509)***	-.414 (.1642)*
Number of Teachers Per Student	-.356 (.1531)*	.530 (.2384)*	.747 (.2700)**
Teacher Salary	-.0002 (.0001)**	.0004 (.0001)***	.001 (.0001)***
Student Mobility Percentage	.718 (.0404)***	-1.160 (.0629)***	-.766 (.0710)***
Student Disciplinary Percentage	.040 (.0172)*	-.068 (.0268)*	-.100 (.0304)**
Student Instructional Expenditures	-.002 (.0005)***	.003 (.0007)***	.003 (.0008)***
Teacher Race School Variables			
Critical Mass Black Teacher Percentage (CritBITeaPer)	2.934 (1.2868)*	-1.280 (2.0034)	-3.085 (2.3113)
White Teacher Percentage (WteTeaPer)	-.003 (.0149)	.031 (.0231)	-.007 (.0263)
CritBITeaPer Percentage interacting on WteTeaPer	.018 (.0639)	.078 (.0994)	-.086 (.1141)
Model Goodness of Fit			
Pearson Chi-Square	30872.91***	74824.56***	104764.57***
degrees of freedom	1058	1058	1112
Akaike's Information Criterion (AIC)	6674.50	7623.96	8329.66

*p<.05. **p<.01 ***p<.001

Note: standard error in parentheses

Overall the results from Table 4-11 suggest that the indirect representative effect

of White teachers does not appear to be influenced by active sources of representation in regards to the Black student dropout percentage, graduation percentage and college readiness percentage (Models 1A, 2A and 3A). Rather a critical mass of Black teachers seems to be independent of White teacher percentage in regards to these three measures. This suggests that no support is found for Hypothesis 4 that a critical mass percentage of Black teachers is interacting on White teacher percentage to influence positive outcomes related to Black student dropout, graduation, and college readiness percentage.

Critical Mass Percentage of Black Teachers' Interacting on Hispanic Teachers → Black Student Dropout Percentage

The results of the effects of a critical mass percentage of Black teachers interacting on Hispanic teacher percentage can be found in Table 4-12. The first analysis within Hypothesis 5 is designed to test a critical mass percentage of Black teachers interacting on Hispanic teachers' effect on Black student dropout percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar group (Hispanic teachers) to affect a policy output or outcome, and this variable tests that supposition. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 1A. Model 1A contains the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and Hispanic teacher percentage. Analyzing the effect of a

critical mass Black teachers interacting on Hispanic teachers percentage reveals a $-.083$ association between the two variables that is not significant ($p=.429$). This suggests that that the effects of critical mass percentage of Black teachers are independent of Hispanic teacher percentage in regards to Black student dropout percentage.

Eight of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect ($.059$) on the change in the dependent variable (percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect ($.733$) on the change in the dependent variable (percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect ($.084$) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect ($.039$) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect ($-.420$) on the change in

the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience, number of teachers per students within a school, and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.490) on the change in the dependent variable (percentage of Black students who dropout). However teaching factor teacher salary is associated with a decreased Black student dropout percentage. Teacher salary within a school is significant ($p < .01$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). The teacher control variables teacher compensatory percentage and the number of teachers per student are not significant. The control variable teacher compensatory percentage is not significant ($p = .743$) with a -.014 association. Finally the number of teachers per student within a school is not significant ($p = .121$) with a -.243 association. Table 4-12 below outlines these results.

Critical Mass Percentage of Black Teachers Interacting on Hispanic Teachers → Black Student Graduation Percentage

The second analysis within Hypothesis 5 is designed to test a critical mass percentage of Black teachers interacting on Hispanic teachers' effect on Black student graduation percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar

group (Hispanic teachers) to affect a policy output or outcome, and this variable tests that supposition. Model 2A presents the results from the GLM estimation in relation to Black student graduation percentage.

Model 2A. Model 2A contains the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and Hispanic teacher percentage. In this model, the interaction term is significant. This suggests that the effect of Hispanic Teachers on black student graduation percentage is influenced by a critical mass percentage of Black teachers. Specifically, the term is significant ($p < .05$) and has a negative effect (-.414) on the change in the dependent variable. So, the effects for Hispanic teachers are based on whether or not a critical mass percentage of Black Teachers are present. The effect of Hispanic teachers vary at different values of the critical mass variable, but to calculate the effect of Hispanic teachers the coefficient for Hispanic teachers must be added to the coefficient of the interaction term, for example $[-.035(\% \text{ Hispanic Teachers}) + -.414 (\% \text{ Hispanic teachers} * \text{critical mass percentage of Black teachers})]$. So, if values were substituted (50% of Black teachers): $-.035(.50) + -.414(.50*1)$, then the effect of Hispanic teachers when considering active sources of influence is -.382, increasing the magnitude and reducing Black student graduation percentage.

Eight of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The student economically disadvantaged percentage within a school is significant ($p < .05$) and has a negative effect (-.040) on the change in the dependent variable (percentage of Black students who graduate). The student mobility percentage within a school is significant ($p < .001$) and has a negative

effect (-1.181) on the change in the dependent variable percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p < .01$) and has a negative effect (-.127) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.069) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.656) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-.539) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factor teacher salary is associated with an increase in Black student graduation percentage. Teacher salary within a school is significant ($p < .001$) and has a positive

effect (.0004) on the change in the dependent variable (percentage of Black students who graduate). The teacher control variable the number of teachers per student within a school comes close to approximating significance ($p=.056$) leading to a positive effect (.466) on the change in the dependent variable (the percentage of Black students who graduate). Finally the control variable teacher compensatory percentage is not significant ($p=.150$) with a .093 association. Table 4-12 below outlines these results.

Critical Mass Percentage of Black Teachers Interacting on Hispanic Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 5 is designed to test a critical mass percentage of Black teachers interacting on Hispanic teachers' effect on Black student college readiness percentage. A critical mass percentage of Black teachers (coded as a dummy variable) represent Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority) within a school. The literature has postulated that indirect representation within a representative bureaucracy occurs when a group (Black teachers) has enough of a presence to be able to influence a non-similar group (Hispanic teachers) to affect a policy output or outcome, and this variable tests that supposition. Model 2A presents the results from the GLM estimation in relation to Black student college readiness percentage.

Model 3A. Model 3A contains the interactive effect of Black teacher percentage and a critical mass of Black teachers' percentage, along with a critical mass percentage of Black teachers respectively and Hispanic teacher percentage.

The third model tests Hypothesis 5, specifically, the interactive effects of active on indirect sources of representation provided by Hispanic teachers on Black student college readiness percentage. Model 3A presents the results from the GLM estimation in relation to Black student college readiness percentage. Analyzing the effect of a critical mass

percentage of Black teachers interacting on Hispanic teachers reveals a $-.171$ association between the two variables that is not significant ($.354$). Additionally analyzing critical mass percentage of Black teachers respectively results in a $-.976$ association that was not significant ($p=.353$).

Seven of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect ($-.122$) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect ($-.800$) on the change in the dependent variable percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect ($-.094$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .01$) and have a positive effect ($.002$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to be significant include student gifted percentage and student special education percentage. The control variable the gifted student percentage within a school is not significant

($p=.639$) with a .024 association. Additionally the control variable special education student percentage within a school is not significant ($p=.274$) with a -.136 association.

The teacher factors that are significant include teacher related control variables: years of teaching experience, teacher salary, and teacher compensatory percentage. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teacher experience within a school is significant ($p < .05$) and has a negative effect (-.398) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary and teacher compensatory experience are associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .05$) and has a positive effect (.175) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Finally the teacher control variable number of teachers per student within a school is not significant ($p=.123$) with a .424 association. Table 4-12 below outlines these results.

Table 4-12 Black Teachers' Interacting on Hispanic Teachers and Its Effects on Black Student Performance Outcomes

	(1A) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(3A) College Readiness Percentage
Intercept	11.949 (3.8846)	66.834 (6.0496)	-5.687 (6.6829)
School Variables			
Economically Disadvantaged Student Percentage	.059 (.0113)***	-.040 (.0176)*	-.122 (.0196)***
Gifted Student Percentage	.084 (.0288)**	-.127 (.0448)**	.024 (.0509)
Special Education Student Percentage	-.420 (.0712)***	.656 (.1108)***	-.136 (.1248)
Compensatory Teacher Percentage	-.014 (.0413)	.093 (.0643)	.175 (.0733)*
Years of Teacher Experience	.490 (.0961)***	-.539 (.1497)***	-.398 (.1613)*

Table 4.12—Continued

Number of Teachers Per Student	-.243 (.1566)	.466 (.2439)	.424 (.2750)
Teacher Salary	-.0002 (.0001)**	.0004 (.0001)***	.001 (.0001)***
Student Mobility Percentage	.733 (.0398)***	-1.181 (.0619)***	-.800 (.0697)***
Student Disciplinary	.039 (.0172)*	-.069 (.0267)*	-.094 (.0302)**
Student Instructional Expenditures	-.002 (.0005)***	.003 (.0007)***	.002 (.0008)**
Teacher Race School Variables			
Critical Mass Black Teacher Percentage (CritBITeaPer)	2.478 (.5946)***	-2.875 (.9260)**	-.976 (1.0514)
Hispanic Teacher Percentage (HisTeaPer)	-.042 (.0247)	-.035 (.0384)	.146 (.0438)**
CritBITeaPer interacting on HisTeaPer	.083 (.1946)	-.414 (.1628)*	-.171 (.1847)
Model Goodness of Fit			
Pearson Chi-Square	30719.75***	74504.72***	103247.39***
degrees of freedom	1058	1058	1112
Akaike's Information Criterion (AIC)	6669.63	7618.92	8313.23

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Overall the results from Table 4-12 suggest that the indirect representative effects of Hispanic teachers does not appear to be influenced by active sources of representation in regards Black student dropout percentage and college readiness percentage (Models 1A and 3A). In contrast in regards to Black student graduation percentage the effects of indirect representation changes when a critical mass of active sources of representation is present, and in this case when a critical mass is present, the magnitude of the effects of Hispanic teachers is increased. Specifically, in this case it reduces the Black student graduation percentage. While this effect is significant, it is certainly not a positive effect. This suggests that no support is found for Hypothesis 5 that a critical mass percentage of Black teachers is interacting on Hispanic teacher percentage to influence positive outcomes related to Black student dropout, graduation, and college readiness percentage.

Indirect sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation

Research Question 4. How do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math? How do indirect sources of substantive co-worker representation due to the effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

Hypothesis 6 tests if a direct/active source of substantive co-worker representation (Black teachers) is a stronger predictor for minority student policy outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math than more indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) teachers respectively. All of the analysis regarding Hypothesis 6 is found in Table 4-13.

Hypothesis 7 tests if a critical mass percentage of Black teachers, a direct/active source of substantive co-worker representation (Black teachers) is a greater predictor for minority (Black) student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math than indirect sources of a critical mass of Black teachers interacting on majority (White) with co-ethnic minority (Hispanic) teachers respectively. Table 4-14 contains all the

models used to analyze Hypothesis 7.

The effects of indirect representation are tested across three dependent variables, Black student dropout percentage, Black student graduation percentage, and Black student college readiness percentage for Black, Hispanic, and White teachers collectively in Table 4-13. The table contain the results from the estimation of the linear (Models 1A, 2A, and 3A) and nonlinear models (1B, 2B, 3B), which are estimated for each dependent variable of interest. In total, six models are run: Black student dropout percentage using both linear (1A) and nonlinear (1B) models, Black student graduation percentage is analyzed using both linear (2A) and nonlinear (2B) models as well as Black student college readiness using both linear (3A) and nonlinear (3B) models for both White and Hispanic teachers.

Both linear and nonlinear models are run in regards to White and Hispanic teacher race characteristics because there is ambiguity in regards to whether the relationship between teacher race and student outputs and outcomes is linear or nonlinear. Meier, Wrinkle, and Polinard (1999) argue in their study that the relationship between Black teachers is nonlinear because at lower levels Black teachers are correlated with negative outputs but as the concentration of Black teachers increases they are associated with positive outputs (due to what the authors identify as crossing a critical mass threshold). However Nielsen and Wolf (2001) counter that the relationship is instead linear, a claim Meier, Eller, Wrinkle, and Polinard (2001) vigorously dispute in advocating for a nonlinear relationship. Complicating this picture is the fact that there is even more uncertainty when considering teachers of other races and their effects on Black student outputs and outcomes given the lack of research. In recognition that there is still ambiguity in regards to whether teacher race should be analyzed from a linear or nonlinear model, both measures will be analyzed using goodness of fit measure Akaike Information Criterion

(AIC) to arbitrate which model is a better model. The AIC is a measure that allows for assessing the quality of models by comparing related models. While the measure is not individually meaningful and interpretable in its own right like a R-squared measure, its value is that it imposes a penalty when unrelated predictors are added into a model, thus the model with the smallest AIC when comparing models is the best fit (Turner, 2008). For teacher race variables measured collectively, two of the measures being analyzed, Black student dropout and graduation percentage, the nonlinear model (Models 1B and 2B) have a smaller AIC suggesting it is a better fit for analysis; however for White teacher's effect on college readiness the linear model (Model 3A) has the smallest AIC, suggesting it is the better fit (Table 4-13). Thus these are the analyses that the interpretation of Hypothesis 6 expounds upon (the interpretations of the other Models can be found in Appendix F.). The effects of these independent variables of interest on each dependent variable will be tested in the respective models, while controlling for teaching, student, and school related variables that may also affect the respective dependent variable. A summary of the effects are then provided. The effects of these independent variables of interest on each dependent variable will be tested in the respective models, while controlling for teaching, student, and school related variables that may also affect the respective dependent variable. A summary of the effects are then provided.

Black Teachers+ White Teachers +Hispanic Teachers →Black Student Dropout Percentage

The results of the analysis of the effects of White, Black, and Hispanic teachers respectively on Black student dropout percentage are found in Table 4-13. The first analysis within Hypothesis 6 is designed to test each of these teachers' effect on Black student dropout percentage using a nonlinear quadratic model. Model 1B presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 1B. Model 1B presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-13 using a nonlinear quadratic model. The key variables of interest are count of Black teachers, count of Black teachers squared, count of White teachers, count of White teachers squared, count of Hispanic teachers, and count of Hispanic teachers squared respectively and their effects on Black student dropout percentage. In order to determine if there is a nonlinear relationship between these respective variables and Black student dropout percentage, both the teacher race percentage and teacher race percentage squared (the quadratic term) must be significant. Only the count of Black teachers and Black teachers squared (the quadratic term) respectively are significant. The independent variable the count of Black teachers respectively is significant ($p < .01$) and has a positive effect (.059) on the change in the dependent variable. A one count change in the count of Black teachers leads to a .059 increase in the percentage of Black students who dropout. As the count of Black teachers increases within Texas high schools, the percentage of Black students who dropout increases. The independent variable the count of Black teachers squared respectively is also significant ($p < .05$) and has a negative effect (-.001) on the change in the dependent variable. This suggests that while increasing the count of Black teachers is associated with an increase in Black students who dropout; this increase is mitigated by a downturn in the curve that levels off this increase. Analyzing the count of White teachers respectively results in a -.002 association that is not significant ($p = .801$). Similarly analyzing the count of White teachers squared respectively results in a -.001 association that is not significant ($p = .425$). Analyzing the count of Hispanic teachers respectively results in a -.017 association that is not significant ($p = .572$). Similarly analyzing the count of Hispanic teachers squared respectively results in a -.001 association that is not significant ($p = .445$).

Eight of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect (.059) on the change in the dependent variable percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.731) on the change in the dependent variable percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. Gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.085) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.038) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. Special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.451) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated

with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.480) on the change in the dependent variable (percentage of Black students who dropout). However teaching factors like teacher salary is associated with a decreased Black student dropout percentage. Teacher salary within a school is significant ($p < .01$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). The teaching control variables teacher compensatory percentage and number of teachers per student are not significant. The control variable teacher compensatory percentage within a school is not significant ($p = .846$) with a .008 association. Additionally the control variable number of teachers per student within a school is not significant ($p = .164$) with a -.220 association.

Black Teachers + White Teachers + Hispanic Teachers → Black Student Graduation Percentage

The second analysis within Hypothesis 6 is designed to test each of these teachers' effect on Black student graduation percentage using a nonlinear quadratic model. Model 2B presents the results from the GLM estimation in relation to Black student graduation percentage.

Model 2B. Model 2B contains the results from the GLM estimation in relation to Black student graduation percentage. The key variables of interest are count of Black teachers, count of Black teachers squared, count of White teachers, count of White teachers squared, count of Hispanic teachers, and count of Hispanic teachers squared respectively and their effects on Black student graduation percentage. In order to determine if there is a nonlinear relationship between these respective variables and Black student dropout percentage, both the teacher race percentage and teacher race percentage squared (the quadratic term) must be significant. The count of Hispanic

teachers, count of Hispanic teachers' squared (quadratic term), count of White teachers, and count of White teachers' squared (the quadratic term) respectively are significant. The independent variable the count of Hispanic teachers respectively is significant ($p < .05$) and has a negative effect (-.114) on the change in the dependent variable. A one count change in the count of Black teachers leads to a -.114 decrease in the percentage of Black students who graduate. As the count of Black teachers increases within Texas high schools, the percentage of Black students who graduate decreases. In addition the independent variable the count of Hispanic teachers squared (the quadratic term) respectively is also significant ($p < .01$) and has a positive effect (.004) on the change in the dependent variable. This suggests that while increasing Hispanic teachers is associated with a decrease in Black students who graduate; this increase is mitigated by an upturn in the curve that levels off this decline. The independent variable the count of White teachers respectively is significant ($p < .05$) and has a positive effect (.024) on the change in the dependent variable. A one count change in the count of White teachers leads to a .024 increase in the percentage of Black students who graduate. As the count of White teachers increases within Texas high schools, the percentage of Black students who graduate increases. In addition the independent variable the count of White teachers squared (the quadratic term) is also significant ($p < .01$) and has a negative effect (-.0004) on the change in the dependent variable. This suggests that while increasing the count of White teachers is associated with an increase in Black students who graduate; this increase is mitigated by a downturn in the curve that levels off this increase. Analyzing the count of Black teachers respectively results in a -.026 association that is not significant ($p = .367$). Similarly analyzing the count of Black teachers squared respectively results in a .001 association that is not significant ($p = .137$).

Eight of ten control variables are significant however. In regards to the variables

that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The percentage of economically disadvantaged students within a school is significant ($p < .05$) and has a negative effect (-.042) on the change in the dependent variable percentage of Black students who graduate). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-1.144) on the change in the dependent variable percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p < .01$) and has a negative effect (-.134) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.072) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.675) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching

experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-.588) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factor teacher salary is associated with an increase in Black student graduation percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.0005) on the change in the dependent variable (percentage of Black students who graduate). The teacher control variables number of teachers per student and teacher compensatory percentage is not significant. The control variable number of teachers per student is not significant ($p = .157$) with a .459 association. Additionally the control variable teacher compensatory percentage is not significant ($p = .385$) with a .033 association.

Black Teachers + White Teachers + Hispanic Teachers → Black Student College Readiness Percentage

The third analysis within Hypothesis 6 is designed to test each of these teachers' effect on Black student college readiness percentage using linear model. Model 3A presents the results from the GLM estimation in relation to Black student college readiness percentage.

Model 3A. Model 3A contains the results from the GLM estimation in relation to Black student college readiness percentage. The key variables of interest are count of Black teachers, count of White teachers, and count of Hispanic teachers squared respectively and their effects on Black student graduation percentage. The counts of White and Hispanic teachers respectively are significant. The independent variable the count of White teachers respectively is significant ($p < .001$) and has a positive effect (.041) on the change in the dependent variable. A one count change in the count of White teachers leads to a .041 increase in the percentage of Black students who demonstrate

college readiness. As the count of White teachers increases within Texas high schools, the percentage of Black students who demonstrate college readiness increases. The independent variable the count of Hispanic teachers respectively is also significant ($p < .001$) and has a positive effect (.140) on the change in the dependent variable. A one count change in the count of Hispanic teachers leads to a .140 increase in the percentage of Black students who demonstrate college readiness. As the count of Hispanic teachers increases within Texas high schools, the percentage of Black students who demonstrate college readiness increases. Analyzing the count of Black teachers respectively results in a .011 association that is not significant ($p = .529$).

Eight of ten control variables are also significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect (-.100) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-.775) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.095) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student

instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to be significant include student gifted percentage and student special education percentage. The control variable gifted student percentage within a school is not significant ($p = .839$) with a $-.010$ association. Additionally the control variable special education student percentage within a school is not significant ($p = .761$) with a $-.037$ association.

The teacher factors that are significant include all four control teacher related control variables: years of teaching experience, teacher salary, teacher compensatory percentage, and the number of teachers per students. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teacher experience within a school is significant ($p < .05$) and has a negative effect ($-.386$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary, teacher compensatory experience, and number of teachers per student are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .05$) and has a positive effect (.145) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p < .05$) and has a positive effect (.551) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Table 4-13 below outlines these results.

Table 4-13 Black Teachers, Hispanic Teachers, and White Teachers and Their Effects on Black Student Performance Outcomes

	(1A) Dropout Percentage (N=1072)	(1B) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(2B) Graduation Percentage (N=1072)	(3A) College Readiness Percentage (N=1126)	(3B) College Readiness Percentage (N=1126)
Intercept	12.101 (4.1139)	14.088 (4.2122)	70.164 (6.4145)	64.152 (6.5245)	-10.330 (6.8940)	-12.562 (7.0516)
School Variables						
Economically Disadvantaged Student	.059 (.0126)***	.049 (.0131)***	-.059 (.0196)**	-.042 (.0203)*	-.100 (.0215)***	-.095 (.0225)***
Gifted Student Percentage	.085 (.0292)**	.081 (.0295)**	-.121 (.0456)**	-.134 (.0457)**	-.010 (.0506)	-.009 (.0512)
Special Education Student	-.451 (.0720)***	-.443 (.0725)***	.689 (.1122)***	.675 (.1123)***	-.037 (.1234)	-.023 (.1246)
Compensatory Teacher	.008 (.0420)	.008 (.0420)	.057 (.0654)	.033 (.0650)	.145 (.0730)*	.138 (.0732)
Years of Teacher Experience	.480 (.0969)***	.5444 (.1524)**	-.520 (.1511)**	-.588 (.1542)***	-.386 (.1597)*	-.411 (.1649)*
Number of Teacher Per	-.220 (.1578)	-.276 (.1590)	.348 (.2461)	.459 (.2464)	.551 (.2713)*	.571 (.2739)*
Teacher Salary	-.0002 (.0001)**	-.0002 (.0001)**	.0004 (.0001)***	.0005 (.0001)***	.001 (.0001)***	.001 (.0001)***
Student Mobility Percentage	.731 (.0403)***	.723 (.0407)***	-1.191 (.0628)***	-1.144 (.0630)***	-.775 (.0690)***	-.760 (.0698)***
Student Disciplinary Percentage	.038 (.0172)*	.036 (.0173)*	-.065 (.0269)*	-.072 (.0268)**	-.095 (.0297)**	-.098 (.0298)**
Student Instructional Expenditures	-.002 (.0005)***	-.002 (.0005)***	.003 (.0007)***	.003 (.0007)***	.003 (.0008)***	.003 (.0008)***
Teacher Race School Variables						
Black Teacher Count	0.021 (.0098)*	.059 (.0187)**	-.013 (.0153)	-.026 (.0290)	.011 (.0169)	.005 (.0323)
Black Teacher Squared Count		-.001 (.0003)*		.001 (.0004)		.0004 (.0005)
Hispanic Teacher Count	-.042 (.0156)**	-.017 (.0305)	.034 (.0244)	-.114 (.0473)*	.140 (.0272)***	.114 (.0531)*
Hispanic Teacher Squared Count		-.001 (.0007)		.004 (.0011)**		.001 (.0013)
White Teacher Count	-.002 (.0057)	-.002 (.0072)	-.004 (.0089)	.024 (.0111)*	.041 (.0098)***	.054 (.0125)***
White Teacher Squared Count		-.0001 (.0001)		-.0004 (.0001)**		-.0003 (.0002)

Table 4.13—Continued

Model Goodness of Fit						
Pearson Square	31007.363***	30800.80***	75383.83***	73901.64***	99898.53***	99580.029***
degrees of freedom	1058	1055	1058	1055	1112	1109
Akaike's Information Criterion (AIC)	6679.16	6678.00	7631.49	7616.20	8276.10	8278.51

* $p < .05$. ** $p < .01$ *** $p < .001$
 Note: standard error in parentheses

Overall AIC was used to interpret if a linear or nonlinear model was a stronger predictor in regards to White, Hispanic, and Black teacher effects respectively on Black student dropout, graduation, and college readiness percentage. For White, Hispanic, and Black teacher effects respectively, two of the measures being analyzed, Black student dropout and graduation percentage, the nonlinear models (Models 1B and 2B) have a smaller AIC suggesting they are the best fit for analysis; however for White teacher's effect on college readiness the linear model (3A) has the smallest AIC, suggesting it is the best fit (Table 4-13). Overall Table 4-13 suggests that the only performance measure that is significant for Black teachers is the nonlinear quadratic measures count of Black teachers, which is associated with increasing the Black student dropout percentage (Model 1B). This suggests Black teachers do not have a significant effect on Black student outcomes and the one case where it does, Black student dropout percentage, the effect is negative (though this effect is mitigated at some point). The count of white teachers is significant and has a positive effect on Black student performance outcomes related to Black student graduation percentage in a nonlinear model (Model 2B) and college readiness percentage in a linear model (3A). Finally overall the count of Hispanic teachers is significant and associated with a negative effect on the Black student performance outcome related to Black student graduation percentage in a nonlinear

model (Model 2B) (though this increase is mitigated at a certain point). However the count of Hispanic teachers is significant and associated with a positive effect on the Black student performance outcome Black student graduation percentage in a linear model (3B). These results fail to support Hypothesis 6 that a direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on minority student policy outcomes related to graduation and dropout rates, and meeting college readiness standards in both English and Math than more indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) teachers respectively.

Critical Black Teacher Count + Critical Black Teacher Count Interacting on White Teacher Count+ Critical Black Teacher Count Interacting on Hispanic Teacher Count →Black Student Dropout Percentage

The results of the analysis of the effects of a critical mass count of Black teachers' interacting on White and Hispanic teachers on Black student dropout percentage are found in Table 4-14. The first analysis within Hypothesis 7 is designed to test if a critical mass count of Black teachers' interacting on White and Hispanic teachers and their effect on Black student dropout percentage as opposed to simply a critical mass Black teacher count. The results for Model 1A present the results from the GLM estimation in relation to Black student dropout percentage.

Model 1A. Model 1A contains the interactive effects of a critical mass count of Black teachers interacting on White and Hispanic teachers respectively, along with a critical mass count of Black teachers respectively and White and Hispanic teacher count respectively. Analyzing the effect of a critical mass count of Black teachers interacting on White teachers' reveals a -.029 association between the two variables that is not significant ($p=.136$). Additionally analyzing the effect of a critical mass count of Black

teachers interacting on Hispanic teachers' reveals a $-.009$ association between the two variables that is not significant ($p=.892$). Finally analyzing count of White teacher respectively results in a $-.004$ association that is not significant ($p=.445$).

Eight of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a positive effect (.059) on the change in the dependent variable (percentage of Black students who dropout). The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.724) on the change in the dependent variable (percentage of Black students who dropout).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with an increased Black student dropout percentage. The gifted student percentage within a school is significant ($p < .01$) and has a positive effect (.086) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is significant ($p < .05$) and has a positive effect (.039) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect ($-.429$) on the change in the dependent variable (percentage of Black students who dropout). Student instructional

expenditures within a school are significant ($p < .001$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout).

The teacher factors that are found to be significant include years of teaching experience, number of teachers per students within a school, and teacher salary. Years of teacher experience within a school is associated with an increased Black student dropout percentage. Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.483) on the change in the dependent variable (percentage of Black students who dropout). However teaching factor teacher salary is associated with a decreased Black student dropout percentage. Teacher salary within a school is significant ($p < .01$) and has a negative effect (-.0002) on the change in the dependent variable (percentage of Black students who dropout). The teacher control variables the number of teachers per student and teaching compensatory percentage are not significant. The control variable the number of teachers per student within a school comes close to approximating significance ($p = .094$) leading to a negative effect (-.263) on the change in the dependent variable (the percentage of Black students who dropout). Additionally the control variable teacher compensatory percentage is not significant ($p = .849$) with a -.008 association. Table 4-12 below outlines these results.

Critical Black Teacher Count + Critical Black Teacher Count Interacting on White Teacher Count + Critical Black Teacher Count Interacting on Hispanic Teacher Count → Black Student Graduation Percentage

The second analysis within Hypothesis 7 is designed to test if a critical mass counts of Black teachers' interacting on White and Hispanic teachers and their effect on Black student graduation percentage as opposed to simply a critical mass Black teacher count. Model 2A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 2A. Model 2A contains the interactive effects of a critical mass count of Black teachers interacting on White and Hispanic teachers respectively, along with a critical mass count of Black teachers respectively and White and Hispanic teacher count respectively. A critical mass count of Black teachers interacting on White teachers respectively is significant. This suggests that the effect of count of White teachers on black student graduation percentage is influenced by a critical mass count of Black teachers. Specifically, the term is significant ($p < .01$) and has a positive effect (.091) on the change in the dependent variable. So, the effects for White teachers are based on whether or not a critical mass percentage of Black Teachers are present. The effect of the count of Hispanic teachers varies at different values of the critical mass variable, but to calculate the effect of count of White teachers the coefficient for count of Hispanic teachers must be added to the coefficient of the interaction term, for example $[.003(\text{count of White teachers}) + .091 (\text{count of White teachers} * \text{critical mass percentage of Black teachers})]$. So, if values were substituted (count of 100 White teachers): $.003(100) + .091(100*1)$, then the effect of White teachers when considering active sources of influence is 9.400, increasing the magnitude and increasing Black student graduation percentage. Analyzing the effect of a critical mass count of Black teachers interacting on Hispanic teachers' reveals a $-.103$ association between the two variables that is not significant ($p = .325$).

Eight of ten control variables are significant. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The percentage of economically disadvantaged students within a school is significant ($p < .01$) and has a negative effect ($-.054$) on the change in the dependent variable percentage of Black students who graduate). The student mobility percentage within a school is significant ($p < .001$) and has a negative

effect (-1.176) on the change in the dependent variable percentage of Black students who graduate).

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student disciplinary percentage, and student instructional expenditures. Student gifted percentage and student disciplinary percentage are associated with a decreased Black student graduation percentage. The gifted student percentage within a school is significant ($p < .01$) and has a negative effect (-.123) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.070) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with an increase in Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.653) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who graduate).

The teacher factors that are found to be significant include years of teaching experience and teacher salary. Years of teacher experience within a school is associated with a decreased Black student graduation percentage. Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-.530) on the change in the dependent variable (percentage of Black students who graduate). However the teaching factor teacher salary is associated with an increase in Black student graduation percentage. Teacher salary within a school is significant ($p < .001$) and has a positive

effect (.0004) on the change in the dependent variable (percentage of Black students who graduate). Teaching control variables the number of teachers per student and teacher compensatory percentage are not significant. The control variable the number of teachers per student is not significant ($p=.102$) with a .401 association. Additionally the control variable teacher compensatory percentage is not significant ($p=.238$) with a .077 association. Table 4-14 below outlines these results.

Critical Black Teacher Count + Critical Black Teacher Count Interacting on White Teacher Count+ Critical Black Teacher Count Interacting on Hispanic Teacher Count → Black Student College Readiness Percentage

The third analysis within Hypothesis 7 is designed to test if a critical mass counts of Black teachers' interacting on White and Hispanic teachers and their effect on Black student college readiness percentage as opposed to simply a critical mass Black teacher count. Model 3A presents the results from the GLM estimation in relation to Black student dropout percentage.

Model 3A. Model 3A contains the interactive effects of a critical mass count of Black teachers interacting on White and Hispanic teachers respectively, along with a critical mass count of Black teachers respectively and White and Hispanic teacher count respectively. Analyzing the effect of a critical mass count of Black teachers interacting on White teachers' reveals a .048 association between the two variables that is not significant ($p=.161$). Additionally analyzing the effect of a critical mass count of Black teachers interacting on Hispanic teachers' reveals a -.051 association between the two variables that is not significant ($p=.668$).

Eight of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased

Black student college readiness percentage. The percentage of economically disadvantaged students within a school is significant ($p < .001$) and has a negative effect (-.092) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-.762) on the change in the dependent variable percentage of Black students who demonstrate college readiness).

The school factors that are found to be significant include student disciplinary percentage and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.096) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with an increase in Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.003) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The school related control variables that are not found to be significant include student gifted percentage and student special education percentage. The control variable gifted student percentage within a school is not significant ($p = .804$) with a -.013 association. Additionally the control variable of special education student percentage within a school is not significant ($p = .643$) with a -.057 association.

The teacher factors that are significant include all four control teacher related control variables: years of teaching experience, teacher salary, teacher compensatory percentage, and the number of teachers per students. Years of teacher experience is associated with a decreased Black student college readiness percentage. Years of teacher experience within a school is significant ($p < .05$) and has a negative effect (-.406)

on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However teacher salary, teacher compensatory experience, and number of teachers per student are all associated with increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p < .05$) and has a positive effect (.154) on the change in the dependent variable percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p < .05$) and has a positive effect (.577) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Table 26 below outlines these results.

Table 4-14 below outlines these results.

Table 4-14 Critical Mass Count of Black Teachers Interacting on Hispanic Teachers and White Teachers and Its Effects on Black Student Performance Outcomes

	(1A) Dropout Percentage (N=1072)	(2A) Graduation Percentage (N=1072)	(3A) College Readiness Percentage (N=1126)
Intercept	12.888 (4.0252)	67.901 (6.2743)	-12.597 (6.7954)
School Variables			
Economically Disadvantaged Student Percentage	.059 (.0122)***	-.054 (.0190)**	-.092 (.0209)***
Gifted Student Percentage	.086 (.0290)**	-.123 (.0452)**	-.013 (.0506)
Special Education Student Percentage	-.429 (.0717)***	.653 (.1118)***	-.057 (.1237)
Compensatory Teacher Percentage	-.008 (.0418)	.077 (.0652)	.154 (.0732)*
Years of Teacher Experience	.483 (.0960)***	-.530 (.1496)***	-.406 (.1589)*
Teacher Per Student	-.263 (.1571)	.401 (.2449)	.577 (.2717)*
Teacher Salary	-.0002 (6.3299E-	.0004 (9.8668E-	.001 (.0001)***
Student Mobility Percentage	.724 (.0399)***	-1.176 (.0622)***	-.762 (.0689)***
Student Disciplinary Percentage	.039 (.0172)*	-.070 (.0267)**	-.096 (.0297)**

Table 4.14—Continued

Student Instructional Expenditures	-.002 (.0005)***	.003 (.0007)***	.003 (.0008)***
Teacher Race School Variables			
Critical Mass Black Teacher Count	2.411 (.6555)***	-1.944 (1.0217)	-.588(1.1406)
Critical Mass Black Teachers Count Interacting on White Teachers Count	-0.029 (.0197)	.091 (.0307)**	.048 (.0345)
Critical Mass Black Teachers Count Interacting on Hispanic Teachers Count	-.009 (.0675)	-.103 (.1052)	-.051 (.1181)
White Teacher Count	-.004 (.0058)	.003 (.0091)	.044 (.0101)***
Hispanic Teacher Count	-.040 (.0165)*	.016 (.0258)	.127 (.0289)***
Model Goodness of Fit			
Pearson Chi-Square	30545.33***	74217.13***	99673.31
degrees of freedom	1056	1056	1110
Akaike's Information Criterion (AIC)	6667.07	7618.77	8277.56

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Overall the results from Table 4-14 suggest that a critical mass count of Black teachers interacting on Hispanic teachers does not have a significant effect on performance outcomes for Black students in regards to the Black student dropout percentage, graduation percentage, and college readiness percentage (Models 1A, 2A and 3A). Similarly a critical mass count of Black teachers interacting on White teachers and does not have a significant effect on performance outcomes for Black students in regards to the Black student dropout percentage, and college readiness percentage (Models 1A and 3A). Black student graduation percentage is the only measure where a critical mass count of Black teachers interacting on White teachers in regards to the Black student graduation percentage finds is correlated with an increased graduation percentage for Black students (Model 2A), Additionally Black teachers are not interacting Hispanic teachers to generate positive performance outcomes for Black students. Thus

Hypothesis 7 is not fully testable due to these results since there would need to be full support for the other effects within each model to look at the magnitudes and evaluate which effect is a greater positive predictor. Thus these results fail to support Hypothesis 7 that Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone.

An Overview of the Results

The results from Hypothesis 1 provide no support for Hypothesis 1 that minority (Black) teachers' play a positive role in Black student outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math as the percentage of Black teachers increases within a school. Black teachers are associated with negative outcomes for Black students in regards to the Black student dropout, graduation, and college readiness percentage. In contrast, results from Hypothesis 2 provide partial support for Hypothesis 2 that majority (White) teacher's play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math as the percentage of White teachers increases within a school. While White teachers do not have a significant effect on Black student outcomes related to Black student dropout and graduation percentage, White teachers are correlated with a significant and positive effect for at least one measure, Black student college readiness percentage. Similarly results from Hypothesis 3 provides partial support for Hypothesis 3 that co-ethnic minority (Hispanic) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the

percentage of Black students who meet college readiness standards in both English and Math as the percentage of Hispanic teachers increases within a school. While Hispanic teachers do not have a significant effect on Black student graduation percentage, Hispanic teachers are correlated with significant and positive effects for Black student dropout and college readiness percentage.

Results suggest no support for Hypothesis 4, that a critical mass percentage of minority (Black) teachers interacting on majority (White) teachers will have a positive effect on minority (Black) student outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards. A critical mass percentage of Black teachers is not interacting on White teacher to generate significant positive performance outcomes for Black students as none of the performance measures related to Black student dropout, graduation, and college readiness are significant. Similarly results from Hypothesis 5 provide no support for Hypothesis 5 that a critical mass percentage of minority (Black) teachers interacting on co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards. This suggests that Black teachers are not interacting with Hispanic teacher to generate positive performance outcomes for Black students in regards to dropout and college readiness percentage as these effects are not significant. For the one interaction that is significant in regards to Black teachers interacting on Hispanic teachers; as is the case with Black student graduation percentage it actually led to a decreased graduation percentage.

Results suggest no support for Hypothesis 6, that a direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the

percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats. Finally, the results do not provide support for Hypothesis 7 that Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone. This Hypothesis is not testable given the lack of significant effects in each model to facilitate a comparison.

In analyzing the effects of the control variables throughout all the various tables and models, in regards to student related variables, the student economically disadvantaged percentage seems to be correlated with increasing dropout percentage and decreasing graduation and college readiness percentage for Black students. This suggests as the as the student economically disadvantaged percentage increases within a school, so does the dropout percentage while the graduation and college readiness percentage decreases for Black students. Student mobility percentage seems to be correlated with increasing dropout percentage and decreasing graduation and college readiness percentage for Black students. This suggests as the as the student mobility percentage increases within a school, so does the dropout percentage while the graduation and college readiness percentage decreases for Black students.

In regards school related variables, the student gifted percentage seems to be correlated with increasing dropout percentage and decreasing graduation with no effect on college readiness percentage for Black students. This suggests as the student gifted percentage increases within a school, so does the dropout percentage, while the graduation percentage decreases and no effect is seen with college readiness percentage

for Black students. The student special education percentage seems to be correlated with decreasing dropout percentage and increasing graduation with no effect on college readiness percentage for Black students. This suggests as the student special education percentage increases within a school, the dropout percentage decreases while the graduation percentage increases and no effect is seen with college readiness percentage for Black students. Student disciplinary percentage seems to be correlated with increasing dropout percentage and decreasing graduation and college readiness percentage for Black students. This suggests as the as the student disciplinary percentage increases within a school, so does the dropout percentage while the graduation and college readiness percentage decreases for Black students. Student instructional expenditures seem to be correlated with decreasing dropout percentage and increasing graduation and college readiness percentage for Black students. This suggests as the as student instructional expenditures increase within a school, the dropout percentage decreases while the graduation and college readiness percentage increases for Black students.

In regards to teaching related variables, the teaching compensatory percentage seems to have no effect on student dropout and graduation percentage; however it seems to be correlated with increasing college readiness percentage for Black students. This suggests as the as teacher compensatory percentage increases within a school; no effect is seen with dropout and graduation percentage while college readiness percentage increases for Black students. The number of years of teaching experience seems to be correlated with increasing dropout percentage and decreasing graduation and college readiness percentage for Black students. This suggests as the number of years of teaching experience increases within a school, so does the dropout percentage while the graduation and college readiness percentage decreases for Black students. The number of teachers per student seems to be correlated with decreasing dropout percentage and

increasing graduation and college readiness percentage for Black students. This suggests as the as the number of teachers per student increases within a school, the dropout percentage decreases while the graduation and college readiness percentage increases (though the effect is either nonexistent or less pronounced when Hispanic teachers are included in the different models) for Black students. Teacher salary seems to be correlated decreasing dropout percentage and increasing graduation and college readiness percentage for Black students. This suggests as teachers' salary increases within a school, the dropout percentage decreases while the graduation and college readiness percentage increases. Overall the results from the various Hypotheses in regards to the independent variables seem to imply that Black teachers do have a significant effect on Black students; however this effect is generally correlated with negative performance outcomes for Black students. Additionally, overall, active sources of representation do not appear to influence their co-workers to have a positive effect on Black student performance outcomes. This seems to provide evidence for rejecting conceptualizations of representative bureaucracy that exclusively focus on active sources of representation and how passivity leads to more desirable outcomes. In contrast Hispanic teachers seem to have a positive effect on Black student performance outcomes for Black student dropout and college readiness percentage, with no significant effect on Black student graduation percentage. In addition White teachers only seem to have a positive effect on the Black student performance outcome of college readiness, while not having a significant effect on Black student dropout and graduation percentage. This seems to lend support to theorists like Lim (2006) who suggest a need to understand indirect sources, in order to get a more complete picture of how to generate equitable outcomes for Black students.

Further Exploration of the Power or Limits of Active Representation

Given the findings in Hypothesis 1 which seem counter to the very theory of representative bureaucracy (which postulates sharing characteristics will subsequently generate positive outcomes for the group being served), the results dictate further probing to determine why Black teachers are not associated with positive performance outcomes for Black students as their percentage increases within a school. For example, are there structural conditions that influence the power or discretion that teachers may have? As Krislov (1974), Mosher (1968), and Watkins-Hayes (2013) noted organizational and socializing factors known as mediating factors may ultimately subvert bureaucrats' desires and intentions to generate policy outputs for those sharing similar traits as themselves. These factors may undermine shared identity so that members of a group may be unable to generate positive policy outcomes for those that look like them. As applied to this context, it means Black teachers may be operating under unique conditions within the schools in the analysis that are dissimilar to their White and Hispanic co-workers, which may explain why negative outcomes for Black students are attributed to them alone. As evidence, an independent samples t-test was run among Black teacher percentage, Hispanic teacher percentage, and White teacher percentage to determine if there is a significant difference in the respective variables. There is a significant difference in the scores for Black teacher percentage ($M=14.44$), $SD= (16.98)$ and White teacher percentage ($M=73.58$), $SD= 19.06$) conditions; $t(2326) =79.3065$, $p < .001$. Similarly there a significant difference in the scores for Black teacher percentage ($M=14.44$), $SD= (16.98)$ and Hispanic teacher percentage ($M=7.61$), $SD= 5.47$) conditions; $t(2326) =9.0055$, $p < .001$. Finally there a significant difference in the scores for White teacher percentage ($M=73.58$), $SD= (19.06)$ and Hispanic teacher percentage ($M=7.61$), $SD= 5.47$) conditions; $t(2326) =105.5275$, $p < .001$. These results are available in Table 4-15

below.

Table 4-15: T-Test on Teacher Race Characteristics

	Race						95% CI for Mean Difference	t	df
	Black			White					
	M	SD	n	M	SD	n			
Overall Characteristics	14.44	16.98	1164	73.58	19.06	1164	-60.61012, -57.66988	79.0365***	2326
	Race						95% CI for Mean Difference	t	df
	Black			Hispanic					
	M	SD	n	M	SD	n			
Overall Characteristics	14.44	16.98	1164	7.61	5.47	1164	3.88570, 6.05430	9.0055***	2326
	Race						95% CI for Mean Difference	t	df
	White			Hispanic					
	M	SD	n	M	SD	n			
Overall Characteristics	73.58	19.06	1164	7.61	5.47	1164	62.91640, 65.30360	105.5275***	2326

* $p < .05$. ** $p < .01$ *** $p < .001$

Understanding the uniqueness of each teacher race variables within a school, there may be mediating factors that affect each group uniquely. However mediating factors may also explain why Black teachers are associated with more negative outcomes for Black students in regards to dropout, graduation, and college readiness. Perhaps Black teachers teach a significant amount of economically students, which may explain their lack of effectiveness in generating positive performance outcomes for Black students. Evaluating this supposition through running GLM estimation, in regards to Black teacher's

effects on economically disadvantaged students reveals as the percentage of Black teachers increases within a school, the percentage of economically disadvantaged students increase as well. The effect of Black teacher percentage on economically disadvantaged student percentage is significant ($p < .001$) and has a positive effect (.704) on the change in the dependent variable. A one percent change in the percentage of Black teachers leads to a .704 increase in the percentage of students who are economically disadvantaged within a school. This suggests that as the percentage of Black teachers increases within a school, the percent of economically disadvantaged students increase within a school. These results are available in Table 4-16 below.

Table 4-16 Black Teachers' Effects on Economically Disadvantaged Student Percentage

	Student Economically Disadvantaged Percentage (N=1164)
Intercept	45.898 (.5179)
Black Teacher Percentage	.704 (.0303)***
Model Goodness of Fit	
Pearson Chi-Square	359503.008
degrees of freedom	1162
Akaike's Information Criterion (AIC)	9982.34

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Recognizing that Black teachers are more likely to teach economically disadvantaged students as they increase in percentage within a school, the possibility is raised that Black teacher percentage effects on Black student dropout, graduation, and college readiness percentage may not be as pronounced when there are less economically disadvantaged students within a school. Perhaps when Black teachers are in schools with a lower economically student percentage negative effects are mitigated suggesting that blanket conjecture on the effects of shared identity within representative

bureaucracy cannot be assumed simply because a group shares characteristics. Rather mediating factors may be impacting these effects and potentially undermine the potency of any attempts to employ representative bureaucracy oriented tools. To determine if that is the case, schools within the quantitative analysis were divided into two different categories: high economically disadvantaged schools containing schools where greater than 50% of students are economically disadvantaged schools where fewer than 50% of students are economically disadvantaged schools and Hypothesis 1 will be rerun (without the interactive effects, which were not significant). If there are consistent negative effects in regards the effects of Black teachers percentage on Black student dropout, graduation, and college readiness percentage then it makes it less likely that economically disadvantaged percentage is serving as a mediating variable for the effects of Black teachers percentage on Black student dropout, graduation, and college readiness percentage. If however there is a difference in effects it suggests that the theory of representative bureaucracy may need even more modification, because it suggests there are mediating characteristics that may play a role in the effects of teacher race on Black student performance outputs and outcomes. Why pick economically disadvantaged percentage as the mediating variable. Well certainly other mediating variables from the analysis could have been used. However as evidenced throughout the various Hypotheses, economically disadvantaged percentage has consistently played a strong role across all three Black performance measures, being associated with increased Black student dropout percentage, and decreased Black student graduation and college readiness percentage, thus it stands to reason that a more pronounced effect of differences can be seen between Black teachers' effects on Black student dropout, graduation, and college readiness percentage in the two different economically disadvantaged groups than potentially other mediating variables .

There are 446 schools in the high economically disadvantaged school category compared to 718 schools in the low economically disadvantaged school category (there were 1164 schools total in the original analysis). The high student economically disadvantaged school category contains on average 67.39% economically disadvantaged students. In comparison the low economically disadvantaged school category contains on average 30.52% economically disadvantaged students (the average for the original analysis was 44.64% economically disadvantaged students). Additionally the high student economically disadvantaged school category contains 25.54 % Black teachers compared to 7.54% for the low student economically disadvantaged school category (the average for the original analysis was 14.44% Black teachers). These results are available in Table 4-17 below.

Table 4-17 High and Low Economically Disadvantaged School Characteristics

	Higher Economically Disadvantaged Schools	Lower Economically Disadvantaged Schools	Overall Characteristics
	> 50 % Students	50 % or < Students	
	Economically Disadvantaged	Economically Disadvantaged	
School Variable	<u>M</u>(<u>SD</u>) %	<u>M</u>(<u>SD</u>) %	<u>M</u>(<u>SD</u>) %
Hispanic Teacher Percentage	12.47 (10.50)	7.61 (5.47)	9.47 (8.14)
White Teacher Percentage	58.83 (21.14)	82.74 (9.63)	73.58 (19.06)
Black Teacher Percentage	25.54 (21.68)	7.54 (7.19)	14.44 (16.98)
Black Student Percentage	29.27 (11.89)	17.43 (21.28)	21.96 (17.13)
Economically Disadvantaged	67.39 (10.83)	30.52 (11.84)	44.64 (21.26)
Gifted Student Percentage	7.99 (4.87)	10.37 (6.59)	9.46 (6.10)
Special Education Student Percentage	11.62 (3.11)	9.76 (2.75)	10.472 (3.03)

Table 4.17—Continued

Compensatory Teacher Percentage	1.82 (4.57)	1.22 (3.67)	1.45 (4.05)
Years of Teacher Experience	11.10 (2.25)	11.62 (1.97)	11.42 (2.09)
Number of Teachers Per Student	14.82 (1.65)	15.53 (1.73)	15.25 (1.74)
Teacher Salary	50135.24 (3881.05)	49676.98 (3133.49)	49852.57 (2111.77)
Student Mobility Percentage	20.85 (6.02)	15.26 (4.39)	17.4 (5.76)
Student Disciplinary Percentage	9.38 (10.54)	8.14 (9.15)	8.61 (9.72)
Student Instructional Expenditures	4383.29 (602.65)	4134.76 (522.33)	4229.99 (567.26)
Student At Risk Percentage	62.45 (12.20)	41.10 (12.75)	49.281 (16.28)
N=	446	718	1164

Note: standard error in parentheses

Hypothesis 1 tested if minority (Black) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math. This analysis is evaluating if the outcomes, increased Black student dropout percentage, and decreased graduation and college readiness percentage hold true across students within two distinct economically disadvantaged categories, which might indicate the presence of mediating factors in regards to the theory of representative bureaucracy.

The effects of direct representation are tested within these two economically disadvantaged student categories across three dependent variables, Black student dropout percentage (Table 4-18), Black student graduation percentage (Table 4-19), and Black student college readiness percentage (Table 4-20). Two models are run for each dependent variable, Model 1A contains Black teacher percentage and Model 2A contains a critical mass percentage of Black teachers. Similar to Hypothesis 1 the effects of these independent variables of interest are tested on each dependent variable, while controlling for teaching, student, and school related variables that may also affect the dependent

variable. The results are presented by each dependent variable. A summary of the effects are then provided.

Black Teachers → Black Student Dropout Percentage (High Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student dropout percentage within high economically disadvantaged schools can be found in Table 4-18. The analysis is designed to test Black teachers' effect on Black student dropout percentage within high economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage. The key variable of interest is Black teacher percentage. Analyzing the effect of percentage of Black teachers within high economically disadvantaged schools reveals a .018 association between the two variables that is not significant ($p = .287$).

Five of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with an increased Black student dropout percentage. The percentage of economically disadvantaged students within a school is significant ($p < .01$) and has a positive effect (.082) on the change in the dependent variable percentage of Black students who dropout. The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.785) on the change in the dependent variable percentage of Black students who dropout.

The school factors that are found to be significant include school related control variables: student special education percentage, student disciplinary percentage, and student instructional expenditures. Student disciplinary percentage is associated with an

increased Black student dropout percentage. The student disciplinary percentage within a school is significant ($p < .01$) and has a positive effect (.081) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.482) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .01$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout). The school control gifted student percentage within a school is not significant ($p = .195$) with a .087 association

None of the teacher factors are found to be significant. Only number of teachers per students comes close to approximating significance ($p = .072$) with a .223 association. Years of teacher experience within a school is not significant ($p = .179$) with a .007 association. Teacher salary is not significant ($p = .929$) with a .00001 association. Finally teacher compensatory percentage is not significant ($p = .919$) with a .007 association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-3. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within high economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this

variable tests that supposition. A critical mass percentage of Black teachers' within high economically disadvantaged schools is significant ($p < .001$) and has a positive effect (2.447) on the change in the dependent variable (percentage of Black students who dropout). A one percent change in the percentage of critical mass Black teachers leads to a 2.447 increase in the percentage of Black students who dropout. Thus, as the number of Black teachers concentrated within a school increases, the percentage of black students who dropout increases. Again five of ten control variables are significant, as is the case with Model 1A, except the teaching variable number of teachers per students becomes significant in this model. The number of teacher per students within a school is significant ($p < .05$) and has a negative effect (-.541) on the change in the dependent variable (percentage of Black students who dropout). The coefficients and standard errors of all control variables are presented in table 4-18.

Black Teachers → Black Student Dropout Percentage (Low Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student dropout percentage within low economically disadvantaged schools can be found in Table 4-18. The analysis is designed to test Black teachers' effect on Black student dropout percentage within low economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage. The key variable of interest is Black teacher percentage. Analyzing the effect of percentage of Black teachers within low economically disadvantaged schools reveals a .050 association between the two variables that is not significant ($p = .074$).

Six of ten control variables are significant however. In regards to the variables that

control for student factors, only student mobility percentage is significant and associated with an increased Black student dropout percentage. The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (.600) on the change in the dependent variable percentage of Black students who dropout. The percentage of economically disadvantaged students within a school is not significant ($p = .505$) with a .015 association

The school factors that are found to be significant include school related control variables: student gifted percentage, student special education percentage, and student instructional expenditures. Student gifted percentage is associated with an increased Black student dropout percentage. The student gifted percentage within a school is significant ($p < .01$) and has a positive effect (.103) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a negative Black student dropout percentage. The special education student percentage within a school is significant ($p < .001$) and has a negative effect (-.368) on the change in the dependent variable (percentage of Black students who dropout). Student instructional expenditures within a school are significant ($p < .01$) and have a negative effect (-.002) on the change in the dependent variable (percentage of Black students who dropout). The student disciplinary percentage within a school is not significant ($p = .359$) with a .019 association

Two teacher factors are found to be significant: teacher salary and years of teaching experience. While teacher salary decreases Black student dropout percentage, years of teaching experience increases it. Teacher salary within a school is significant ($p < .01$) and have a negative effect (000) on the change in the dependent variable (percentage of Black students who dropout). Years of teacher experience within a school is significant ($p < .001$) and has a positive effect (.677) on the change in the dependent

variable (percentage of Black students who dropout). Number of teachers per student within a school is not significant ($p = .296$) with a $-.198$ association. Finally teacher compensatory percentage is not significant ($p = .209$) with a $-.063$ association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-18. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within low economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass percentage of Black teachers' within low economically disadvantaged schools reveals a 1.904 association between the two variables that is not significant ($p = .110$). Again six of ten control variables are significant, as is the case with Model 1A. The coefficients and standard errors of all control variables are presented in table 4-18.

Table 4-18 Black Student Dropout Percentage Effects in High and Low Economically Disadvantaged Schools

	(Model 1A) High Economically Disadvantaged Schools Dropout Percentage (N=429)	(Model 1B) High Economically Disadvantaged Schools Dropout Percentage (N=429)	(Model 2A) Low Economically Disadvantaged Schools Dropout Percentage (N=643)	(Model 2B)Low Economically Disadvantage d Schools Dropout Percentage (N=643)
Intercept	8.090 (6.5108)	8.935 (5.9765)	21.820(5.20213)	20.820 (4.9782)
School Variables				

Table 4.18—Continued

Economically Disadvantaged Student Percentage	.082 (.0301)**	.080 (.0295)**	.015 (.0224)**	.023 (.0215)
Gifted Student Percentage	.087 (.0670)	.087 (.0656)	.103 (.0298)	.105 (.0298)***
Special Education Student Percentage	-.482 (.1156)***	-.411 (.1133)***	.368 (.0911)***	-.374 (.0910)***
Compensatory Teacher Percentage	.007 (.0657)	-.013 (.0652)	-.063 (.0499)	-.070 (.0496)
Years of Teacher Experience	.223 (.1660)	.233 (.1643)	.677 (.1192)***	.650 (.1165)***
Number of Teacher Per Student	-0.454 (.2524)	-.541 (.2514)*	-.198 (.1893)	-.183 (.1891)
Teacher Salary	-.00001 (.0001)	-0.00001 (.0001)	.000 (.0001)***	.000 (.0001)***
Student Mobility Percentage	.785 (.0587)***	.777 (.0573)***	.600 (.0578)***	.601 (.0579)***
Student Disciplinary Percentage	.081 (.0286)**	.080 (.0283)**	0.019 (.0211)	.022 (.0209)
Student Instructional Expenditures	-.002 (.0007)**	-.002 (.0007)**	-0.002 (.0006)**	-.002 (.0006)**
Teacher Race School Variables				
Black Teachers' Percentage (BITeaPer)	.018 (.0166)		.050 (.0281)	
Critical Mass Black Teachers' Percentage (CriBITea Per)		2.447 (.7665)**		-.035 (.0586)
Model Goodness of Fit				
Pearson Chi-Square	15902.845***	15575.00	14.279.07	14.293.32

Table 4.18—Continued

degrees of freedom	417	417	631	631
Akaike's Information Criterion (AIC)	2793.339	2784.4	3844.16	3844.96

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Overall only a Black teacher percentage within high economically disadvantaged schools was significant (Table 4-18). The critical mass percentage of Black teachers within high economically disadvantaged schools is associated with an increased college dropout percentage (Model 2B). Black teachers within low economically disadvantaged schools do not have an effect on Black student dropout percentage (Models 2A and 2B). This supports the contention that Black teachers effects are being mediated by student economic considerations because it is not staying consistent across both high and low economically disadvantaged schools.

Black Teachers → Black Student Graduation Percentage (High Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student graduation percentage within high economically disadvantaged schools can be found in Table 4-19. The analysis is designed to test Black teachers' effect on Black student graduation percentage within high economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student graduation percentage. The key variable of interest is Black teacher percentage. Analyzing the effect of percentage of Black teachers within high economically disadvantaged schools reveals a .004 association between the two variables that is not significant ($p = .881$).

Six of ten control variables are significant however. In regards to the variables that control for student factors, both variables percentage of economically disadvantaged students and student mobility percentage are significant and associated with a decreased Black student graduation percentage. The percentage of economically disadvantaged students within a school is significant ($p < .01$) and has a negative effect (-.149) on the change in the dependent variable percentage of Black students who graduate. The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-1.300) on the change in the dependent variable percentage of Black students who graduate.

The school factors that are found to be significant include school related control variables: student special education percentage, student disciplinary percentage, and student instructional expenditures. Student disciplinary percentage is associated with a decreased Black student graduation percentage. The student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.101) on the change in the dependent variable (percentage of Black students who dropout). However student special education percentage and student instructional expenditures are associated with a positive Black student graduation percentage. The special education student percentage within a school is significant ($p < .01$) and has a positive effect (.591) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .001$) and have a positive effect (.004) on the change in the dependent variable (percentage of Black students who graduate). The school control gifted student percentage within a school is not significant ($p = .299$) with a -.108 association

Only one of the teacher factors is significant: number of teachers per student. An increasing number of teachers per student is associated with an increased Black student

graduation percentage. The number of teachers per student within a school are significant ($p < .05$) and have a positive effect (.812) on the change in the dependent variable (percentage of Black students who graduate). Years of teacher experience within a school is not significant ($p = .640$) with a .121 association. Teacher salary is not significant ($p = .307$) with a .000 association. Finally teacher compensatory percentage is not significant ($p = .111$) with a .163 association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student graduation percentage in Table 4-19. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within high economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass percentage of Black teachers' within high economically disadvantaged schools is significant ($p < .05$) and has a negative effect (-3.078) on the change in the dependent variable (percentage of Black students who graduate). A one percent change in the percentage of critical mass Black teachers leads to a 3.078 decrease in the percentage of Black students who graduate. Thus, as the number of Black teachers concentrated within a school increases, the percentage of black students who graduate decreases. Again six of ten control variables are significant, as is the case with Model 1A, except student disciplinary percentage sees a change in marginal significance. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.099) on the change in the dependent

variable (percentage of Black students who dropout). The coefficients and standard errors of all control variables are presented in table 4-19.

Black Teachers → Black Student Graduation Percentage (Low Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student graduation percentage within low economically disadvantaged schools can be found in Table 4-19. The analysis is designed to test Black teachers' effect on Black student graduation percentage within low economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student graduation percentage. The key variable of interest is Black teacher percentage. Analyzing the effect of percentage of Black teachers within low economically disadvantaged schools reveals a -.050 association between the two variables that is not significant ($p=.236$).

Seven of ten control variables are significant however. In regards to the variables that control for student factors, only student mobility percentage is significant and associated with a decreased Black student graduation percentage. The student mobility percentage within a school is significant ($p < .001$) and has a positive effect (-.989) on the change in the dependent variable percentage of Black students who graduate. The percentage of economically disadvantaged students within a school is not significant ($p=.062$) with a .064 association.

The school factors that are found to be significant include all four school related control variables: student gifted percentage, student special education percentage, student instructional expenditures, and student disciplinary percentage. Student gifted percentage and student disciplinary percentage is associated with a decreased Black

student graduation percentage. The student gifted percentage within a school is significant ($p < .001$) and has a negative effect (-.161) on the change in the dependent variable (percentage of Black students who graduate). Student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.073) on the change in the dependent variable (percentage of Black students who graduate). However student special education percentage and student instructional expenditures are associated with a positive Black student graduation percentage. The special education student percentage within a school is significant ($p < .001$) and has a positive effect (.681) on the change in the dependent variable (percentage of Black students who graduate). Student instructional expenditures within a school are significant ($p < .05$) and have a positive effect (.002) on the change in the dependent variable (percentage of Black students who graduate).

Two teacher factors are found to be significant: teacher salary and years of teaching experience. While teacher salary increases Black student graduation percentage, years of teaching experience decreases it. Teacher salary within a school is significant ($p < .001$) and has a positive effect (.001) on the change in the dependent variable (percentage of Black students who graduate). Years of teacher experience within a school is significant ($p < .001$) and has a negative effect (-1.101) on the change in the dependent variable (percentage of Black students who graduate). Number of teachers per student within a school is not significant ($p = .599$) with a .150 association. Finally teacher compensatory percentage is not significant ($p = .951$) with a -.005 association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student graduation percentage in Table 4-19. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within low economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of

Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass percentage of Black teachers' within low economically disadvantaged schools reveals a -1.101 association between the two variables that is not significant ($p=.540$). Again seven of ten control variables are significant, as is the case with Model 1A. The coefficients and standard errors of all control variables are presented in table 4-19.

Table 4-19 Black Student Graduation Percentage Effects in High and Low Economically Disadvantaged Schools

	(Model 1A) High Economically Disadvantaged Schools Graduation Percentage (N=429)	(Model 1B) High Economically Disadvantaged Schools Graduation Percentage (N=429)	(Model 2A) Low Economically Disadvantaged Schools Graduation Percentage (N=643)	(Model 2B) Low Economically Disadvantaged Schools Graduation Percentage
Intercept	71.948 (10.1313)	66.635 (9.3259)	61.952 (7.5698)	63.050 (7.5072)
School Variables				
Economically Disadvantaged Student Percentage	-.149 (.0468)**	-.139 (.0460)**	.062 (.0337)	.053 (.0325)
Gifted Student Percentage	-.108 (.1042)	-.124 (.1024)	-.161 (.0450)***	-.165 (.0449)***
Special Education Student	.591 (.1798)**	.535 (.1768)**	.681 (.1373)***	.688 (.1372)***
Compensatory Teacher	.163 (.1022)	.185 (.1017)	-.005 (.0753)	.005 (.0748)
Years of Teacher Experience	.121 (.2583)	.112 (.2563)	-1.101 (.1797)***	-1.062 (.1757)***
Number of Teacher Per Student	.812 (.3927)*	.935 (.3923)*	.150 (.2855)	.132 (.2851)
Teacher Salary	.000 (.0002)	.000 (.0002)	.001 (.0001)***	.001 (.0001)***
Student Mobility Percentage	-1.300 (.0913)***	-1.273 (.0895)***	-.989 (.0872)***	-.989 (.0873)***

Table 4.19—Continued

Student Disciplinary Percentage	-.101 (.0444)*	-.099 (.0441)**	-.073 (.0318)*	-.077 (.0315)*
Student Instructional Expenditures	.004 (.0011)***	.004 (.0011)***	.002 (.0009)*	.002 (.0009)*
Teacher Race School Variables				
Black Teachers' Percentage (BITeaPer)	0.004 (.0258)		-.050 (.0424)	
Critical Mass Black Teachers' Percentage (CriBITea Per)		-3.078 (1.1961)*		-1.101 (1.7964)
Model Goodness of Fit				
Pearson Chi-Square	38507.01***	37923.79	32451.68	32503.59
degrees of freedom	417	417	631	631
Akaike's Information Criterion (AIC)	3172.72	3166.174	4372.19	4373.22

*p<.05. **p<.01 ***p<.001

Note: standard error in parentheses

Overall only a Black teacher percentage within high economically disadvantaged schools was significant. The critical mass percentage of Black teachers within high economically disadvantaged schools was associated with a decreased graduation percentage (Model 2B). Black teachers within low economically disadvantaged schools did not have any effect on Black student dropout percentage (Models 2A and 2B). This supports the contention that Black teachers effects are being mediated by student economic considerations because it is not staying consistent across both high and low economically disadvantaged schools.

Black Teachers → Black Student College Readiness Percentage (High Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student college readiness

percentage within high economically disadvantaged schools can be found in Table 4-20. The analysis is designed to test Black teachers' effect on Black student college readiness percentage within high economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student college readiness percentage. The key variable of interest is Black teacher percentage. The percentage of Black teachers within high economically disadvantaged schools is significant ($p < .001$) and has a negative effect (-.103) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). A one percent change in Black teacher percentage leads to a .103 decrease in the percentage of Black students who demonstrate college readiness. Thus, as the number of Black teachers concentrated within a school increases, the percentage of black students who display college readiness decreases.

Only three of ten control variables are significant however. In regards to the variables that control for student factors, only student mobility percentage is significant and associated with a decreased Black student graduation percentage. The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-1.300) on the change in the dependent variable percentage of Black students who graduate. The student control student economically disadvantaged percentage within a school is not significant ($p = .130$) with a -.065 association

The only school factor found to be significant is student instructional expenditures. Student instructional expenditures are associated with a positive Black student college readiness percentage. Student instructional expenditures within a school are significant ($p < .01$) and have a positive effect (.003) on the change in the dependent variable

(percentage of Black students who demonstrate college readiness). The school control gifted student percentage within a school is not significant ($p=.336$) with a $-.092$ association. The school control special education student percentage within a school is not significant ($p=.789$) with a $-.044$ association. The school control student disciplinary percentage within a school is not significant ($p=.179$) with a $-.055$ association

Only one of the teacher factors is significant: teacher salary. Increasing teacher salary is associated with an increased Black student college readiness percentage. Teacher salary within a school is significant ($p < .001$) and has a positive effect ($.001$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Years of teacher experience within a school is not significant ($p = .893$) with a $.031$ association. Number of teachers per student is not significant ($p = .128$) with a $.552$ association. Finally teacher compensatory percentage is not significant ($p = .353$) with a $.088$ association.

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student college readiness percentage in Table 4-20. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within high economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. Analyzing a critical mass percentage of Black teachers' within high economically disadvantaged schools reveals a -1.278 association that is not significant ($p=.256$). Again three of ten control variables are

significant, as is the case with Model 1A, except student economically disadvantaged percentage becomes significant within this model. The student economically disadvantaged percentage within a school is significant ($p < .05$) and has a negative effect (-.092) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The coefficients and standard errors of all control variables are presented in table 4-20.

Black Teachers → Black Student College Readiness Percentage (Low Economically Disadvantaged Schools)

The results of the effects of Black teachers on Black student college readiness percentage within low economically disadvantaged schools can be found in Table 4-20. The analysis is designed to test Black teachers' effect on Black student college readiness percentage within low economically disadvantaged schools considering Black teachers respectively (Model 1A) and a critical mass of Black teachers respectively (Model 2A).

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student college readiness percentage. The key variable of interest is Black teacher percentage. Analyzing the effect of percentage of Black teachers within low economically disadvantaged schools reveals a -.035 association between the two variables that is not significant ($p = .545$).

Seven of ten control variables are significant however. In regards to the variables that control for student factors, only student mobility percentage is significant and associated with a decreased Black student college readiness percentage. The student mobility percentage within a school is significant ($p < .001$) and has a negative effect (-1.066) on the change in the dependent variable percentage of Black students who demonstrate college readiness. The percentage of economically disadvantaged students

within a school is not significant ($p=.750$) with a $-.014$ association

The school factors that are found to be significant include school related control variables: student instructional expenditures and student disciplinary percentage. Student disciplinary percentage is associated with a decreased Black student college readiness percentage. Student disciplinary percentage within a school is significant ($p <.01$) and has a negative effect ($-.136$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student instructional expenditures are associated with a positive Black student college readiness percentage. Student instructional expenditures within a school are significant ($p <.05$) and have a positive effect ($.003$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The student gifted percentage within a school is not significant ($p=.609$) with a $.032$ association. The student special education percentage within a school is not significant ($p=.362$) with a $-.169$ association.

All four teacher factors are significant: teacher salary, years of teaching experience number of teachers per student and student compensatory percentage. While teacher salary, number of teachers per student, and teacher compensatory percentage increases Black student college readiness percentage, years of teaching experience decreases it. Teacher salary within a school is significant ($p <.001$) and has a positive effect ($.001$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The number of teachers per student within a school is significant ($p <.05$) and has a positive effect ($.898$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Teacher compensatory percentage within a school is significant ($p <.001$) and has a positive effect ($.370$) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). Years of teacher experience within a school is significant

($p < .01$) and has a negative effect (-.679) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

Model 2A. Model 2A presents the results from the GLM estimation in relation to Black student college readiness percentage in Table 4-20. In this model, the key variable of interest is a critical mass of Black teachers' percentage (coded as a dummy variable) within low economically disadvantaged schools. A critical mass percentage of Black teachers represents Black teachers in schools that contain at least 25 % (a plurality) of Black teachers but no more than 50% (a majority), in comparison to Black teacher percentage which measures overall Black teacher percentage within a school. The literature has postulated that active representation within a representative bureaucracy occurs when a group has enough of a presence to be able to affect a policy output or outcome, and this variable tests that supposition. A critical mass percentage of Black teachers' within low economically disadvantaged schools reveals a -.388 association between the two variables that is not significant ($p=.876$). Again seven of ten control variables are significant, as is the case with Model 1A. The coefficients and standard errors of all control variables are presented in table 4-20.

Table 4-20 Black Student College Readiness Percentage Effects in High and Low Economically Disadvantaged Schools

	(Model 1A) High Economically Disadvantaged Schools College Readiness Percentage (N=437)	(Model 1B) High Economically Disadvantaged Schools College Readiness Percentage (N=437)	(Model 1B) Low Economically Disadvantaged Schools College Readiness Percentage (N=689)	(Model 2B) Low Economically Disadvantaged Schools College Readiness Percentage (N=689)
Intercept	-20.056 (8.9034)	-6.981 (8.5502)	-11.856(.10.1569)	11.013(10.0567)
School Variables				

Table 4.20—Continued

Economically Disadvantaged Student Percentage	-.065 (.0432)	-.092 (.0436)*	-.014 (.0452)	-.022 (.0435)
Gifted Student Percentage	-.092 (.0951)	-.031 (.0959)	.032 (.0619)	.029 (.0617)
Special Education Student Percentage	-.044 (.1643)	-.190 (.1667)	-.169 (.1855)	-.165 (.1854)
Compensatory Teacher Percentage	.088 (.0947)	.108 (.0970)	.370 (.1029)***	.378 (.1022)***
Years of Teacher Experience	-.031 (.2312)	-.028 (.2359)	-.679 (.2311)**	-.646 (.2245)**
Number of Teacher Per Student	.552 (.3626)	.546 (.3724)	.858 (.3876)*	.842 (.3867)*
Teacher Salary	.001 (.0002)***	.001 (.0002)***	.001 (.0002)***	.001 (.0002)***
Student Mobility Percentage	-.519 (.0840)***	-.579 (.0846)***	-1.066 (.1178)***	-1.065 (.1178)***
Student Disciplinary Percentage	-.055 (.0408)	-.055 (.0417)	-.136 (.0432)**	-.140 (.0428)**
Student Instructional Expenditures	.003 (.0010)**	.003 (.0010)**	.003 (.0012)*	.003 (.0012)*
Teacher Race School				
Black Teachers' Percentage	-.103 (.0235)***		-.035 (.0586)	
Critical Mass Black Teachers' Percentage		-1.278 (1.1260)		-.388 (2.4898)
Model Goodness of Fit				
Pearson Chi-	33802.01	35178.33	67235.73	67269.14
degrees of freedom	425	425	677	677
Akaike's Information	3166.38	3183.82	5137.41	5137.76

* $p < .05$. ** $p < .01$ *** $p < .001$

Note: standard error in parentheses

Overall only a Black teacher percentage within high economically disadvantaged schools is significant (Table 4-20). The Black teacher percentage within high economically disadvantaged schools is associated with a decreased graduation percentage (Model 1A). Black teachers within low economically disadvantaged schools did not have any effect on Black student dropout percentage (Models 2A and 2B). This supports the contention that

Black teachers effects are being mediated by student economic considerations because it is not staying consistent across both high and low economically disadvantaged schools. Across all three Black student performance outcomes, Black student dropout, graduation, and college readiness percentage it is Black teachers in the high economically disadvantaged schools that affect negative Black student outcomes. Black teachers in low economically disadvantaged schools have no effect on Black student performance outcomes. Given this finding, it suggests that the theory of representative bureaucracy may need to be modified in recognition of the mediating factors may have an impact on its effectiveness. However this finding also presents a new set of challenges. This difference in performance outcomes between Black teachers within high and low economically disadvantaged schools suggests that there is need to better understand the qualitative conditions faced by teachers within each of these schools that might explain why there is a difference between them in generating outcomes for Black students.

Qualitative Analysis

The qualitative analysis section hoped to answer the research question: how do socioeconomic barriers affect the belief, ability, and influence of Black teachers' to affect positive outcomes for Black students, which was explored through interviews with Black teachers. Previous research into representative bureaucracy has shown that Black teachers are associated with positive policy outputs related to ability grouping for example more assignments of minority students to gifted and less minority students assigned to special education programs, and they are also associated with a decrease in minority student discipline and positive outcomes related to student performance on standardized tests (Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). Seemingly such outputs would seemingly result in significant outcomes for Black students such as Black

teachers having a positive effect on Black students and being correlated with positive outcomes for Black students related to Black student dropout, graduation, and college readiness percentage. With the quantitative findings indicating that this is not the case, this controversial finding warrants increased attention to exploring if and why Black teachers can generate significant outputs for Black students then it does not translate to significant outcomes. Perhaps as mentioned, mediating factors, like student being economically disadvantaged, prevent Black teachers from turning outputs into outcomes. The analysis hoped to better understand the conditions faced by teachers within both high and economically disadvantaged schools that might explain why there is a difference between them in generating outcomes for Black students.

The parameters for selection of Black teachers being interviewed was that they had to work at schools similar in demographic to schools in the quantitative analysis (schools that had more than 1,000 students and were least 5% Black). The target sample for this research was a minimum of 15 Black teachers, with seven or eight from both high and low economically disadvantaged schools from a variety of different schools with the Dallas Fort Worth area. As noted in the Methodology, gatekeepers (teachers within the Arlington, Dallas, Grand Prairie, Irving, and Plano ISDs), which are teachers with whom the researcher was acquainted, were contacted to identify teachers for the interviews and for the pilot of the interview protocol. Additionally through sorority connections and a personal family friend the researcher used snowballing sampling to recruit teachers in Dallas, Grand Prairie, and Irving School Districts. While snowballing sampling has been criticized in that it is prone to generate biased samples, the researcher attempted to eliminate bias by using multiple “gatekeepers” and recruitment sources in the collection of data as well as interviewing teachers at multiple schools within multiple districts. This helped to introduce variety into the study and eliminate potential bias by selecting

teachers that were more likely to have unique circumstances and opinions. The researcher sent out recruitment letters through email and Facebook to 46 African American teachers. The end result was that 21 out of 43 high school teachers agreed to be interviewed; however four had to be rejected because they did not fit the parameters of the study by not teaching at a school that contained a significant amount of Black students or taught at a private or charter school. Additionally one other teacher never got back to the researcher despite numerous attempts made by the researcher to contact this teacher for an interview.

Finally three more teachers that agreed to be interviewed were middle school teachers rather than high school teachers. Rather than exclude these teachers, these teachers were used to pilot the interview protocol as a way to test if the research questions would generate sufficient responses. The data generated from the pilot interviews are not included in the qualitative analysis. However it allowed the researcher a chance to clarify questions that may have been vague before conducting interviews with the high school teachers that are a part of this study.

Sample Characteristics.

After modifying the interview protocol based on the input from the pilot test, both telephone and in-person interviews were conducted with a total of 16 Black high school teachers in the Dallas Fort Worth Metroplex for the qualitative analysis from May 16, 2015 through June 12, 2015. Half of the teachers were from higher economically disadvantaged (HED) schools where more than 50% of the student body was economically disadvantaged, while the other half were conducted at lower economically disadvantaged (LED) schools where 50% of less of students were economically disadvantaged. Four of the teachers interviewed were Black males (two from higher economically disadvantaged schools, and two were from were from lower economically disadvantaged schools) with

the remaining twelve teachers being Black females broken down evenly between higher and lower economically disadvantaged schools. The average age of teachers at lower economically disadvantaged schools is 38.5, while the average age of teachers at higher economically disadvantaged schools is 37.25. For five teachers within the lower economically disadvantaged schools, the highest degree they had attained was a Master's degree with the remaining three having attained a Bachelor's degree as their highest degree. For six teachers within the higher economically disadvantaged schools, the highest degree they had attained was a Master's degree with the remaining two having attained a Bachelor's degree as their highest degree. In regards to subject taught in the lower economically disadvantaged schools, three teachers taught Mathematics oriented subjects, two science oriented subjects, one history, one physical Education/Health, and another film/video production. In regards to subject taught in the higher economically disadvantaged schools, three teachers taught English oriented subjects, two mathematics oriented subjects, two physical education, and another graphic design/computer literacy. Ten of the interviews were completed by telephone; however, six interviews were conducted in person. See Table 4-21 for a breakdown of the Black teachers that are included in the qualitative component of this study.

Table 4-21 Demographic Breakdown of the Black teachers included in Qualitative Analysis

	School Type	Gender	Age	Degree	Years of Experience	Subject Taught	Interview Type
	Lower or Higher Economically Disadvantaged School (LED) or (HED)	Male(M) or Female (F)	Age of Teacher	Highest Degree Earned	Number of Years of Teaching Experience	Subject Taught at High School	Telephone (T) or in the Field (F)
1	LED	F	22	Bachelor	1	Mathematics	F
2	LED	F	55	Bachelor	8	P.E./Health	F
3	LED	M	37	Bachelor	8	Science	F

Table 4.20—Continued

4	LED	F	48	Master	9	History	F
5	LED	F	27	Master	3	Science	F
6	LED	F	42	Master	13	Mathematics	F
7	LED	F	47	Master	10	Mathematics	T
8	LED	M	30	Master	4	Film/Video	T
9	HED	F	41	Bachelor	18	Mathematics	T
10	HED	M	40	Master	8	P.E.	T
11	HED	F	56	Master	33	English	T
12	HED	M	31	Master	4	P.E.	T
13	HED	F	34	Master	4	Graphic Design and Comp. Literacy	T
14	HED	F	28	Master	4	English	T
15	HED	F	35	Bachelor	1	English	T
16	HED	F	33	Master	8	Mathematics	T

Each of the Black teachers who were interviewed signed an informed consent form which was maintained by the interviewer (see Appendix B). To protect the identity and confidentiality of interview responses, the school that the teacher works at is not directly included with the demographic breakdown since some of the schools included do not have a significant number of Black teachers could implicate the identity of the Black teacher being interviewed. However the schools where the Black teachers teach at are included below in Figure 4-1.



Figure 4-1 School Affiliation of the Black teachers Interviewed

Each of the schools included within the qualitative analysis is a school that was a part of the quantitative analysis. In alignment with the quantitative findings, within the schools selected there tended to be a higher percentage of Black teachers at more economically disadvantaged schools with the only exception being MacArthur High School in Irving Texas, which has a similar Black teacher percentage to the lower economically disadvantaged schools. For a breakdown of Black teacher percentage, Black student percentage, student economically disadvantaged percentage, and student mobility percentage at the higher and lower economically schools selected for this qualitative analysis please see Table 4-22 below.

Table 4-22 Higher and Lower Economically Disadvantaged Schools Characteristic Breakdown

	School Year	Black Student Percentage	Black Teacher Percentage	Economically Disadvantaged Percentage	Student Mobility Percentage
Lower Economically Disadvantaged Schools					
South Grand Prairie High School	2007-08	24.2	11.7	42.7	22.3
Grand Prairie, TX	2008-09	24.4	12.8	41.7	18.6
	2009-10	25.8	15.1	45.3	18.4
	2010-11	24.4	11.5	52.3	17
Vines High School	2007-08	9.8	9.1	17.1	10.4
Plano, TX	2008-09	10.9	10.8	21.4	9.4
	2009-10	9.3	11.2	21.2	8.8
	2010-11	8.6	8.6	22.3	9.2
Lamar High School	2007-08	24.7	3.2	37.8	27
Arlington, TX	2008-09	25	3.2	36.6	26.3
	2009-10	26	3.4	42.8	24.9
	2010-11	27.7	4.3	47.3	24.1
Higher Economically Disadvantaged Schools					
MacArthur High School	2007-08	23.2	8.6	50.8	20.7
Irving, TX	2008-09	23.2	7.8	52.5	20.9
	2009-10	25.7	7.7	58.9	17.8
	2010-11	24.6	10.1	65.8	19.4
W.T. White High School	2007-08	15.9	21.1	61.6	23.2
Dallas, TX	2008-09	14.7	22.3	68.1	20.7

Table 4.22—Continued

	2009-10	12.5	21.9	70.1	19.9
	2010-11	12.5	20.9	64.4	19
Skyline High School	2007-08	32.5	33.8	69.6	18.6
Dallas, TX	2008-09	29.7	38.7	75.4	16.7
	2009-10	29.3	39	74.7	17.5
	2010-11	28.3	37.2	76.4	16.3
James Madison High School	2007-08	81.7	80.4	78.8	29.7
Dallas, TX	2008-09	65.3	75.9	79	29.7
	2009-10	71	82.5	73.9	26.1
	2010-11	74.5	84.2	81	25.3

The research was classified around a schema in line with Saldana (2012). The representative bureaucracy codebook was created (located in Appendix H) to identify all of the themes from the standardized open-ended interviews. The representative bureaucracy literature notes that in order for shared racial identity to generate substantive results, those seeking to employ such tools for the benefit of their group must recognize the value of that shared identity, as well as an ability to work toward those outcomes (Krislov, 1974; Thompson, 1976). Thus qualitative research exploring representative bureaucracy should consider the belief, ability, and influence of any group in relation to active/direct sources of representation. In addition, recognizing the role that mediating factors may play in inhibiting this shared identity (Mosher 1968; Watkins-Hayes, 2009), mediating factors must also be considered in regards to whether they inhibit the effectiveness of active/direct sources of representation. Taking all this into account, the qualitative research question asked how do socioeconomic barriers affect the belief, ability, and influence of Black teachers' to generate positive outcomes for Black students. Categories were created in support of these themes based off the representative

bureaucracy literature, and theories such as symbolic, passive, and active representation, really guided the coding process. In addition other categories that may represent barriers for achieving representation were Black students were also created. Three categories, discretion, attitude toward Black student achievement, and symbolic representation, fall under the theme “beliefs of Black teachers to affect positive outcomes for Black students”. Two other categories, passive and active representation, are within the theme “ability of Black teachers to affect positive Black student outcomes for Black students”. The category substantive indirect representation is under theme “influence of Black teachers to affect positive outcomes for Black students”. Three categories, economically disadvantaged effects, student mobility effects, and other barriers are within the theme “effect of socioeconomic and other negative barriers in affecting positive outcomes for Black students”. Finally the category Other is under the theme “miscellaneous issues that may affect positive outcomes for Black students”. There were a total of 5 themes, 10 categories and 308 expressions generated from the interviews as shown in Table 4-23 to answer how do socioeconomic barriers affect the belief, ability, and influence of Black teachers on non-Black teachers to affect positive outcomes for Black students. In order to interpret these results each theme will be analyzed from the perspective of both higher (HED) and lower (LED) economically disadvantaged schools in order to determine how these themes and the results generated speak back up to what representative bureaucracy states in terms of equality and educational opportunity in light of the theory of representative bureaucracy. Three rounds of coding were necessary to organize the interviews into a specific category.

Table 4-23 Representative Bureaucracy Coding Tree Node

Representative Bureaucracy	Black Teachers' Effects		# of Informants Making Expressions	Total Coded Expressions
Themes	Category	Tree Node Subcategory	N (%)	N (%)
Beliefs of Black Teachers to affect positive outcomes for Black students	1. Discretion	Subcategory 1: Personal Level Code: Affirmative Belief Code: Negative Belief; Subcategory 2: Organizational Level Code: Affirmative Belief; Code Negative Belief	16 (100)	32 (10.3)
	2. Attitudes toward Black student achievement	Subcategory 1: Negative Attitude Code: Low Expectations Code: Little emphasis on learning Code: Significant Achievement Gap Subcategory 2: Positive Attitude Code: Overcoming Obstacles Code: Closing Gaps Code: No Achievement Gap	16 (100)	28 (9.09)
	3. Symbolic Representation	Subcategory 1: Role for Students Code: Role Model Code: Mother/Father Figure; Subcategory 2: Value derived from Relationship Code: Reliability Code: Familiarity	16 (100)	32 (10.4)

Table 4.23—Continued

<p>Ability of Black Teachers to affect positive outcomes for Black students</p>	<p>3. Passive Representation</p>	<p>Subcategory 1: Value to Black teachers Code: Shared Racial Identity Code: More Black teachers; Subcategory 2: Value Derived from Relationship: Code: Trust/Camaraderie Code: Academic Outcomes Code: Looking Out for/Helping Students</p>	<p>16 (100)</p>	<p>22 (7.14)</p>
	<p>5.Active/Direct Sources of Representation</p>	<p>Subcategory 1: Personalized Strategies Utilized by Black Teachers Code: Mentoring; Code: Counseling; Code: Tutoring; Code: Disciplining; Code: Personal Intervention; Subcategory 2: Generalized Strategies Used by Black Teachers Code: Cultural Oriented Activities Code: Higher Expectations /Accountability; Code: Special Designation</p>	<p>16 (100)</p>	<p>46 (14.9)</p>

Table 4.23—Continued

<p>Influence of Black teacher on non-Black teachers to affect positive outcomes for Black students</p>	<p>6. Indirect Substantive Representation</p>	<p>Subcategory 1: Influence Code: Less Discipline Code: Increased Cultural Sensitivity and Understanding Code: Example' Code: No Influence Subcategory 2: Action Code: Outreach/Conversation/Talk Code: No Action</p>	<p>16 (100)</p>	<p>32 (10.4)</p>
<p>Role that teachers feel socioeconomic and other negative barriers play in generating positive outcomes for Black students</p>	<p>7. Economically Disadvantaged Effects</p>	<p>Subcategory 1: Positive Effects Code: Overcoming Obstacles Code: Achievement Ability; Subcategory 2: Negative Effects: Code: Cultural Barriers/Environment Code: Personal Mindset; Code: Fall Behind</p>	<p>16 (100)</p>	<p>24 (7.79)</p>
	<p>8. Student Mobility Effects</p>	<p>Subcategory 1: Positive Effects Code: Better Opportunities; Subcategory 2: Not An Issue Code: No Effect on Black Students; Subcategory 3: Negative Effects Code: No Consistency Code: No Interest in School; Code: Learning Gaps</p>	<p>16 (100)</p>	<p>19 (6.17)</p>

Table 4.23—Continued

	<p>9. Other Negative Barriers</p>	<p>Subcategory 1: Reliability Code: Lack of Reliability; Subcategory 2: Generational differences Code: Generational; Subcategory 3 Background issues Code: Background; Subcategory 4 Parenting issues Code: Parenting; Subcategory 5 Behavioral/discipline issues Code: Behavior; Subcategory 6 Issues with self-separation from the kids: Code: Self-Separation; Subcategory 7 Motivation/Kid Issues Code: Motivation/Kid Issues; Subcategory 8 Issues with trust Code: Trust; Subcategory 9 Time Allotment Code: Time</p>	<p>16 (100)</p>	<p>50 (16.23)</p>
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Table 4.23—Continued

Miscellaneous issues that may affect positive outcomes for Black students	10. Other	Subcategory 1: Negative Effects from Teachers/Administrators of Other Races Code: Negative Non-Black Teachers; Subcategory 2: Negative Black Teachers Effects Code: Negative Black Teachers; Subcategory 3: Teachers of Other Races Neutral Effects Code: Neutral Non-Black Teachers; Subcategory 4: Black Teachers Having a Positive Effect on Students of other Races Code: Positive Black Teacher/Non-Black Student	14 (87.5)	23 (7.47)
	TOTAL NUMBER OF INFORMANTS		16	
	TOTAL EXPRESSIONS			308

Belief of Black Teachers to Affect Positive Outcomes for Black Students

Discretion

Overall all 16 Black teacher respondents resulted in 32 expressions that were recorded in the category of discretion. The category of discretion contains two subcategories. Subcategory 1 refers to if teachers have discretion on a personal level. The two codes within this subcategory are if a teacher has an affirmative belief or negative belief on if they can employ personal discretion. Black teachers in both LED and HED

schools were asked to comment on if they believed they had discretion to impact Black student outcomes. Sixteen out of sixteen (100%) of Black teacher respondents from both HED and LED schools commented that they believed they had discretion to impact Black student outcomes in a positive fashion at least on a personal level. For example a teacher in an LED noted when asked if they had discretion to positively impact Black student outcomes,

¹Um I think I do. A lot of Black students don't even have graduation as a goal. Maybe from their family nobody has graduated or it's not even something that they think about unless they're an athlete trying to go to college. So I get a chance to talk to them about that and let them know that they can do the same thing as any other student. They have the same opportunities if they just apply themselves. So I think I have that kind of impact on them. Nobody really tries to inhibit me because I do it kind of on a personal basis. Nobody really knows too much. We've had some after school programs and had a mentoring program that I've done a few times but for the most part I kind of do it on my own. (LED teacher #3)

Category: Discretion
Subcategory: Personal Level
¹Code: Affirmative Belief

Similarly a teacher within the HED school noted in regards to discretion,

¹I would say that I do have discretion. The principal is very supportive of that. There aren't any specific policies in places that would prohibit me from being able to curve dropout or improve college readiness. I guess an example of that. I want to sound educated and say discretion but me being able to do what I do. We have a not necessarily African American student society, but we do have a group. We kind of serve as mentors whether they are in our classrooms or not as a Black faculty member or not they can come to me at any time for any reason (HED teacher #7).

Category: Discretion
Subcategory: Personal Level
¹Code: Affirmative Belief

Subcategory 2 refers to if teachers have discretion at an organizational level. The two codes within this subcategory are if a teacher has an affirmative belief or negative belief on if they can employ discretion on an organizational level. At the organizational level all eight HED school teachers did not see any policies or regulations that would prevent them from becoming more involved in encouraging Black student success on a more

administrative level. One HED teacher noted,

¹ At my particular school I don't feel like that's a problem. Especially because of the population of Black students, whether they want me to apply something to Black students or not because the population is so large it will affect them so I don't think that is necessarily a problem at my school regarding any policies or regulations that prevent me from encouraging Black student success. (HED teacher #6).

Category: Discretion
Subcategory: Organizational Level
¹Code: Affirmative Belief

However the same could not be said for four of eight teachers at LED schools, with some expressing concerns when asked if there were any policies or regulations that would prevent them from becoming more involved in encouraging Black student success. One LED school teacher noted,

¹ It's not formally. You know how sometimes well you have these written rules. Well they are not written but it's rules that you just know. With the politics, it just depends. I think it may be a little different here if we have kids struggling. Here I wouldn't just try to have something just for Black kids. I would just have it for children who need assistance because the demographic is different, it's more Hispanic students here than at the other district I worked for....now it's probably more Hispanic but you still couldn't do certain things for none of them because of the fact that the power is White people. (LED teacher #6)

Category: Discretion
Subcategory: Organizational Level
¹Code: Negative Belief

While the other half of teachers in LED schools did not see any policies or regulations that would prevent them from becoming more involved in encouraging Black student success, the ones that did noted that discipline, concerns about expected professionalization, and a lack of willingness to go out of their way for such policies or programs that would promote Black student success affected why they felt they lacked discretion on a more administrative level. Overall a greater percentage of teachers in HED

schools expressed that they have more discretion compared to their LED counterparts on an administrative level; however in regards to personal level discretion the two groups were the same. This suggests that in relation to discretion, a greater percentage of Black teachers in HED schools believe they can affect positive outcomes for Black students on an organizational level than in LED schools, however on a personal level the two groups are the same.

Attitudes toward Black Students and their Achievement Ability

Overall, all 16 Black teacher respondents commented on attitudes toward Black students and their achievement, which resulted in 28 expressions that were recorded. The category of attitudes toward Black students and their achievement ability contains two subcategories. Subcategory 1 refers to if teachers have a negative attitude in regards to Black student achievement ability. The three codes within this subcategory are low expectations, little emphasis on learning, and significant achievement gap in regards to attitudes toward Black student achievement ability. Black teachers in both LED and HED schools were asked to comment on their attitudes toward Black Students and their belief in Black student achievement ability. In regards to attitude and achievement ability, one hundred percent of teachers in HED schools expressed a negative attitude regarding Black student performance, the challenges they face teaching Black students and why there is a persistent academic achievement gap. For example, two HED school teachers noted,

¹A lot of them don't relate to it because a lot of them don't have parents that went to college or come from families where education is important. ²Or who can show them that education is important so they don't feel the need to think that education is important themselves. I mean you can tell a kid education is important but when they go home to the parents on drugs or not doing anything uh I mean it's pointless. (HED teacher #4)

¹African American students are not raised early on to focus on learning and to see

learning as a success. They don't see education as a way to success. A lot of African American students believe success is athletic. That's how they are bred. Oh you're going to be successful by being in athletics. They're not taught you're going to be successful by academic skills. (HED teacher #5)

Category: Attitudes toward Black student achievement

Subcategory: Negative Attitude

¹Code: Low expectations

²Code: Little emphasis on learning

Category: Attitudes toward Black student Achievement

Subcategory: Negative Attitude

¹Code: Little emphasis on learning

Subcategory 2 refers to if teachers have a positive attitude in regards to Black student achievement ability. The three codes within this subcategory are overcoming obstacles, closing gaps, and the belief that there is no achievement gap in regards to attitudes toward Black student achievement ability. It's important to note that when commenting; some teachers expressed both a positive and negative attitude simultaneously, resulting in both expressions being attributed to some teachers. For HED schools, two out of eight teachers (25%) expressed a positive attitude about Black student performance and overcoming the challenges they face teaching Black students. One HED teacher noted,

¹Getting them (Black students) to believe that they are strong enough and capable enough is difficult, but despite the differences that society gives them, they can still manage to overcome their struggles and reach most of their goals. (HED, teacher #3)

Category: Attitudes toward Black student Achievement

Subcategory: Positive Attitude

¹Code: Overcoming Obstacles

For LED schools, only three out of eight (37.5%) of Black teachers expressed a negative attitude regarding Black student performance, the challenges they face teaching Black students and why there is a persistent academic achievement gap (though there is sometimes overlap with a teacher expressing both a negative and positive attitude simultaneously).

Um hmmm there had been a significant gap. ¹I think it's closing. ²I think the reason is, like I said before there's not the expectation of graduating. I'm going to school because that's what I'm supposed to do. Don't have no future plans or nothing like that but as time goes on Black students are recognizing the value of education and even coming from families that are educated. So it changes the dynamics. (LED teacher #3).

Category: Attitudes toward Black student achievement

Subcategory: Positive Attitude

¹Code: Closing gaps

Category: Attitudes toward Black student Achievement

Subcategory: Negative Attitude

²Code: Overcoming Obstacles

Among teachers in LED schools, six out of eight (62.5%) of Black teachers expressed a positive attitude about Black student performance and overcoming the challenges they face teaching Black students to alleviate a persistent academic achievement gap.

¹As of right now in this district no. We have a data system set up where we kind of have to look at everything....all the minorities and the demographics regarding everything they're achieving. For the data I have for biology our kids are right there with others which is good. I feel like they (Black students) are given... I can definitely attest based off my experience from high school they are given the same opportunities, same chances to achieve and they are....we have those that are taking advantage of it. I know in my classroom all are expected to be there whether you are in Pre-AP or gifted. Everybody gets it. So that's why I don't feel like there's an achievement gap because of my expectations. They're pretty high, and because of that the kids tend to meet me up here. (LED teacher #5)

Category: Attitudes toward Black student achievement

Subcategory: Positive Attitude

¹Code: No achievement gap

Overall a greater percentage of HED teachers expressed negativity towards Black student academic achievement ability and were a lot less optimistic than their LED teacher counterparts that Black students can overcome the challenges they face in regards to teaching Black students. This suggests that in relation to Black teachers' attitudes, a greater percentage of Black teachers in HED schools were less likely to have a positive attitude about Black students, and believe that they can overcome the challenges they face than in LED schools.

Symbolic Representation

Overall, all 16 Black teacher respondents commented on symbolic representation, which resulted in 32 expressions that were recorded. The category of symbolic representation contains two subcategories. Subcategory 1 refers to symbolic representation's role for students since there is a recognition that its value is in changing students' attitudes. The two codes within this subcategory are role model and mother/father figure. Subcategory 2 refers to the value derived from the relationship of symbolic representation. The two codes within this subcategory are reliability and familiarity. It's important to note that when commenting some teachers expressed comments from both subcategories simultaneously, resulting in expressions from both subcategories being coded for a teacher. Black teachers in both LED and HED schools were asked to comment on their belief on the value of Black teachers for getting Black students to improve their own outcomes within the classroom, or symbolic representation. In regards to symbolic representation, one hundred percent of teachers in both LED and HED schools commented on their belief in the importance of having Black teachers to teach Black students for the sheer fact that can serve as role models as well as a reliability factor that will help students relate and improve Black student outcomes in school. As an example, HED school teachers noted

¹Black teachers can relate to the problems that Black students have. ²Plus if a Black student sees a teacher with an education, a teacher that went to college and has a job it makes them want to do better and also go get a job just like that teacher, showing that if the teacher can make it, then that child can make it too. (HED teacher #4)

Category: Symbolic Representation

Subcategory: Value derived from relationship

¹Code: Reliability

Subcategory: Role for Students

²Code: Role Model

Yeah personally I have an open door policy kids where the kids can come in and they can talk to me about anything. Anything that will help them not drop out. Oh yeah the Black students definitely take advantage of my open door policy all the time. Some of them I have to tell to get away because some of them are not used to having a Black teacher.

¹So you can tell....like the ones who cling to me they just want to be around me and it might just be because I'm like their mom. ²A lot of the African Americans they see you as a mom and then they see me as their teacher so a lot of times I'm talking to them as if I'm a parent trying to parent so they feel like, they can come in yes she's going to talk to me. She's going to be straight up. She's not going to lie to me. She ain't about to sugarcoat...this is the way it is so they know with me they have straighten up and work harder. (HED teacher #1).

Category: Symbolic Representation

Subcategory: Role

¹Code: Family Figure

Subcategory 2: Value derived from relationship

²Code: Familiarity

Similarly, LED school teachers pointed out

¹I just think as Black people that's a relationship in itself. It's a familiarity in the things we do, things we say, that sometimes they'll understand. Sometimes I just give them that look like your grandma give and they'll understand. ²I just think that as teachers we are the role models and it's up to us to do it. I just think in terms of us it's really just building relationships with the kids cause when you build a relationship with a kid they are more prone to want to please you and they'll succeed on their own without knowing. You know what I mean. They try to make you happy and in the end they're successful. (LED teacher #4)

Category: Symbolic Representation

Subcategory: Value derived from relationship

¹Code: Familiarity Subcategory: Role

²Code: Role Models

¹I can only speak on mine and I know that just like when I was in elementary and high school you look for a familiar face and it's just going to make you more comfortable and I think that it does. ²It gives, if they can relate to somebody that looks like them or seems like they have gone through something that they're experiencing then their chances of being successful areI feel like they're higher just because they feel like they have a support system. (LED teacher #5)

Category: Symbolic Representation

Subcategory: Value of Relationship

¹Code: Familiarity

²Code: Relatibility

Overall Black teachers in LED and HED schools both shared similar sentiments

regarding their belief in symbolic representation or that the value of Black teachers is that they can spur positive changes in the Black students they teach. This suggests that the belief of Black teachers to affect positive outcomes in regards to symbolic representation for Black students is similar for both HED and LED teachers.

Ability of Black teachers to affect positive Black student outcomes for Black students

Passive Representation

Overall all 16 Black teacher respondents commented on passive representation, which resulted in 22 expressions that were recorded. The category of passive representation contains two subcategories. Subcategory 1 refers to passive representation's value to Black teachers since there is recognition of the potential value from the vantage point of teachers when they look like the students they teach. The two codes within this subcategory are shared racial identity and more Black teachers. Subcategory 2 refers to the value derived from the relationship of passive representation. The three codes within this subcategory are trust/camaraderie, academic outcomes, and looking out for/helping Black students. It's important to note that when commenting some teachers expressed comments from both subcategories simultaneously, resulting in expressions from both subcategories being coded for a teacher. Black teachers in both LED and HED schools were asked to comment on the value of Black teachers looking like the students they teach as an effect or ability to improve Black student outcomes. In regards to passive representation, one hundred percent of teachers in both LED and HED schools commented on the importance of having Black teachers to teach Black students for its ability to improve Black student outcomes. Both groups of teachers see its value in the assumption of passive representation's ability to improve Black student outcomes. As an example, HED school teachers noted

¹There need to be more Black advisors and teachers and counselors, people in authority

in the school system that look like them. ²They need to see someone in authority that's really trying to help them. That's there to really help them. (HED teacher #2)

Category: Passive Representation
Subcategory: Value to Black teachers
¹Code: More Black teachers
Subcategory: Value derived from relationship
²Code: Looking out for/Helping students

¹Yes because I am Black. My presence serves as an example. I can serve as a role model to show them that this is how your life can be if you do go to college versus if you do not.
²This is the time that determines when a student will go to college or not so this is when we have college readiness programs to make them think about college so as a minority I can show them that you have two different paths. The majority (of students) come from households where parents don't go to college. They hardly finish high school so I can show them another path so that's what I can contribute. (HED teacher #8)

Category: Passive Representation
Subcategory: Value to Black Teachers
¹Code: Shared Racial Identity
Subcategory: Value Derived from Relationship
²Code: Academic Outcome

Similarly, LED school teachers pointed out

¹I definitely think by having more African American teachers of color in the classroom, it really affects their outcomes. ²³Having someone that they can talk to, having someone that they can relate to makes it a lot easier for a lot of these students to get over a lot of academic problems. (LED teacher #1)

Category: Passive Representation
Subcategory: Value to Black Teachers
¹Code: More Black Teachers
Subcategory: Value Derived from Relationship
²Code: Looking out for/Helping students
³Code: Academic Outcomes

For the teachers that are not Black, I think Black students sometimes have a hard time relating to them or even just listening to them. ¹Me being Black I have the ability to take a more personal approach with the Black students. ²I think they have a high level of trust and see that it's genuine and they can see that I really am concerned about them so I think I can be more effective in that regard because they trust me because I look like them. (LED teacher #3)

Category: Passive Representation
Subcategory: Value to Black Teachers

¹Code: Shared Racial Identity
Subcategory: Value Derived from Relationship
²Code: Looking out for/Helping students

Overall Black teachers in LED and HED schools both shared similar sentiments regarding their belief in passive representation or that the value of Black teachers sharing racial traits as the Black students they teach, believing it has a positive impact. This suggests that the ability of Black teachers to affect positive outcomes for Black students using passive representation is similar for both HED and LED teachers.

Active/Direct Sources of Representation

Overall all 16 Black teacher respondents commented on active/direct sources of representation, which resulted in 46 expressions that were recorded. The category of active representation contains two subcategories. Subcategory 1 refers to personalized strategies utilized by Black teachers since there is recognition of the potential value of active representation when teachers are able to work for outcomes that benefit Black students. The five codes within this subcategory are mentoring, counseling, tutoring, disciplining and personal intervention. Subcategory 2 refers to more generalized strategies used by Black teachers in regards to active representation. The three codes within this category are cultural oriented activities, higher expectations/accountability, and special designation. It's important to note that when commenting some teachers expressed comments from both subcategories simultaneously, resulting in expressions from both subcategories being coded for a teacher. Black teachers in both LED and HED schools were asked to comment on the value of Black teachers actively working to positively affect Black student outcomes, or active direct sources of representation using both personalized and generalized strategies. In regards to active representation, one hundred percent of teachers in both LED and HED schools commented that they use both

personalized and generalized strategies as Black teachers for the benefit of Black students as a part of their ability to affect Black student outcomes. As an example, two HED school teachers noted,

¹When I was a ninth grade Algebra teacher, I had the most African American kids put into my class. I knew that it was important to put them in there, but I also had to pull them to the side, like I would have conferences with my African American kids. ²I would tell them hey ya'll not answering questions like everybody else and you deserve in this honors class like everybody else and so from now on I should see you raising your hands just as high as everybody else because if you didn't belong in this class you wouldn't be in here. So we made a pact, all of my African American kids that when no matter what somebody needs to be asking questions and all my African American kids that I had, they all passed the EOC. Every one of them because they knew and another thing was when they tested my counselor she still talks about this now. She says I cannot believe you put all those African Americans in your class, in your testing class and I said I did it because I knew if they did not see me they would not take the test. They needed to know that I'm here and what she expects based on all those other conversations we had throughout the year. I took the time to make my African American kids feel just as special as everybody else. No matter what, you in this class we all in this class together. ³My classes were always very mixed, but when I noticed my African Americans kids weren't doing what they needed to do I pulled them to the side and I feel like African American teachers have a great influence on Black students. If they instill in those students that they're just as good as everybody else then they're going to do it for you because they know you believe in them. (HED teacher #1)

Category: Active Representation

Subcategory: Generalized Strategies for students

¹Code: Special Designation

²Code: Higher Expectations/ Accountability

Subcategory: Personalized Strategies for Students

³Code: Personal intervention

Yes I have them do a grade check just because I think well as a teacher I target all of the minority students. Not just my Black students. My Black students are the ones who usually feed into it more but they have to go around with a piece of paper and ask their teachers what their grades are and ask why is this my grade? What did I fail? What did I pass?

¹This is just to hold them accountable and let them see on paper their positives. That's one thing I've been able to do. Another thing is like I said the goal setting. It actually takes a while but I sit down with them one on one. It's better now because I worked on that campus four years, even though this is my 1st year as a teacher. So I know the students because I can bring a senior in and have them sit down. It's like an interest inventory. What do you want to be when you grow up? Whenever a student comes back to me with an issue I can pull out that paper and say ok you said you wanted to be a nurse. How does this fight you just had with your friend help you become a nurse? It makes them kind of reflect on ok you know what...my thing is ok your behavior right now needs to line up with whatever your future goal is. I haven't had it backfire on me yet. It actually works out

really well. How does you walking out of class or this attitude or you crying over this boy how does this help you get there? There's never a good answer so it makes them stop and go it doesn't. Ok so instead of crying over this boy or girl what can you do to help you become a nurse? Well I can do this and I hope I don't jinx myself but it always works. Gets them right back on track in 5 minutes, 15, sometimes 35. But that day they or back on track doing what they need to do. ²They are then required to come back to me and follow up regarding if they've done what they need to do to get toward their goal. (HED teacher #7)

Category: Active Representation

Subcategory: Generalized Strategies for students

¹Code: Higher Expectations/Accountability

Subcategory: Personalized Strategies for Students

²Code: Personal intervention

Similarly, two LED school teachers pointed out,

¹We have a mentoring program through our counselors that suggest you pick a few students. When I do that in my class I purposefully pick Black students just because not like I don't feel like I can help anybody else but those are the students I can relate to and help out. The problem is when they go to the next level you kind of lose track of them. So I choose my athletes because as a coach I can follow them from their freshman year to their senior year if they're a part of my program. Yes I'm in close contact with their parents quite often. I'm in close contact with them every school year and like I said I do have an opportunity where I can meet with them and say this is not happening. In your classes you're not doing this or that correctly. You need to pick up your academics. Um we talk about college readiness, whether they're going to compete on the next level or not. We still talk about the ways they can excel at school. As a matter of fact, yesterday we talked about moving to the next level whether it with athletics, college or whatever. What you need to be doing. I do that on a regular basis. ²I have 50 kids on my track team um 98% are Black and so with those opportunities I'm constantly disciplining, regarding how they act in the classroom. What they get from being an athlete, teaching life lessons, respect. I teach life lessons. I get that opportunity to make a difference on a daily basis not just with the students in my classroom, and I get to communicate with parents. I'm saying they're not doing what they need to do in the classroom. ³I'm going to do this to make sure they're showing accountability and I get that opportunity to have an impact on a regular basis. (LED teacher #1)

Category: Active Representation

Subcategory: Personalized Strategies for Students

¹Code: Mentoring

²Code: Disciplining

Subcategory: Generalized Strategies for students

³Code: Higher Expectations/Accountability

If I feel like they are not being serviced in a way that they should be, yes. Or if they're not taking responsibility for it which is the biggest problem we have now. Our kids are getting

the opportunities but they're not taking advantage of them.¹ I typically pull them to the side and have a conversation myself. We gone (are going to) have to get yo(ur) life together because I want to walk at your graduation. I actually had this conversation two weeks ago with three of my boys in one of my classes.² I had one who was an inclusion support kid so he kind of had that crutch, and the other was a repeat, he was repeating a grade so he was behind and then I had the football player and I was having a conversation with all of them about you know you're an African American male, your expectation is to be something but you don't have to be that. You're given the opportunity to be successful. You have teachers that care about you and because we care we're staying on you. You want to make your mommas and grandmamas proud. You want to make me proud, but most importantly you need to do this for yourself.⁴ This is something nobody will ever be able to take away from you and I just had to come real at them and let them know. Ya'll this is why you're here is to graduate and do something better for yourself. If you want to be a comedian or a football player that's cool but this comes first and me sitting down and talking to em they seem to have gotten it.³ I actually had one come and tell me yesterday on the last day of school looking at where I started in your class making 60s and 50s and stuff and for you to take the time to tutor me so that I have a 90 on the 9 weeks average and a 70 on my semester exam I feel like we've come a long way and I'm really happy that I had you and I was like oh finally they get it. (LED teacher #5)

Category: Active Representation

Subcategory: Personalized Strategies for Students

¹Code: Personal Intervention

²Code: Counseling

³Code: Tutoring

Subcategory: Generalized Strategies for students

⁴Code: Higher Expectations/Accountability

Overall Black teachers in LED and HED schools both shared similar sentiments regarding their belief in active representation or that the value of Black teachers sharing racial traits as the Black students they teach, and the ability of Black teachers to affect positive outcomes for Black students. This suggests that the ability of Black teachers to affect positive outcomes for Black students using active representation is similar for both HED and LED teachers.

Influence of Black teachers to affect positive outcomes for Black students

Indirect Substantive Representation

Overall all 16 Black teacher respondents commented on indirect substantive representation, which resulted in 16 expressions that were recorded. The category of

indirect substantive representation contains two subcategories. Subcategory 1 refers to influence that Black teachers may have on their non-Black co-workers. The four codes within this subcategory are less discipline, increased cultural sensitivity and understanding, example, and no influence. Subcategory 2 refers to action that Black teachers take to get their non-Black co-workers to achieve positive outcomes for Black students. The two codes within this category are outreach/conversation/talk, and no action. It's important to note that when commenting some teachers expressed comments from both subcategories simultaneously, resulting in expressions from both subcategories being coded for a teacher. Black teachers in both LED and HED schools were asked to comment on the value of Black teachers to influence teachers that are not Black to improve Black student outcomes. In regards to indirect substantive representation, seven out of eight teachers (87.5%) in HED schools commented on the importance of having Black teachers to influence co-workers to improve Black students for its ability to improve Black student outcomes. As an example, HED school teachers noted,

We have planned learning communities across grades. If you teach 10th grade there will be different communities across 10th grade where those issues come up. What are the issues you're having? How can we resolve them as a collective? ¹ That's definitely a conversation we've had at one of those meetings like you have to understand some of these students may have a mother or father or they may just have a mother or may just have a father. Their parents are working two jobs and they're not just taking care of themselves. They're taking care of two or three little brothers. You never know what the situation is. ² I was talking a teacher of another race and I was like the answer is not always writing referrals and kicking students out of class. I have a student who was telling me the day before his dad got arrested, he hadn't seen his mother in a while and all these other things are going on at home so yes he was acting up in class. That's not because he's a bad student that needs to be referred and written up, he needs a counselor or to talk to someone. ³ So that definitely conversations I've had where ok you really need to think about what is the best thing for this child. Writing a referral is not going to assist this child. He needs services. He needs assistance. (HED teacher #6)

Category: Indirect Substantive Representation

Subcategory: Action

¹Code: Outreach/Conversation/Talk

Subcategory: Influence

²Code: Increased Cultural Sensitivity and Understanding

³Code: Less Discipline

However one out of eight teachers (12.5%) mentioned that she did not employ any type of outreach effort to teachers of other races for the benefit of improving Black student outcomes. This HED school teacher noted,

¹ It's not what I have personally done. ² I don't really see the need too. I guess this was an issue at other schools in Arlington but not where I've worked. I also know they have a cultural awareness training program. It teaches teachers who are not Black to be aware of culture of African American students and not just set them aside. Encourage them, empower them, and bring that within the classroom. (HED teacher #8)

Category: Indirect Substantive Representation

Subcategory: Action

¹Code: No Action Subcategory: Influence

²Code: No Influence

In regards to teachers in LED schools, six out of eight teachers (75%) mention that they employ some type of outreach effort to teachers of other races for the benefit of improving Black student outcomes. For example one LED school teacher noted,

¹ Well some of the things I usually use if a teacher asks me about a Black student one on one....you have to ask them how well do you know the student. I really try to give them insight into things that they don't understand about Black students but at the same time you don't see that a whole lot. But when I have a teacher that comes to me and has questions about Black students or you can't reach them or something like that I try to explain to them or maybe give them some suggestions on how they can reach the kid, especially if I know them. If I know the student and even if not you just try to give them suggestions of things that have worked for you especially since I've been around a while as one of the Vet teachers I feel as though I have some insight on how to reach kids. I have kids of my own. Whether it be boys where statistics seem to think it's harder to reach Black men and since I have Black kids, my sons, I try to give them insight on the odds. ² What the odds are against our Black students or our Black male students are so I try to give them insight if I know insight on Black students. (LED teacher #2)

Category: Indirect Substantive Representation

Subcategory: Action

¹ Code: Outreach/Conversation/Talk

² Subcategory: Influence

³ Code: Increased Cultural Sensitivity and Understanding

However two out of eight teachers (25%) mention that they do not employ any type of

outreach effort to teachers of other races for the benefit of improving Black student outcomes. For example one LED school teacher noted,

Not at all because we don't do that. We don't have the conversation because of...we just don't. I guess it's like they say elephant in the room, don't want to talk about it. They may say they're just bad, they're not smart and you just don't say nothing because for the most part you're the one, you're aggressive, you end up getting in trouble. We're the one who's aggressive, we do this so you can't and I know that's probably bad for us cause you don't speak out but I know that when you speak out, you get in trouble. So I think that's something I need to work on. I'm going to start working on that. (LED teacher #6)

Category: Indirect Substantive Representation

Subcategory: Action

¹ Code: No Action

Subcategory: Influence

² Code: No Influence

Overall a greater percentage of HED teachers were likely to utilize indirect substantive representation on their non-Black co-workers compared to their LED counterparts. Both groups; however, when they utilize indirect substantive representation seem to employ subtle tactics without generally mentioning race. This suggests that the influence of Black teachers to affect positive outcomes for non-Black teachers may be something that is done in a fashion that may not really register for their co-workers.

Effect of socioeconomic and other negative barriers in affecting positive outcomes for Black students

Economically Disadvantaged Effects

Overall all 16 Black teacher respondents commented on economically disadvantaged effects, which resulted in 24 expressions that were recorded. The category of economically disadvantaged effects contains two subcategories. Subcategory 1 refers to positive effects that may result as an effect of Black students dealing with being economically disadvantaged. The two codes within this subcategory are overcoming obstacles and achievement ability. Subcategory 2 refers to negative effects that may be

the result of being economically disadvantaged. The three codes within this category are cultural barriers/environment, personal mindset, and fall behind. It's important to note some respondents mentioned both positive and negative characteristics in regards to the effect of economically disadvantaged students play in facilitating positive Black students' outcomes, resulting in expressions from both subcategories being coded for a teacher. For HED schools, six of eight teachers (75%) cited negative outcomes regarding how economically disadvantaged effects can facilitate Black student outcomes. For example one HED school teacher noted,

¹ Um I think the only factors that affect economically disadvantaged students are it's more of culture....I don't want to say culture so more of a product of the environment type situation, right. ³⁴ It's not like one specific thing because you'll find students that are homeless or three and four brothers and sisters and parent has one job and those kids still do well in school sometimes, well sometimes. ² But what you'll find is that lack of motivation or that thought process of why am I there in a sense. I don't think them not having money affects their brain. I think it affects how they see potential and their ability to be successful. I think that's the effect of being economically disadvantaged. If you have never seen success or seen a successful Black person, I think that's the effect. (HED teacher #5)

Category: Economically Disadvantaged Effects

Subcategory: Negative Effects

¹ Code: Cultural Barriers/Environment

² Code: Personal Mindset

Subcategory: Positive Effects

³ Code: Achievement Ability

⁴ Code: Overcoming Obstacles

However as was the case with the previous comment, HED teachers may also express positive comments. Four of eight teachers (50%) cited positive outcomes regarding how economically disadvantaged effects can facilitate Black student outcomes. For example one HED school teacher noted

¹² Yes because they're in a mindset of I can't make it because that's all they see and so that means but that just means you have to work extra hard to make them see that you're more than your economic...what you see at home. ³ Most of our kids are economically

disadvantaged at the high school I'm at and it's a constant struggle to get them to understand that you don't have to be like what you see at home. You can do better. You can get out of your situation. (HED teacher # 1)

Category: Economically Disadvantaged Effects

Subcategory: Positive Effects

¹Code: Overcoming Obstacles

Subcategory: Negative Effects

²Code: Personal Mindset

³Code: Cultural Barriers/Environment

For LED schools, five of eight teachers (62%) cited negative outcomes regarding how economically disadvantaged effects can facilitate Black student outcomes. For example one LED school teacher noted,

Economically disadvantaged to me is a huge factor. ¹They go home and they don't have a parent there or their parent is trying to scramble to make ends meet so they're raising themselves um they have a mentality that they're less than someone else. ²³ So now they miss school, and then say I'm not even going to try, and their grades suffer for it. (LED teacher #3)

Category: Economically Disadvantaged Effects

Subcategory: Negative Effects

¹Code: Cultural Barriers/Environment

²Code: Personal Mindset

³Fall Behind

However as was the case with the previous comment, LED teachers may also express positive comments. All eight teachers (100%) cited positive outcomes regarding how economically disadvantaged effects can facilitate Black student outcomes. For example one LED school teacher noted,

¹ I don't think economically disadvantaged has nothing to do with the kid's learning ability. That I'm strongly against because I grew up in poverty, but I didn't know it. Because I had my mom's love it seemed like we had food. Somebody may have had to give it to us but when you have that love and you feel loved, it doesn't matter if someone is supporting you so the economically disadvantaged I don't....I never let that stop me. ² I tell the kids that's the reason you need to work harder because you should want a better life. You should want to provide a better life for your children. If you don't like the way you living, you work harder. You get your education that's what got me out of there. (LED teacher #6)

Category: Economically Disadvantaged Effects

Subcategory: Positive Effects

¹Code: Achievement Ability

²Code: Overcoming Obstacles

Overall a greater percentage of HED teachers expressed negativity regarding the effects that being economically disadvantaged has on Black students and also less positive on how economically disadvantaged effects can motivate Black students to achieve compared to their LED counterparts. All teachers in LED schools mentioned that being economical disadvantaged can be a motivation to improve outcomes; however only half of

HED school teachers shared that outlook. This suggests that the role teachers feel socioeconomic barriers play in regards to economically disadvantaged effects generating positive outcomes for Black students is much less pronounced in LED schools.

Student Mobility Effects

Overall all 16 Black teacher respondents commented on student mobility effects, which resulted in 19 expressions that were recorded. Subcategory 1 refers to negative effects that may be the result of being economically disadvantaged. The three codes within this category are no consistency, no interest in school, and learning gaps. Black teachers in both LED and HED schools were asked to comment on the effect that student mobility plays in facilitating positive Black student outcomes. For HED schools, six of eight teachers (75%) cited

negative outcomes regarding how student mobility effects affect Black student outcomes.

For example one HED school teacher noted,

¹ Yes student mobility definitely plays a role because children needs consistently no matter what grade level. ² If they're moving around a lot that definitely plays a role because they're the fact that they're moving around it makes them unmotivated to focus or learn from the school they're at or this teacher because they feel like what's the point I'm going to move again or not be here next year. (HED teacher #5)

Category: Student Mobility Effects

Subcategory: Negative Effects

¹Code: No Consistency

²Code: No Interest in School

HED teachers also express positive comments. Subcategory 2 refers to positive effects that may be the result of student mobility. The only code within this category is better opportunities. Two of eight teachers (25%) cited positive outcomes regarding the effect that student mobility plays in facilitating Black student outcomes seeing it as something that can be overcome or having a positive effect. For example one HED school teacher noted,

At my school there's not really an issue with mobility. ¹ Students that leave here are leaving for a positive reason like you know students who want to be a doctor so they may go to Townview Health. They have a better program for health then what we can offer. They can offer a whole curriculum on health and we can only offer health class and P.E. class. They leave for positive reasons. (HED teacher #3)

Category: Student Mobility Effects

Subcategory: Positive Effects

¹Code: Better Opportunities

Subcategory 3 refers to effects that are not an issue in regards to student mobility. The only code within this category is no effect on Black students. For LED schools, six of eight teachers (75%) cited no effect regarding how student mobility effects can facilitate Black student outcomes, noting it's not really a problem where they teach. For example one LED school teacher noted,

¹ Student mobility isn't so much an issue here with our African American population. More so with Hispanic population. The African American kids here are overall pretty stable and stay until graduation. (LED teacher #4)

Category: Student Mobility Effects

Subcategory: Not An Issue

¹Code: No Effect on Black Students

However, two of eight LED teachers (55%) cited negative outcomes regarding how student mobility effects can facilitate Black student outcomes, noting it can undermine

how successful they are at teaching Black students.

For example, one LED school teacher noted,

¹ I believe the effect is shown through the gaps in learning. Student mobility (is an issue) because when a student is moving then he or she is kind of losing out. We had a student that was out for a whole month. These twins moving from Florida to Texas. So mom left Florida, came to Texas and they were out these 10th graders. So they've been out a whole month. The brother will not pass and go on to the next level. The daughter is going to go to summer school so she can go 11th grade. Sweet kids but where have they been. If you look at track record. Having issues with mom, custody battle so moving around it's definitely a problem. (LED teacher #7)

Category: Student Mobility Effects

Subcategory: Negative Effects

¹ Code: Learning Gaps

Overall Black teachers in HED schools were more negative regarding the effects that student mobility compared to their LED counterparts. Many teachers in LED schools mentioned that student mobility was not really an issue for them with only two LED teachers mentioning its negative effects, whereas three times as many HED teachers shared that outlook. This suggests that the role teachers feel socioeconomic barriers play in regards to student mobility effects generating positive outcomes for Black students is much less pronounced in LED schools.

Other Negative Barriers

Overall all 16 Black teacher respondents commented on other barriers, which resulted in 50 expressions that were recorded. The category of other negative barriers contains nine subcategories. Subcategory 1 refers to reliability issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is lack of reliability. Subcategory 2 refers to generational differences that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled generational. Subcategory 3

refers to background issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled background. Subcategory 4 refers to parenting issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled parenting. Subcategory 5 refers to behavioral/discipline issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled behavior. Subcategory 6 refers to issues with self- separation from the kids that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled self- separation. Subcategory 7 refers to motivation/kid issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled motivation/kid issues. Subcategory 8 refers to issues with trust that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled trust. Subcategory 9 refers to time allotment issues that may affect Black teachers ability to generate positive outcomes for Black students. The only code within this subcategory is labeled time. It's important to note some respondents mentioned codes from multiple subcategories in regards to the effect other barriers play in facilitating positive Black students outcomes, resulting in expressions from multiple subcategories being coded from a teacher response.

For HED schools, Black teachers mentioned other barriers such as a lack of relatibility, generational differences, background issues, parenting issues, behavioral/discipline issues, issues with the kids, issues with self-separation from the kids, motivation, and finally issues with trust. For HED schools, six out of eight teachers (75%) mentioned motivation/kid issues with the Black students that they teach making it the largest other negative barrier that HED teachers mentioned they faced. For example one

HED school teacher noted,

¹ A lot of times they (Black students) don't want to take ownership for what they have or have not done. A lot of time with the Black student they don't respect teachers like that just for whatever reason. Let's say they don't want to do something, they don't feel like doing it. They always have an excuse for something instead of taking ownership for what they should be doing. When they should just do it. Instead of taking ownership well Black students will act out and call their parents a lot or say oh she just doesn't like me. She just hates me. They take that route instead and want somebody to bail them out. (HED teacher #5)

Category: Other Barriers
Subcategory: Motivation/Kid Issues
¹ Code: Motivation/Kid Issues

Behavioral/discipline issues and parenting issues were tied for second in the other barriers with four out of eight teachers (50%) mentioning these issues as other negative barriers that teachers face. For example one HED school teacher noted,

¹² I've had students...I guess it's a generational or cultural issue or maybe their parent aren't as invested where a student comes an hour late to 1st period every day because their mom don't want to drop them off. This affects their ability to get schoolwork done or get decent grades. ³ I've definitely had behavioral issues. I had a student who came to class and was forty-five minutes late every day or didn't show up for two weeks and I would see that student earlier that day in the cafeteria. You coming to class today? Yes miss I'll be there. Didn't see him for two weeks. (HED teacher #6)

Category: Other Barriers
Subcategory: Generational Differences
¹ Code: Generational
Subcategory: Parenting Issues
² Code: Parenting
Subcategory: Behavioral/Discipline Issues
³ Code: Behavior

For HED schools, background issues were mentioned by three of eight teachers (37.5%), reliability issues were mentioned by two of eight teachers (25%), generational differences were mentioned by two of eight teachers (25%), self-separation issues from the kids were mentioned by one of eight teachers (12.5%), motivation/kid issues were mentioned by one of eight teachers (12.5%), and finally issues with trust were mentioned by one of eight

teachers (12.5%). For LED schools, Black teachers mentioned other barriers such as generational differences, background issues, parenting issues, behavioral/discipline issues, gender issues, self-separation, and time allotted with students. For LED schools, parenting issues, and behavioral/discipline issues were both tied with four out of eight teachers (50%) mentioning these issues as other barriers that teachers face. For example in regards to behavioral issues one LED teacher noted,

¹ You know and it's really bad to say but sometimes there are behavioral issues and some of the stuff I think they're allowed to get away with other places or other teachers carries over. But you have to let them know you know and I don't necessarily think it's their fault you know. I think it's maybe the reaction of how they are perceived other places. They think it's ok but I think it's up to us as Black teachers. Pull them to the side and let them know look this is not cool. You need to....get them in line. (LED teacher #4

Category: Other Barriers
Subcategory: Behavioral/Discipline Issues
¹ Code: Behavior

Similarly in regards to parenting, one LED teacher noted

¹² I think discipline yes but really greater parental involvement is the biggest issue and would be nice but that's about it....Any type of involvement that increases interaction with parent and what they're doing day to day would greatly help improve student outcomes. (LED teacher #8)

Category: Other Barriers
Subcategory: Behavioral/Discipline Issues
¹ Code: Behavior
Subcategory: Parenting Issues
² Code: Parenting

For LED schools, background issues were mentioned by three of eight teachers (37.5%), generational issues were mentioned by two of eight teachers (25%), self-separation issues mentioned by two of eight teachers (25%), gender issues mentioned by one of eight teachers (12.5%), and time allotted with students mentioned by one of eight teachers (12.5%).

Overall a greater percentage of Black HED teachers expressed negativity

regarding behavioral discipline issues and parenting issues than their LED school counterparts. Background issues were cited equally by both groups as was the case with generational issues. In the case of LED school teachers, they mentioned issues with self-separation twice as much as their HED counterparts. Each group however mentioned unique barriers. The HED teachers mentioned issues with reliability, issues with the kids themselves, motivation, and trust. In contrast the LED teachers mentioned gender and time as barriers that play a role in generating positive outcomes for Black students. However HED teachers recorded a total of 29 expressions in the other negative barriers category to LED teachers 21. This suggests that the role teachers feel other barriers play in regards to generating positive outcomes for Black students is much less pronounced in LED schools.

Miscellaneous Issues that may affect positive outcomes for Black students

Other

Overall 14 Black teacher respondents commented on other themes, which resulted in 23 expressions that were coded. Black teachers in both LED and HED schools' interviews were coded for other themes that might have an impact on Black student outcomes. The category of other barriers contains four subcategories. Subcategory 1 refers to negative effects from teachers/administrators of other races. The only code within this subcategory is negative non-Black teachers. Subcategory 2 refers to negative Black teacher effects. The only code is negative Black teachers. Subcategory 3 refers to teachers of other races having neutral effects. The only code within this subcategory is labeled neutral non-Black teachers. Subcategory 4 refers to Black teachers having a positive effect on students of other races. The only code within this subcategory is positive Black teacher/non- Black student. For HED schools, three out of eight (37.5%) teachers

mentioned that they believed teachers of other races had a negative effect on Black student outcomes. For example, one HED teacher noted,

¹ But when they (Black kids) know they have a lot of older white teachers, cause this is what I've seen at my school, they disrespect them and get in trouble way more. They are very....our kids do not handle old White folks. I'm going to be honest, I just didn't believe it until I saw it cause at my old school that I was at, we had a lot of African American and the kids were able to see us all the time. We could look at them and say now I know you just didn't do that, they would say oh I'm sorry Ms. I didn't mean to and straighten right up. (HED teacher #1)

Category: Other

Subcategory: Negative Effects from Teacher/Administrators of other Races

¹ Code: Negative Non-Black Teachers

Similarly for LED schools, two out of eight teachers (25%) teachers mentioned that they believed teachers of other races had a negative effect on Black student outcomes. For example, one LED teacher noted,

¹ It is most definitely a big gap because a majority of the teachers they are nonblack and they don't believe in the kids. They absolutely don't. They will say it. They don't say it directly but they will say well these kids are probably not going to go to college. They will get a job here or there and since they don't believe in them, they don't teach them. They say they're teaching them but they're really not. Whereas if you have an Honors class which is predominantly non-Black then those kids, they're going to do something. So that's what it is. You just listen to the conversation from certain people, certain teachers and it comes out at every school.

Category: Other

Subcategory: Negative Effects from Teacher/Administrators of other Races

¹ Code: Negative Non-Black Teachers

For HED schools, two out of eight (25%) teachers mentioned that Black teachers played a role in facilitating negative effects on Black student outcomes. For example, one HED teacher noted,

Again this is going to sound really terrible, well not a lot but I know multiple African American teachers and they seem to be harder I guess on African American students, like they may accept thing from students of other races that they may not necessarily accept for African American students. I don't know if it's because there have been behavioral issues so I'm not going to offer you that same level of assistance. But I have a lot of students they may get kicked out of class or didn't turn in certain assignment so they come to my classroom and in a lot of ways they feel as though teacher persecuting them. Even beyond that I've actually talked to some teachers that are like I just don't want to, I'm

not going to do it and I know for a fact that they've done similar things for other races. I'm not really sure what the root cause is but I've definitely seen where African American teachers don't have the same standard for African American students. I guess the expectations are higher or not sure if the punishments are harsher. I've seen that sort of thing happen where they are like no I'm not accepting that when they would of accepted or just accepted a similar assignment for students of another race. So maybe there are some other factors. Maybe those students had some behavioral issues but from my perspective it seems students are being held to a higher standard or subjected to harsher punishment. (HED teacher #6)

Category: Other
Subcategory: Negative Black Teacher Effects
¹ Code: Negative Black Teachers

No teachers from LED schools expressed the sentiment that Black teachers played a role in facilitating negative effects on Black student outcomes. For HED schools, one out of eight (12.5%) teachers mentioned that teachers of other races had a neutral effect on Black student outcomes. For example, one HED teacher noted,

Teachers of other races can also help out (Black students) but sometimes they can't relate to the students. ¹ Since they're not always coming from the same place as the student, they're not sure how to help them. (HED teacher #4)

Category: Other
Subcategory: Teachers of Other Races' Neutral Effect
¹ Code: Neutral Non-Black Teachers

In contrast five of eight (62.5%) LED teachers mentioned that teachers of other races had a neutral effect on Black student outcomes. For example, one LED teacher noted,

I think the role of African American teachers is the role model thing. That's one of the few things they could provide that teachers of other races would have a harder time providing. (LED teacher #8)

Category: Other
Subcategory: Teachers of Other Races' Neutral Effect
¹ Code: Neutral Non-Black Teachers

Finally there is the possibility that Black teachers may have a positive effect on students of other races. Even though that was not the focal point of this study, it emerged as a possibility from teachers being interviewed. For example, for HED schools two out of eight

(25%) teachers mentioned that Black teachers also have a positive effect on students that are not just Black, implying indirect substantive representation. For example, one HED teacher noted,

¹ Yes I have them do a grade check just because... I think well as a teacher, I target all of the minority students. Not just my Black students. (HED teacher #7)

Category: Other

Subcategory: Black Teachers Having a Positive Effect on Non-Black Students

¹ Code: Positive Black Teacher/Non-Black Student

For the LED schools, three out of eight (37.5%) teachers mentioned that Black teachers also have a positive effect on students that are not just Black. For example one LED teacher noted,

We had a Hispanic kid who said I think my Black teachers are the ones who care about me more than anyone else because ya'll are the ones if I ain't got my pants on right ya'll are going to tell me, if I ain't got a pencil you're going to let me have a pencil but you're not going to get away with coming to class without a pencil. So ya'll are the ones who I really feel like care about me and it's the Black teachers that do it. We have more African American teachers than Hispanic here so I think sometimes we assume that role. (LED teacher #5)

Category: Other

Subcategory: Black Teachers Having a Positive Effect on Non-Black Students

¹ Code: Positive Black Teacher/Non- Black Student

Overall a greater percentage of Black HED teachers expressed negativity regarding if they believed teachers of other races had a negative effect on Black student outcomes than their LED school counterparts. In addition only Black teachers from HED schools expressed the sentiment that Black teachers played a role in facilitating negative effects on Black student outcomes. A greater percentage of Black teachers from LED schools also express that the teachers of other races had a neutral effect on Black student outcomes than teachers in HED schools. Finally a greater percentage of Black teachers in LED schools mention that Black teachers also have a positive effect on students that are

not just Black. This suggests that in regards to miscellaneous issues that may affect positive outcomes for Black students, Black teachers in HED schools may be more likely to have negative effects on all students they teach than Black teachers in LED schools.

Interpreting the Results

In regards to the beliefs of Black teachers to affect positive outcomes for Black students, Black teachers do seem inclined to utilize discretion and see value in symbolic representation changing Black student outcomes. However, they seem to employ a mixed perception in regards to how they feel about Black student achievement. In regards to the ability of Black teachers to affect positive outcomes for Black students, Black teachers recognize the value of both passive and active representation. In regards to the influence of Black teachers on non-Black teachers to affect positive outcomes for Black students, some Black teachers note they utilize it however others appear reluctant or do not seek to influence non-Black teachers at all, suggesting it may be limited in generating positive outcomes for Black students. In regards to the role that teachers feel socioeconomic barriers play in generating positive outcomes for Black students, Black teachers noted that they felt these factors worked to inhibit their effectiveness. Finally in regards to miscellaneous issues, Black teachers recognize that some of these issues may be positive and generate more equitable outcomes for Black students, however other issues may be more negative. Overall Black teachers seem to recognize their discretion and their role in facilitating symbolic, passive, and active representation. They try to contribute to substantive representation; however they do not seem to see its value as much as they do in sources that can be directly attributed to them. While teachers work to utilize the different types of representation they recognize that a lot of socioeconomic barriers work to inhibit their effectiveness, which may manifest in their attitudes toward Black students and subsequently diminish any equitable outcomes they seek to generate within a

representative bureaucracy. This suggests the theory of representative bureaucracy and more active/direct sources of representation may have limited effectiveness in generating equality, equity, and educational opportunity if socioeconomic factors work to mitigate attempts by those seeking to do so.

Overall a greater percentage of HED teachers expressed that they were likely to have discretion compared to their LED counterparts on an administrative level, however in regards to personal level discretion the two groups were the same. Additionally a greater percentage of Black HED teachers expressed negativity regarding their attitudes toward Black students' academic achievement ability and were a lot less optimistic than their LED teacher counterparts that Black students can overcome the challenges they face in regards to teaching Black students. Black teachers in LED and HED schools both shared similar sentiments regarding their belief in symbolic representation or that the value of Black teachers is that they can spur positive changes in the Black students they teach. Similarly Black teachers in LED and HED schools both shared similar sentiments regarding their belief in passive representation or that the value of Black teachers sharing racial traits as the Black students they teach, believing it has a positive impact; Black teachers in LED and HED schools also both shared similar sentiments regarding their belief in active representation or that the value of Black teachers sharing racial traits as the Black students they teach, believing they actively work to generate positive impacts for these students. This suggests that there is little divergence in how Black teachers in both groups view and advocate for symbolic, passive, and active representation.

Overall a greater percentage of Black HED teachers were likely to utilize indirect substantive representation on their non-Black co-workers compared to their LED counterparts. Both groups however, when they utilize it seem to employ subtle tactics without generally mentioning race suggesting it is something that is done in a fashion that

may not really register for their co-workers. Overall a greater percentage of Black HED teachers expressed negativity regarding the effects that being economically disadvantaged has on Black students and also less positive on how economically disadvantaged effects can motivate Black students to achieve compared to their LED counterparts. All teachers in LED schools mentioned that being economical disadvantaged can be a motivation to improve outcomes, however only half of HED school teachers shared that outlook. Overall a greater percentage of Black HED teachers expressed negativity regarding the effects that student mobility compared to their LED counterparts. Many teachers in LED schools mentioned that student mobility was not really an issue for them with only two LED teachers mentioning its negative effects, whereas three times as many HED teachers shared that outlook.

Overall a greater percentage of Black HED teachers expressed negativity regarding behavioral/discipline issues and parenting issues than their LED school counterparts. Background issues were cited equally by both groups as was the case with generational issues. In the case of LED school teachers, they mentioned issues with self-separation twice as much as their HED counterparts. Each group however mentioned unique barriers. The HED teachers mentioned issues with relatibility, issues with the kids themselves, motivation, and trust. In contrast the LED teachers mentioned gender and time as barriers that play a role in generating positive outcomes for Black students. Overall the number of other negative barriers encountered by teachers is much smaller than in LED schools. A greater percentage of Black HED teachers expressed negativity regarding if they believed teachers of other races had a negative effect on Black student outcomes than their LED school counterparts. In addition only Black teachers from HED schools expressed the sentiment that Black teachers played a role in facilitating negative effects on Black student outcomes. A greater percentage of Black teachers from LED

schools expressed that the teachers of other races had a neutral effect on Black student outcomes than teachers in HED schools. Finally a greater percentage of Black teachers in LED schools were likely to mention that Black teachers also have a positive effect on students that are not just Black.

These findings help articulate why mediating factors like students being economically disadvantaged work to mediate the effectiveness of representative bureaucracy oriented tools. Teachers within both HED and LED schools deal with different structural considerations that influence its potency. While there seems to be very little difference in teachers employing representative bureaucracy strategies, as they all recognize the value of symbolic, passive and active representation, the difference in the economic circumstances of the students they teach seem to create penetrable differences in HED schools as opposed to LED ones. These differences seem to foster an environment that inhibits value that can be derived from direct/active sources of representation because these teachers seem to encounter more negative barriers than their counterparts in LED school. This in turn seems to resign HED teachers to adopt a more negative view in regards to Black student achievement and their ability to overcome these obstacles that they face, a finding which may explain why on a macro level there are distinct differences in Black teacher's effect on performance outcomes between HED and LED schools. These structural factors may mediate efforts employed by Black teachers, which is why they are not felt uniformly across the two categories. Thus this research expounded upon the quantitative section, in explaining why there are unique differences between Black teachers in HED and LED schools. It demonstrates how a mediating factor like student economically disadvantaged percentage created differences in dealing with the Black students they teach, which ultimately undermined a shared racial identity.

Chapter 5

Summary, Conclusions and Recommendations

Introduction

This final chapter integrates the quantitative and the qualitative research to relate the findings to the whole body of the dissertation. The quantitative research section was used to explain four research questions and seven hypotheses. The qualitative analysis was used to expound upon one of the quantitative section's most controversial findings.

Summary

The following is a summary of the main findings in relation to the quantitative and qualitative research findings.

Quantitative Research Findings Direct/Active Representation Due to Passive Co-Worker Representation

Research Question 1. Is direct/active representation due to the effects of passive representation?

Specifically, do schools with a greater percentage of black teachers have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H1: Minority (Black) teachers have a significant, positive relationship with Black student policy outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

The results from Hypothesis 1 provide no support for Hypothesis 1 that minority (Black) teachers play a positive role in Black student outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math. Black teachers are associated with negative outcomes for

Black students in regards to the Black student dropout, graduation, and college readiness percentage.

Indirect Sources of Substantive Co-worker Representation involving Majority (White) and Co-ethnic Minority (Hispanic) Bureaucrats

Research Question 2. Do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H2: Majority (White) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

The results from Hypothesis 2 provide partial support for Hypothesis 2 that majority (White) teachers play a positive role in Black student policy outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in English and Math. While White teachers do not have a significant effect on Black student outcomes related to Black student dropout and graduation percentage, White teachers are correlated with a significant and positive effect for at least one measure, Black student college readiness percentage.

H3: Co-ethnic minority (Hispanic) teachers have a significant, positive relationship with Black student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

The results from Hypothesis 3 provides partial support for Hypothesis 3 that co-ethnic minority (Hispanic) teachers play a positive role in Black student policy outcomes

related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards in both English and Math. While Hispanic teachers do not have a significant effect on Black student graduation percentage, Hispanic teachers are correlated with significant and positive effects for Black student dropout and college readiness percentage.

Indirect Substantive Effects of Active/Direct Representation on Indirect Sources of Co-Worker Representation

Research Question 3. Do indirect sources of substantive co-worker representation through the indirect effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats respectively have a positive effect on Black student outcomes as measured by graduation and dropout percentage, and meeting college readiness standards in both English and Math?

Are positive indirect effects on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math produced when active/direct sources of representation interact on indirect sources of representation?

H4: When a critical mass of minority (Black) teachers are present, majority (White) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math.

Results suggest no support for Hypothesis 4, that a critical mass percentage of minority (Black) teachers interacting on majority (White) teachers will have a positive effect on minority (Black) student outcomes related to dropout and graduation percentage and the percentage of Black students who meet college readiness standards. A critical mass percentage of Black teachers is not interacting on White teacher to generate

significant positive performance outcomes for Black students as none of the performance measures related to Black student dropout, graduation, and college readiness are significant.

H5: When a critical mass of minority (Black) teachers are present, co-ethnic minority (Hispanic) teachers will have a positive effect on minority (Black) student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards.

Indirect sources of Substantive Co-worker Representation versus Active/Direct Co-worker Representation

Research Question 4. How do indirect sources of substantive co-worker representation related to majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math? How do indirect sources of substantive co-worker representation due to the effects of a critical mass of Black teachers on majority (White) and co-ethnic minority (Hispanic) bureaucrats, respectively, fare against active/direct representation by minority (Black) teachers on Black student outcomes, as measured by graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math?

H6: A direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats.

Results suggest no support for Hypothesis 6, that a direct/active source of substantive co-worker representation (Black teachers) will have a greater positive effect on Black student outcomes related to graduation and dropout percentages, and the percentage of Black students meeting college readiness standards in both English and Math than indirect sources of substantive co-worker representation such as majority (White) and co-ethnic minority (Hispanic) bureaucrats.

H7: Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone.

The results do not provide support for Hypothesis 7, that Indirect sources of substantive co-worker representation where there is a critical mass of active/direct representation are a greater predictor for minority (Black) student outcomes related to graduation and dropout percentage, and the percentage of Black students meeting college readiness standards in both English and Math, than indirect sources of representation alone. This Hypothesis is not testable given the lack of significant effects in each model to facilitate a comparison.

Overall an increasing percentage of Hispanic teachers seem to have a positive effect on Black student performance outcomes for Black student dropout and college readiness percentage within a school, with no significant effect on Black student graduation percentage. In addition an increasing percentage of White teachers within a school only seem to have a positive effect on the Black student performance outcome of college readiness, while not having a significant effect on Black student dropout and graduation percentage. This adds value to the assertion from Lim (2006) that indirect

sources of representation can potentially play a valuable role in achieving equity. However the results found that an increasing percentage of Black teachers were correlated with negative performance outcomes for Black students. Overall, an increasing percentage of active sources of representation did not appear to influence their co-workers to have a positive effect on Black student performance outcomes. This seems to provide evidence for rejecting conceptualizations of representative bureaucracy that exclusively focus on active sources of representation and how passivity leads to more desirable outcomes. Given the findings in Hypothesis 1 which seem counter to the very theory of representative bureaucracy (which postulates sharing characteristics will subsequently generate positive outcomes for the group being served), the results dictated further probing to determine why an increasing percentage of Black teachers within a school were not associated with positive performance outcomes for Black students. Were they operating under certain structural conditions that could mediate the potency of any attempts to utilize active representation? In recognizing that mediating factors like the percentage of students within economically disadvantaged schools may offer an explanation for why an increasing percentage of Black teachers within a school did not generate positive performance outcomes for Black students related to dropout, graduation, and college readiness percentage, a retest of Hypothesis 1 was performed using the significant models in both high and low economically disadvantaged schools. The results found that for Black student dropout, graduation, and college readiness percentage, an increasing percentage of Black teachers led to negative student outcomes in the high economically disadvantaged schools, while increasing Black teachers in low economically disadvantaged schools had no effect on Black student performance outcomes. This suggests that economically disadvantaged students serve to mediate the effects of Black teachers because the effects of Black teachers are not felt uniformly. However, this

finding also presented a new set of challenges. Recognizing this difference between Black teachers within high and low economically disadvantaged schools suggests there is need to better understand the qualitative conditions faced by teachers within these schools that might explain why there is a difference between them in generating outcomes for Black students.

Qualitative Research Findings

This difference in performance outcomes between Black teachers within high and low economically disadvantaged schools suggested that there is need to better understand the qualitative conditions faced by teachers within each of these schools that might explain why there is a difference between them in generating outcomes for Black students. The representative bureaucracy literature notes that in order for shared racial identity to generate substantive results, those seeking to employ such tools for the benefit of their group must recognize the value of that shared identity, as well as an ability to work toward those outcomes (Krislov, 1974; Thompson, 1976). Thus qualitative research exploring representative bureaucracy should consider the belief, ability, and influence of any group in relation to active/direct sources of representation. In addition, recognizing the role that mediating factors may play in inhibiting this shared identity (Mosher 1968; Watkins-Hayes, 2009), mediating factors must also be considered in regards to whether they inhibit the effectiveness of active/direct sources of representation. Taking all this into account, the qualitative research question asks how do socioeconomic barriers affect the belief, ability, and influence of Black teachers' to generate positive outcomes for Black students. Categories were created in support of these themes based off the representative bureaucracy literature, such as symbolic, passive, and active representation. In addition other categories that may represent barriers for achieving representation were Black students were also created. Three categories, discretion, attitude toward Black student

achievement, and symbolic representation, fall under the theme “beliefs of Black teachers to affect positive outcomes for Black students”. Two other categories, passive and active representation, are within the theme “ability of Black teachers to affect positive Black student outcomes for Black students”. The category substantive indirect representation is under theme “influence of Black teachers to affect positive outcomes for Black students”. Three categories, economically disadvantaged effects, student mobility effects, and other barriers are within the theme “effect of socioeconomic and other negative barriers in affecting positive outcomes for Black students”. Finally the category Other is under the theme “miscellaneous issues that may affect positive outcomes for Black students.”

Overall, a greater percentage of high economically disadvantaged (HED) teachers expressed that they were likely to have discretion compared to their lower economically disadvantaged (LED) counterparts on an administrative level; however in regards to personal level discretion the two groups were the same. Additionally a greater percentage of Black HED teachers expressed negativity regarding their attitudes toward Black students’ academic achievement ability and were a lot less optimistic than their LED teacher counterparts that Black students can overcome the challenges they face in regards to teaching Black students. Black teachers in LED and HED schools both shared similar sentiments regarding their belief in symbolic representation or that the value of Black teachers is that they can spur positive changes in the Black students they teach. Similarly Black teachers in LED and HED schools both shared similar sentiments regarding their belief in passive representation or that the value of Black teachers sharing racial traits as the Black students they teach, believing it has a positive impact; Black teachers in LED and HED schools also both shared similar sentiments regarding their belief in active representation or that the value of Black teachers sharing racial traits as the Black students they teach, believing they actively work to generate positive impacts for

these students. This suggests that there is little divergence in how Black teachers in both groups view and advocate for symbolic, passive, and active representation, however there is a difference in how these teachers view the students that they teach and their ability to overcome any challenges they face.

Overall, a greater percentage of Black HED teachers were likely to utilize indirect substantive representation on their non-Black co-workers compared to their LED counterparts. Both groups however, when they utilize it seem to employ subtle tactics without generally mentioning race suggesting it is something that is done in a fashion that may not really register for their co-workers. Overall a greater percentage of Black HED teachers expressed negativity regarding the effects that being economically disadvantaged has on Black students and also less positive on how economically disadvantaged effects can motivate Black students to achieve compared to their LED counterparts. All teachers in LED schools mentioned that being economical disadvantaged can be a motivation to improve outcomes, however only half of HED school teachers shared that outlook. Overall a greater percentage of Black HED teachers expressed negativity regarding the effects that student mobility compared to their LED counterparts. Many teachers in LED schools mentioned that student mobility was not really an issue for them with only two LED teachers mentioning its negative effects, whereas three times as many HED teachers shared that outlook.

Overall, a greater percentage of Black HED teachers expressed negativity regarding behavioral/discipline issues and parenting issues than their LED school counterparts. Background issues were cited equally by both groups as was the case with generational issues. In the case of LED school teachers, they mentioned issues with self-separation twice as much as their HED counterparts. Each group however mentioned unique barriers. The HED teachers mentioned issues with relatibility, issues with the kids

themselves, motivation, and trust. In contrast the LED teachers mentioned gender and time as barriers that play a role in generating positive outcomes for Black students. Overall the number of other negative barriers encountered by teachers is much smaller than in LED schools. A greater percentage of Black HED teachers expressed negativity regarding if they believed teachers of other races had a negative effect on Black student outcomes than their LED school counterparts. In addition only Black teachers from HED schools expressed the sentiment that Black teachers played a role in facilitating negative effects on Black student outcomes. A greater percentage of Black teachers from LED schools expressed that the teachers of other races had a neutral effect on Black student outcomes than teachers in HED schools. Finally a greater percentage of Black teachers in LED schools were likely to mention that Black teachers also have a positive effect on students that are not just Black.

These findings help articulate why factors like students being economically disadvantaged work to mediate the effectiveness of representative bureaucracy oriented tools. Teachers within both HED and LED schools deal with different structural considerations that influence its potency. While there seems to be very little difference in teachers employing representative bureaucracy strategies, as they all recognize the value of symbolic, passive and active representation, the difference in the economic circumstances of the students they teach seem to create penetrable differences in HED schools as opposed to LED ones. These differences seem to foster an environment that inhibits the value that can be derived from direct/active sources of representation because these teachers seem to encounter more negative barriers than their counterparts in LED school. This in turn seems to resign HED teachers to adopt a more negative view in regards to Black student achievement and their ability to overcome these obstacles that they face, a finding which may explain why on a macro level there are distinct differences

in Black teacher's effect on performance outcomes between HED and LED schools. These structural factors may mediate efforts employed by Black teachers, which is why they are not felt uniformly across the two categories. Thus this research expounded upon the quantitative section, in explaining why there are unique differences between Black teachers in HED and LED schools. It demonstrates how a mediating factor like student economically disadvantaged percentage created differences in dealing with the Black students they teach, which ultimately undermined a shared racial identity.

Supporting Theories

Overall this research supports the assertion of Lim (2006) that there is potentially value in additional representational mechanisms beyond simply the active/direct sources of representation that have been emphasized in representative bureaucracy literature. The value of representational mechanisms like substantive representation is that it goes beyond simply shared identity and allows for representation that is acting for and on behalf of others, regardless of shared characteristics (Pitkin, 1967). Lim (2006) expands upon this line of thinking in public administration literature because he notes administrators should be emphasizing these type of substantive effects that are resultant from passive representation, rather than merely relying on active representation which may be an incomplete picture of representation. He finds the stringent definition of active representation that scholars see "as the only way bureaucrats can increase substantive benefits for their social group" as fundamentally inhibiting and flawed (Lim, 2006, p. 194). Instead he notes that administrators can produce both direct and indirect substantive influences, recognizing that minority client groups may also benefit from actions undertaken from the specific actions of employees/bureaucrats who do not share "like traits", a finding supported by this research finding that White and Hispanic teachers are associated with positive performance outcomes for Black students.

Additionally this research supports the idea that mediating factors may mitigate the potency of representative bureaucracy. As Krislov (1974), Mosher (1968), and Watkins-Hayes (2013) noted organizational and socializing factors known as mediating factors may ultimately subvert bureaucrats' desires and intentions to generate policy outputs for those sharing similar traits as themselves. These factors may undermine shared identity so that members of a group may be unable to generate positive policy outcomes for those that look like them. In analyzing the rationale for why Black teachers are associated with negative outcomes for Black students the research explored the value of the mediating factor economically disadvantaged students within both high and low economically disadvantaged schools. The research finding that negative outcomes were only found in high economically disadvantaged schools supports the assertion that mediating factors may play a role in representative bureaucracy oriented tools. This finding is affirmed in a study by McBeath, Chuang, Bunker, and Blakeslee (2014) who demonstrate how institutional and cultural processes influence how racially/ethnically diverse frontline child welfare caseworkers' employ housing-related service strategies. The authors note that institutional parameters govern the latitude they use in employing caseworker strategies, and effectively mediate how likely they are to employ active/direct sources of representation.

Another interesting finding within this dissertation is that the results were not consistent across performance outcomes. This is surprising because before analysis it would have seemed that Black student dropout, graduation, and college readiness percentage would all be related. While findings for Black teachers were consistent across Black student performance variables, this did not hold true for White and Hispanic teachers. For example, it is surprising that White teachers only had a significant effect on Black student college readiness, and it's equally surprising regarding the findings that

Hispanic teachers have an impact on Black student dropout and college readiness but not on graduation percentage. However the literature is not without precedent in highlighting differences in performance outcomes. Meier (1993) in studying representative bureaucracy failed to find consistent policy outcome across ability grouping. He found an increase in Hispanic teachers within Florida schools was correlated with decreased corporal punishment, out of school suspensions, alternative education, and court expulsions but had no effect on student in-school suspensions or court referrals, a finding the author attributes to context of these two punishments, which are the least and most severe offered to students meaning a teacher may be less apt to use them. Additionally Pitts (2005) found mixed performance outcomes in regards to the effects of representation on student performance outcomes noting it was associated with a negative effect on the percentage of students earning above 1110 on the SAT college entrance examination and the dropout rate the school districts he studied, but also increased scores for Texas Assessment of Academic Skills (TAAS) test. He attributed these finding to individual-level indicators playing more of a role in dropping out of school and doing well on the SAT than in passing the TAAS exam. These results suggest that all outcomes do not resonate equally in regards to testing theories of representative bureaucracy. Some may be more salient and felt much more than others. This means that when developing measures for testing the saliency of representative bureaucracy, all the individual factors that go into influencing an output or outcome must be considered as well.

Delving into the Why Behind These Findings

On a surface level these results may seem to cast doubt on the very idea of representative bureaucracy. If as the percentage of Black teachers' increases within a school, it correlates with negative outcomes, as opposed to their White and Hispanic co-workers; it would seem to imply that there is very little value that can be derived from

making schools more representative. As noted, by the analysis of HED and LED schools, however that would be an overgeneralization of the data. Looking at Table 4-17, it becomes apparent that within high economically disadvantaged where all these negative outcomes for Black students are located, there is a distinct difference in the percentage of Black students' composition at high economically disadvantaged schools versus low economically disadvantaged schools. The average percentage of Black students at low economically disadvantaged schools is 17.43 percent compared to 29.27 percent at high economically disadvantaged schools. This demonstrates that teachers at high economically disadvantaged (HED) schools are much more likely to teach Black students than their low economically disadvantaged (LED) counterparts.

Why does this matter? Well it's mostly because of teacher composition within these respective schools and it suggests that different environments place bureaucrats in inequitable conditions through which to produce positive change. The average Black teacher percentage in high economically disadvantaged schools is 25.54 percent compared to an average of 7.54 percent at low economically disadvantaged schools. In contrast the average percentage of White teachers at higher economically disadvantaged schools is 58.83% at higher economically disadvantaged schools, but goes up to 82.74% at lower economically disadvantaged schools. Thus while Black teachers increase in percentage at higher economically disadvantaged schools, the opposite is true of White teachers who increase in percentage at lower economically disadvantaged schools. This suggests comparing the two groups would be an apple to orange comparison because Black teachers are more likely to teach Black students and teach at higher economically disadvantaged schools than their White co-workers. The average percentage of Hispanic teachers at higher economically disadvantaged schools is 12.47 percent, compared to 7.61 percent at low economically disadvantaged schools. This

suggests that while Hispanic teachers are more likely to teach Black students at higher economically disadvantaged schools, their presence in them is still not as high as Black teachers suggesting it is another apple to orange comparison.

In other words Black teachers are more likely to teach disadvantaged Black students than their White and Hispanic co-workers, which means any attempt to compare the groups would not be accounting for the unique school conditions that each group faces when teaching Black students. In addition, it is important to note that all the dependent variables within this study were performance outcomes rather than simply outputs, which has traditionally been the domain of studies on representative bureaucracy. In accounting for what Pitts (2005) terms individual-level indicators playing more of a role in dropping out of school and doing well on the SAT (both performance outcomes) than passing the TAAS exam (a performance output), the likely possibility is raised that measuring outcomes limits the discretion and influence that a teacher has to effect an outcome in comparison to an output (since there are many other factors (like economically disadvantaged percentage that go into an outcome). Thus, this study does not attempt to negate the value of shared racial identity in generating positive outputs for a group. Nor does it discount that the theory of representative bureaucracy has contributed to gains in equality by increasing the representation in public organizations. Rather, these findings suggest that there is more to understand to fully achieve the ideas of equality.

As previously noted, earlier research on representative bureaucracy has found linkages between the presence of minority teachers and positive policy outputs related to ability grouping for example more assignments of minority students to gifted and less minority students assigned to special education programs; it is also associated with a decrease in minority student discipline and positive outcomes related to student

performance on standardized tests (Meier and Bohte, 2001; Meier, Stewart and England, 1989; Meier and Stewart 1991; Meier and Stewart 1992; Meier, Wrinkle, and Polinard 1999). When Black teachers have discretion to influence Black student outcomes in a positive fashion, it is very likely that they do so. However this dissertation is arguing that when it comes to how they impact outcomes, they may be inhibited from doing so due to a host of other mediating factors, suggesting that the theory of representative bureaucracy cannot be applied in a blanket one size fits all fashion, rather contextual factors must be considered that may mitigate its influence.

This still however does not offer an explanation for why Black teachers located in high economically disadvantaged schools generate more negative outcomes towards Black student achievement and their ability to achieve, correlating with negative outcomes for Black students as their percentage increases. What factors contribute to these teachers being correlated with negative outcomes for Black students? Looking into both the public administration and educational and social psychology literature may offer an explanation.

In consideration of the public administration literature, Robert Merton noted in an article titled "Bureaucratic Structure and Personality" that there a prevalence for certain bureaucratic norms to take hold within an organization and become rigidified within bureaucratic settings. He noted that the bureaucracy tends to stress depersonalized relationships and categorization where "individual problems and cases are classified on the basis of designated criteria and are treated accordingly" (Merton, 1940, p. 561). It is little surprise then that this may result in "conflict in the bureaucrat s contacts with the public or clientele" (Merton, 1940, p. 566), when personalized treated may instead be warranted. For as Krislov (1974) and Subramaniam (1967) note, the concept of a representative bureaucracy is oxymoronic in that the bureaucracy is made

up of people with middle class values, as the bureaucracy is inherently a middle class institution. Both these theories suggest that there may inherently be tension within the bureaucracy between bureaucrats and clients that do not echo their values. Bureaucrats may be apt to treat such clientele with the same broad brushstroke when their circumstances may dictate they need special considerations due to a host of other factors. This in turn may predispose bureaucrats to judge those in conditions dissimilar from their own middle class background way more harshly than clientele in similar class conditions.

In echoing this sentiment, the education literature finds support to echo this conclusion. Rist (1970) in a study of African American children in the ghetto found that the teacher was likely to classify students in consideration of class factors, and treated students differently in accordance with their class status, with less economically disadvantaged students being afforded higher status within a classroom. The behavior of the teachers ultimately became what Merton (1948) labeled a self-fulfilling prophecy because it influenced students' achievement within a class. Rist's (1970) study echoes Rosenthal and Jacobson's (1968) study, which found that the group of students where the teachers were told were late bloomers gained more IQ points than their peers (despite the fact that intellectually all the students were the same), a finding attributed to higher expectations demanded by the teachers for the late bloomer group. Jussim and Harber (2005) note that there is continued controversy regarding how large of an effect is generated by self-fulfilling prophecies and whether teachers are simply accurate in predicting an outcome without actually causing it (meaning it wouldn't be a self-fulfilling prophecy by being accurate with many studies indicating teacher's expectation of the students they teach may be quite accurate). However Jussim and Harber (2005)'s meta-analysis of the data however does seem to suggest that self-fulfilling prophecies do exist,

however they are prone to be small unless there are moderating circumstances that would amplify the effects such as students being from a stigmatized group. Jussim and Harber (2005) note “students who belong to a stigmatized group may be particularly vulnerable to self-fulfilling prophecies. Membership in stigmatized groups has special importance among the possible moderators, because of its obvious relevance to the perpetuation of social inequalities” (p.143). The history and enduring legacy of racism in the United States leaves little doubt that Black students can be classified as a stigmatized group, and leaves little doubt that they can fall victim to self-fulfilling prophecies.

The very fact that many Black high school teachers occupy jobs within a middle class institution may foster alienation with Black students in higher economically disadvantaged schools. Since these bureaucrats may adopt the middle class values of the bureaucracy, they may be prone to treat Black students at higher economically disadvantaged schools in a categorized rigid depersonalized fashion when individual attention may be warranted due to the socioeconomic conditions they face outside of school. This may explain why for Black teachers at HED schools, may see students from such backgrounds as different from themselves as less likely to achieve and overcome obstacles. Whether they come from a middle class background or not, through becoming a part of the bureaucracy these teachers may begin to echo the middle class values they have been acclimated to through the bureaucratic teacher training process, expecting the Black students they teach to meet these standards.

This is cannot all be attributed exclusively to the teachers, as Merton (1940) noted bureaucrats within a bureaucratic system face tremendous pressure to conform to bureaucratic norms and are socialized accordingly. However if a student does not meet these standards Black teachers (bureaucrats) seem less likely to categorize the students as being able to overcome the obstacles they face, which may specifically be the case

with Black students in high economically disadvantaged schools due to a host of socioeconomic factors. In alliance, with the research these teachers may lower their expectations of the Black students they teach, which may become a self-fulfilling prophecy as these students face yet another barrier that may ultimately mitigate them from overcoming the obstacles they face. Teachers of other races may not be experiencing the same effects in regards to Black students because they do not teach nearly as many Black economically disadvantaged students as their Black colleagues, which may explain why they may be associated with positive outcomes because the socioeconomic factors may be less of a consideration in regards to the Black students they teach.

Implications and Recommendations

Overall the research findings, in echoing early theorists, suggest that mediating factors may play a role in the potency of representative bureaucracy. Since Black teachers may be located in schools with Black students where students are more likely to be economically disadvantaged, mediating factors play a role in the influence they may have. Black student performance outcomes related to dropout graduation, and college readiness percentage are susceptible to a wide array of mediating factors, Black teachers' influence likely competed with numerous other factors. This means that Black teachers' effects on Black student outcomes was limited due to competing with all these mediating factors like students being economically disadvantaged within a school, which is why an effect was seen in high economically disadvantaged schools but not low economically disadvantaged schools. Additionally using performance outcomes like dropout percentage, graduation percentage, and college readiness makes the context less dependent upon teachers who are only one of many contributing factors that influence Black student performance, rather than using more direct output measures like number of disciplinary placements or gifted

assignments within a school. This means that while Black teachers may have the effect to impact positive outputs, which research indicates they can and do use their discretion to do so, they may be mediated by the characteristics of the students they seek to help. In addition teachers that teach at HED schools may be influenced by the middle class norms and values of the bureaucracy creating a tension with students that are dissimilar to themselves who may not meet their exacting standards due to socioeconomic mediating factors they face in contrast to their peers who face less socioeconomic barriers. This may in turn explain why Black teachers at higher economically disadvantaged schools may lower their expectations of Black students at lower economically disadvantaged schools and adopt a more negative attitude regarding their ability to achieve and overcome the obstacles they face, setting the stage for a self-fulfilling prophecy as these students may face yet another barrier that may ultimately mitigate them from overcoming all the obstacles they face.

This research does however provide evidence for substantive indirect substantive representation. In schools where there may not be a significant amount of African American teachers, this research suggests that Hispanic and White teachers may step in and generate significant policy outcomes for Black students as it relates to decreasing the Black student dropout percentage, and increasing Black student college readiness percentage (neither group seems to be correlated with significant effects on Black student graduation percentage). An increasing percentage of Hispanic teachers seem to be correlated with decreasing Black student dropout percentage and increasing Black student college readiness percentage. White teachers seem to have a significant positive effect on the Black students that they do teach (though this increase begins to level off for Black students with increasing percentages of White teachers within a school) for college readiness.

These results from this dissertation raise many possibilities. First Black teachers in higher economically disadvantaged schools seem to face more barriers due to their students being economically disadvantaged. This may play a role in how they view the students they teach and their outlook on the student's success, because while they recognize the value of symbolic, active, and passive representation, even employing and advocating for such representation, they are still less optimistic for their student's success. Indeed such factors may even in some cases undermine efforts to help students, and lead to deleterious effects for Black students as some teachers mentioned. This also provides an explanation for why an increasing percentage of Black teachers are not leading to positive effects for Black students, but rather negative outcomes in high economically disadvantaged schools. Economic barriers seem to play a role in how teachers view these students' ability to succeed and overcome obstacles and may lead them to accepting and adopting attitudes that promote a self-fulfilling prophecy toward the achievement ability of these students. Additionally these mediating factors may also explain why there is a lack of consistency across outcomes. For instance these mediating factors help explain why Black teachers within a high economically disadvantaged schools see a negative outcome for Black students as opposed to those in lower economically disadvantaged schools who do not.

In addition, ultimately each policy outcome might be contextual for a particular school or environment. For instance a teacher interviewed from Skyline High School, classified as a higher economically disadvantaged school within the qualitative section, highlighted how socioeconomic consideration may change which policy outcomes are emphasized in HED schools as opposed to LED schools. For example, she noted

Skyline is different in that our makeup is unique because we are half regular, half career development. We have a total of 30-40 clusters and a total of 5,000 students. So our makeup is already different. The issue that most people don't understand, especially at a district level is yes we have this career development center but they're not

necessarily promoting college readiness. Many of them (the clusters) are promoting career readiness. Just cause they graduate...well we also have a cosmetology program. When they graduate they're not going to college they're going to a salon. We have all these clusters where when you graduate you leave with certifications. So they're not necessarily going to college. They're not necessarily promoting college readiness, they're promoting career readiness, which I think that's great because you have to have a skill. College is not necessarily for everyone but you still have to have a skill in order to thrive in life. (HED teacher #6)

This suggests the context of policy outcomes needs to be considered because certain policy objectives may be prioritized over others within a given school for example decreasing dropout and graduation percentage with less emphasis placed on college readiness, which may influence the effectiveness of a performance outcome within a school or environment. Some higher economically disadvantaged schools may be so concerned with stopping students from dropping out and getting them to graduate in schools where socioeconomic and other factors prevent them from doing so that factors like college readiness may take a back seat. This also suggests bigger questions about what important outcome measures are for black students and judging equity. Achieving equity for Black students must be focused on a specific context, rather than on simply a specific representational input. Otherwise group values may work against administrators by mediating particular outcomes and eroding any value that may be generated by their actions, whether they have discretion to employ or not.

This suggests that despite the best of intentions, both mediating factors and the very characteristics of the clientele may work to erode positive effects that may be generated by representative bureaucracy. Ultimately this research calls into question implicit assumptions of representative bureaucracy by echoing caveats in earlier research that mediating factors may serve to mitigate the assumptions within it. Previous researchers recognized the role that organizational factors play in mediating representative bureaucracy. However external factors of the very clientele being served

may work to do the same as well, diminishing efforts made by those seeking to utilize more active/direct sources of representation that are advocated within representative bureaucracy. This also suggests the theory of representative bureaucracy and more active/direct sources of representation may have limited effectiveness in generating equality, equity, and educational opportunity if socioeconomic factors and the very nature of the bureaucracy works to mitigate attempts by those seeking to do so. Rather shared racial identity may not always be enough to overcome socioeconomic characteristics and bureaucratic norms in regards to impacting Black student policy outcomes.

This dissertation does not invalidate the previous research on representative bureaucracy. Rather it aids the field of representative bureaucracy by providing the field with more context in regards to what may hinder or engender representative bureaucracy. Too much research has accumulated within the field of representative bureaucracy to doubt the value that can be derived from active/direct sources of representative bureaucracy. However this research aids the field by expounding upon what factors could mitigate the effects of representative bureaucracy. This suggests that there is some unfinished businesses within the representative bureaucracy literature. It must expand to recognize how mediating factors and bureaucratic norms may erode the value that can be derived from representative bureaucracy. Why does this matter if this dissertation does not ultimately negate that representative bureaucracy exists. Well, because one size fits all prescriptions that assume shared identity will optimize performance outcomes and equity may not do so when there are barriers that may work to block it. Achieving equity in regards to representative bureaucracy may be much more nuanced than assuming shared identity like race or gender will inherently generate equity, because the reality appears much more complex. The implications of this research suggests that in order to optimize equity, bureaucratic norms and mediating factors like socioeconomic considerations need to be considered in addition to shared racial identity. Perhaps when seeking to generate equity, rather

than organizations simply hiring someone with a shared identity and assuming that it will generate more equitable outcomes for clientele, organizations must be prepared to delve deeper than that. They must understand if the bureaucratic setting or other mediating factors has eroded a connection generated through shared identity then the equitable outcomes an organization seeks to generate may not actually happen. Rather if an organization wants to generate more equitable outcomes they must seek to determine if those they have hired due to a shared identity will actually be able to generate these equitable outcomes rather than inherently assuming they will. Perhaps there needs to be more nuanced tools to determine what engenders or hinders shared racial identity, to determine if they can hire more bureaucrats who may regardless of mediating factors generate equitable outcomes. For example, rather than simply hiring a Black bureaucrat within an organization that needs to generate more equitable outcomes for Black clientele, the organization could probe deeper and hire an African American bureaucrat who may come from a similar background as the clientele and has not been deterred or mediated from generating such outcomes. In this case, it would involve loosening the parameters of the bureaucracy to be more inclusive and ultimately even more representative. This will involve a lot more work than simply going by shared identity, which is an easy mechanism that allows an organization to check off some boxes in regards to representation. However while the boxes of representation may be checked off, there is little guarantee that equity is actually being generated suggesting there needs to be more enduring solutions.

Additionally this research also demonstrates that there is value that can be derived from representation regardless of shared identity. As long as there are people willing to work toward achieving equitable outcomes despite shared identity then the research implies that that they can also be a valuable asset in promoting equity. To be sure, there is value in shared racial identity in fostering empathy and relatability. A more representative bureaucracy is much more desirable than a homogenous one, which may allow

room for consideration of a multitude of equitable oriented solutions that do not come off as condescending, tone death, and even paternalistic to the group being served when the bureaucracy does not include bureaucrats who look like themselves. This type of representation should never be discounted, as it adds value to the bureaucracy. However if the ultimate outcome is to benefit those being served within the bureaucracy, then strict adherence to theories that see representation as strictly being generated through a shared identity may actually undermine the efforts by administrators who sought to utilize it as a tool to help those same people in the first place. Just as active/direct sources of representation can be a tool used to achieve equity, so too can indirect sources, which requires moving beyond representative bureaucracy in the strictest sense. Rather representative bureaucracy as a theory must evolve to emphasize substantive representation, recognizing that these sources can also be a valuable tool in generating equity. Substantive representation recognizes the value of both active/direct sources of representation and indirect sources of representation, providing a much more inclusive avenue for which to achieve equity. Organizations that seek to promote equity oriented goals through hiring employees that share a racial identity with those clientele may do well to go beyond that. While it may be easy in that it checks off representational attainment within an organization, it does not assure that this will generate equity for those clientele. Rather in regards to representative bureaucracy, an organization should instead dig deeper and find out who is really committed to facilitating these outcomes, regardless of shared identity. Perhaps there is relatability and in inclination to generate equitable outcomes for an underrepresented group despite a lack of shared identity. The simplistic categorization of who is best to generate equitable outcomes, while normal in a bureaucratic setting may not be what's best for maximizing equitable outcomes for underrepresented groups. If the focus is to be ultimately placed on these groups then the

ultimate goal should be doing what is best for them, which may mean expanding the field of representative bureaucracy to consider the value of these indirect sources of substantive representation, recognizing that they along with more active/direct sources of representation can work in tandem to generate more equitable outcomes for underrepresented groups.

Appendix A

Qualitative Interview Guide

Hello Ma'am (Sir), before we begin I'd like to take a moment to thank you for agreeing to take time out of your busy schedule to allow me to interview you. I want to assure you that any information you provide is confidential and will be used strictly to support my research project and there is no need to disclose your identity in my written report. Unless you object I will be recording our interview to ensure I capture your responses precisely as they are provided. At your request, at any time during the interview the recording can be stopped or a question skipped. Once the recorded information is transcribed and incorporated into my dissertation, the taped information will be destroyed and then disposed of. Do you have any additional questions or concerns about the interview or the manner in which the information will be handled or utilized?

Let me give you a little background on myself and my research project. I am a doctoral student at the University of Texas Arlington pursuing a PhD in Public and Urban Administration. I am conducting my dissertation to determine the value derived active/direct source of substantive co-worker representation. In other words I am exploring the role of Black teachers in generating minority (Black) student policy outcomes for Black students, which is essentially a test of representative bureaucracy. To do this I am conducting interviews with minority (Black) teachers. If you have no questions, I would now like to begin.

1. Personal characteristics e.g. approximate age, gender, school characteristics, subject taught
2. How many years of experience do you have teaching Black students?
3. Describe the racial make-up of the students you have taught in the past? Were your teaching experiences at one school? If not were they at similar demographic schools?
 - a. Prompts: Did you teach a few Black students each year, a mix of students, or majority African American students in your classes?
4. Do you feel you have discretion in your position as a teacher to positively impact outcomes for Black students related to dropout, graduation, and college readiness percentage? If so, why?
 - a. Examples why you do or don't feel you have the discretion to affect Black students outcomes for Black students related to dropout, graduation, and college readiness percentage e.g. other factors more influential than you the teacher.
5. Do you perceive inequity for black students? Do you believe there is a significant academic achievement gap between black students and students of other races related to dropout, graduation, and college readiness percentage? If so, why? Do you think the educational environment is fair for black students? What do you think needs to be done to improve Black student outcomes and who bears the responsibility for doing it?
 - a. Prompts: Do you perceive inequity for Black students? Who is best equipped to

facilitate a solution for Black students (teachers, parents, community, etc.)?)

- b. If you feel the educational environment is not fair, why?
6. If you perceive inequity, do you feel empowered to take action to reduce the inequity?
7. Have you faced challenges teaching Black students? Do you find achieving outcomes related to dropout, graduation, and college readiness percentage for Black students difficult?
 - a. Prompts: Where do you stand in your views regarding your teaching ability of Black students and their ability to achieve outcomes related to dropping out, graduating, and achieving college readiness?
8. Do you support, sponsor, promote, advocate and/or engage in programs or policies that encourage Black students to excel academically or improve outcomes for Black students related to dropout, graduation, and college readiness percentage at the level of your classroom, the school, level of faculty, or the level of the district? Why or why not? What programs or policies need to be put in place that are not in place right now?
 - a. Prompt: Take support, sponsor, promote, advocate, and/or engage in one by one to see if teachers do each. Examples of specific programs and policies you support, promote, advocate, and engage in to benefit Black student outcomes?
9. Can you tell me about specific strategies do you utilize to sponsor, promote, advocate and/or engage in to improve outcomes for Black students related to dropout, graduation, and college readiness percentage of Black students? Would you describe these programs or policies at the level of your classroom, the school, level of faculty, or the level of the district?
 - a. Prompt: Can you provide examples of activities or strategies you employ to positively influence Black student outcomes? For example: Counseling, Mentoring, Disciplining, High Expectations, Provide for different learning Styles through Differentiated instruction, High Interest low level (provide anything for them), had a student reclassified academically, tutored a kid in a subject they were failing, wrote college recommendation letter?
10. What role, if any, do you believe Black teachers play in generating policy outcomes for Black

students as opposed to teachers that are not Black? Why? How does this occur?

a. Prompt: Can you give examples of activities or strategies they employ that influence student outcomes?

11. Can you tell me about activities or strategies you have used to influence teachers of other races to positively influence Black student outcomes related to the dropout, graduation, and meeting college readiness standards?

a. Prompt: Can you give examples of activities or strategies you have had to employ to influence teachers of other races to positively influence student outcomes e.g. familiarizing them with cultural sensitivity, serving as a cultural intermediary or go between, etc.?

12. Do you think factors like students being economically disadvantaged play a role in your ability to effectively increase Black student outcomes related to the dropout, graduation, and meeting college readiness standards?

a. Prompts: Do you think economic status of your students influences the effectiveness of outcomes for students you teach. Does it influence whether they dropout, graduate, and meet college readiness standards?

13. What other factors play a role in your ability to effectively increase Black student outcomes related to the dropout, graduation, and meeting college readiness standards?

a. Prompts: Discipline issues, Lack of contact with Black students, Generational differences, Lack of reliability, gender issues, Background?

14. Is there any additional information you would like to add?

Thank-you for your time!

Appendix B

Research Subject Information and Consent Form Research Subject Information and Consent
Form

TITLE: Representative Bureaucracy and the Indirect Effects of Substantive Co-worker Representation

PURPOSE OF THE STUDY

The purpose of this study is to determine the value derived from direct sources of substantive co-worker representation. The main research question being explored asks about the strategies Black teachers may use to influence Black student outcomes, and the barriers that may work to inhibit them in order to determine why active/direct sources of representation may be correlated with negative outcomes for Black students. You are being interviewed because you are a minority (Black) teacher who can aid in determining the value of different forms of substantive representation for Black students.

DESCRIPTION OF THE STUDY

Your participation in this study is contingent upon you signing a consent form once you are satisfied that any concerns and questions have been satisfied and answered.

DURATION

The interview will last approximately 30-45 minutes.

NUMBER OF PARTICIPANTS

There will be approximately 15 African American high school teachers participating in these interviews (seven or eight from higher economically disadvantaged schools and seven or eight from lower economically disadvantaged schools).

PROCEDURES

You will be answering 14 questions as a part of this interview. The questions have been created as a means to gain your knowledge and insight into your teaching experiences with minority (Black students) as well as your interactions with co-workers. All responses will be anonymous to protect your identity. The interview will be recorded in order to ensure accuracy in recording your responses; however no names will be recorded, rather pseudonyms. The interview and recording can be stopped at any time given the interviewee's request. Upon recording and transposing of the interview for inclusion into the interviewer's dissertation, the taped interview will be destroyed and disposed of.

RISKS AND DISCOMFORTS

If there is any question that you are unwilling or unable to answer, please let the interviewer know. The question can be skipped/the recording of the interview turned off.

BENEFITS TO YOU AND OTHERS

The information within this study will help the interview complete the requirements for her dissertation research. In addition, the information gathered from this study may also help better understand educational outcomes for Black students. This may help in the design and implementation of equity oriented outcomes for Black students.

COSTS

There are no costs involved in participating in this study other than the time you will spend responding to interview questions.

PAYMENT

For your participation in this study a \$30 gift card will be offered to participants.

ALTERNATIVES

You have the option to not participate in this study

CONFIDENTIALITY

Data collected is for research purposes only. Every attempt will be made to see that your study results are kept confidential. A copy of this signed consent form and all data collected [including transcriptions/tapes if applicable] from this study will be kept by the interviewer until the completion of the research, at which time they will be destroyed and disposed of. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UTA has reviewed and approved this study and the information within this consentform. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

IF AN INJURY HAPPENS

There is no risk of injury during the interview process.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

You do not have to participate in this study. If you choose to take part in this study, you may withdraw at any time. You may also elect to not answer a specific question/or the recording turned off at any point during the interview. **QUESTIONS**

In the future, you may have questions about your participation in this study. Questions about this research study may be directed to:

Nita Clark

Doctoral Student Nita.clark@mavs.uta.edu 225-270-4492

Colleen Casey

Associate Professor, School of Urban and Public Affairs at School of Urban and Public

colleenc@uta.edu

[\(817\) 272-3356](tel:8172723356)

Any questions you may have about your rights as a research participant or a research-related injury may be directed to the Office of Research Administration; Regulatory Services at 817-272-2105 or regulatoryservices@uta.edu.

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Signature and printed name of principal investigator or person obtaining consent DATE

CONSENT

By signing below, you confirm that you are 18 years of age or older and have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

SIGNATURE OF VOLUNTEER

DATE

Appendix C

IRB Approved Research Subject Information and Consent Form

**UT Arlington
Informed Consent Document**

Research Subject Information and Consent Form

TITLE: Representative Bureaucracy and the Indirect Effects of Substantive Co-worker Representation

PURPOSE OF THE STUDY

The purpose of this study is to determine the value derived from direct sources of substantive co-worker representation. The main research question being explored asks about the strategies Black teachers may use to influence Black student outcomes, and the barriers that may work to inhibit them in order to determine why active/direct sources of representation may be correlated with negative outcomes for Black students. You are being interviewed because you are a minority (Black) teacher who can aid in determining the value of different forms of substantive representation for Black students.

DESCRIPTION OF THE STUDY

Your participation in this study is contingent upon you signing a consent form once you are satisfied that any concerns and questions have been satisfied and answered.

DURATION

The interview will last approximately 30-45 minutes.

NUMBER OF PARTICIPANTS

There will be approximately 15 African American high school teachers participating in these interviews (seven or eight from higher economically disadvantaged schools and seven or eight from lower economically disadvantaged schools), out of a pool of at least 20 African American teachers

PROCEDURES

You will be answering 14 questions as a part of this interview. The questions have been created as a means to gain your knowledge and insight into your teaching experiences with minority (Black students) as well as your interactions with co-workers. All responses will be anonymous to protect your identity. The

IRB Approval Date: **MAY 08 2015**

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UT Arlington
Informed Consent Document

interview will be recorded in order to ensure accuracy in recording your responses; however no names will be recorded, rather pseudonyms. The interview and recording can be stopped at any time given the interviewee's request. Upon recording and transposing of the interview for inclusion into the interviewer's dissertation, the taped interview will be destroyed and disposed of.

RISKS AND DISCOMFORTS

If there is any question that you are unwilling or unable to answer, please let the interviewer know. The question can be skipped/the recording of the interview turned off.

BENEFITS TO YOU AND OTHERS

The information within this study will help the interviewer complete the requirements for her dissertation research. In addition, the information gathered from this study may also help better understand educational outcomes for Black students. This may help in the design and implementation of equity oriented outcomes for Black students.

COSTS

There are no costs involved in participating in this study other than the time you will spend responding to interview questions.

PAYMENT

For your participation in this study a \$10 gift card will be offered to participants from Target, Wal-mart, or Starbucks.

ALTERNATIVES

You have the option to not participate in this study

CONFIDENTIALITY

IRB Approval Date: **MAY 08 2015**

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UT Arlington
Informed Consent Document

Data collected is for research purposes only. Every attempt will be made to see that your study results are kept confidential. Each interviewee is required to submit a signed consent form prior to the interview either through email or in-person before an interview can be conducted (see Appendix B). The consent form explains to potential interviewees how their information will remain confidential. The Consent form also outlines the steps that are being implemented to ensure the participant's privacy. Steps that will be taken to protect the anonymity of the participants include assigning a pseudonym to ensure confidentiality of their responses. Additionally, any study-related data from the interviews will be stored on a USB port containing only this research, and all signed consent forms will be kept for 3 years upon completion of your study. Interviewees will have the right to opt out at any point of time in the process. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UTA has reviewed and approved this study and the information within this consent form. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

IF AN INJURY HAPPENS

There is no risk of injury during the interview process.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

You do not have to participate in this study. If you choose to take part in this study, you may withdraw at any time. You may also elect to not answer a specific question/or the recording turned off at any point during the interview.

QUESTIONS

IRB Approval Date: **MAY 08 2015**

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**UT Arlington
Informed Consent Document**

In the future, you may have questions about your participation in this study. Questions about this research study may be directed to:

Nita Clark
Doctoral Student
Nita.clark@mavs.uta.edu
225-270-4492

Colleen Casey
Associate Professor, School of Urban and Public Affairs at School of
Urban and Public
colleenc@uta.edu
(817) 272-3356

Any questions you may have about your rights as a research participant or a research-related injury may be directed to the Office of Research Administration; Regulatory Services at 817-272-2105 or regulatoryservices@uta.edu.

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Signature and printed name of principal investigator or person obtaining consent Date

CONSENT

By signing below, you confirm that you are 18 years of age or older and have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

SIGNATURE OF VOLUNTEER

DATE

IRB Approval Date: **MAY 08 2015**

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Appendix D

IRB Approved Research Subject Information and Consent Form



**Institutional Review Board
Notification of Exemption**

May 8, 2015

Nita Clark
Dr. Colleen Casey
School of Urban/Public Affairs

Protocol Number: 2015-0737

Protocol Title: *REPRESENTATIVE BUREAUCRACY AND THE INDIRECT EFFECTS OF
SUBSTANTIVE CO-WORKER REPRESENTATION*

EXEMPTION DETERMINATION

The UT Arlington Institutional Review Board (IRB) Chair, or designee, has reviewed the above referenced study and found that it qualified for exemption under the federal guidelines for the protection of human subjects as referenced at Title 45CFR Part 46.101(b)(2).

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, either directly or through identifiers linked to the subject; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

You are therefore authorized to begin the research as of **May 8, 2015**.

Pursuant to Title 45 CFR 46.103(b)(4)(iii), investigators are required to, "promptly report to the IRB *any* proposed changes in the research activity, and to ensure that such changes in approved research, during the period for which IRB approval has already been given, are **not initiated without prior IRB review and approval** except when necessary to eliminate apparent immediate hazards to the subject." Please be advised that as the principal investigator, you are required to report local adverse (unanticipated) events to the Office of Research Administration, Regulatory Services within 24 hours of the occurrence or upon acknowledgement of the occurrence. All investigators and key personnel identified in the protocol must have documented Human Subject Protection (HSP) Training on file with this office. Completion certificates are valid for 2 years from completion date.

The UT Arlington Office of Research Administration, Regulatory Services appreciates your continuing commitment to the protection of human subjects in research. Should you have questions, or need to report completion of study procedures, please contact Alyson Stearns at 817-272-9329 or astearns@uta.edu. You may also contact Regulatory Services at 817-272-3723 or regulatoryservices@uta.edu.

Appendix E

Detailed Explanation of Generalized Linear Model

Generalized linear modeling (GLM) is often used because it can be “regarded as an extension of classical linear regression when the usual assumptions of normality and constant variance do not apply. GLM is an estimation tool that generalizes linear regression by allowing the linear model to be related to the response variable via a link function and by allowing the magnitude of the variance of each measurement to be a function of its predicted value. Because of the additional considerations imposed by the nature of the data, sensible models for mean response may no longer be linear functions of covariates and regression parameters directly. Rather, the mean response is modeled as a function (nonlinear) of a linear combination of covariates and regression parameters (the linear predictor)” (Davidian, 2007, p. 432). Additionally another practical benefit of GLM is that it can be fit to data, a form of iteratively re-weighted least squares where the variance is allowed to depend on the mean; thus, the variance depends on the regression parameter. Previous studies on representative bureaucracy recognizing that data within their analysis violated assumptions of normality, sought to transform their data using logarithmic functions (Groeneveld and Verbeek, 2011; Mitchell, 2011). However an issue that emerges is that a “model no longer pertains directly to the original scale of measurement, which is usually of greatest interest. Moreover, it tries to “force” a model framework and distributional assumption that may not be best” (Davidian, 2007, p. 424), suggesting that utilizing GLM may be a better strategy.

Appendix F

Quantitative Analysis Alternative Model Interpretation

White Teachers → Black Student Dropout Percentage Nonlinear Interpretation

Model 1B. Model 1B presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-6 using a nonlinear quadratic model. In this model, the key variables of interest are White teacher percentage and White teacher percentage squared. In order to determine if there is a nonlinear relationship between White teachers and Black student dropout percentage, both White teacher percentage and White teacher percentage squared (the quadratic term) must be significant. The independent variable white teacher percentage results in a $-.007$ association that is not significant ($p = .873$). Similarly, the independent variable white teacher percentage squared (the quadratic term) results in a $-.0001$ association that is not significant ($p = .897$). A quadratic measure for percentage of White teachers within a school does not have a significant effect on the percentage of Black students who dropout. Again nine of ten control variables are significant, as is the case with Model 1A in Table 4-6. The direction and magnitude of the control variables remain the same in this model. The coefficients and standard errors of all control variables are presented in table 4-6.

White Teachers → Black Student Graduation Percentage Nonlinear Interpretation

Model 2B. Model 2BA presents the results from the GLM estimation in relation to Black student graduation percentage in Table 4-6 using a nonlinear quadratic model. In this model, the key independent variables of interest are White teacher percentage and White teacher percentage squared. In order to determine if there is a nonlinear relationship between White teachers and Black student dropout percentage, both White teacher percentage and White teacher percentage squared (the quadratic term) must be significant. The independent variable white teacher percentage results in a $.010$ association that is not significant ($p = .889$). Similarly the independent variable white teacher percentage squared (the quadratic term) results in a $.0002$ association that is not significant ($p = .764$). A quadratic measure for percentage of White teachers within a school does not have a significant effect on the percentage of Black students who graduate. Again nine of ten control variables are significant, as is the case with Model 2A. The direction and magnitude of the control variables remain the same in this model. The coefficients and standard errors of all

control variables are presented in table 4-6.

White Teachers → Black Student College Readiness Percentage Linear Interpretation

The third analysis within Hypothesis 2, considers the relationship between White teachers' percentage and Black student college readiness percentage. The results are presented in Table 4-6. It considers White teachers percentage (Model 3A), White teachers percentage squared (Model 3B).

Model 3A. Model 3A contains the results from the GLM estimation in relation to Black student college readiness percentage. The key variable of interest is White teacher percentage, which results in a .007 association that is not significant ($p = .761$). The linear measure for percentage of White teachers within a school does not have a significant effect on the percentage of Black students who demonstrate college readiness. Similar to Model 3B, seven of ten control variables are significant however, an eighth variable years of teacher experience is also significant. Years of teacher experience within a school is significant (.013) and has a negative effect (-.408) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). The number of teachers per students sees an increase in marginal significance. The number of teachers per student within a school is significant ($p < .001$) and has a positive effect (.739) on the change in the dependent variable (percentage of Black students who demonstrate college readiness). However student disciplinary percentage sees a decrease in marginal significance. The student disciplinary percentage within a school is significant ($p < .01$) and has a negative effect (-.104) on the change in the dependent variable (percentage of Black students who demonstrate college readiness).

Hispanic Teachers → Black Student Dropout Percentage Nonlinear Interpretation

Model 1B. Model 1B presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-7 using a nonlinear quadratic model. The key variables of interest are Hispanic teacher percentage and Hispanic teacher percentage squared. In order to determine if there is a nonlinear relationship between Hispanic teachers and Black student dropout

percentage, both Hispanic teacher percentage and Hispanic teacher percentage squared (the quadratic term) must be significant. The independent variable Hispanic teacher percentage results in a $-.076$ association that is not significant ($p=.220$). Similarly the independent variable Hispanic teacher percentage squared (the quadratic term) results in a $.0003$ association that is not significant ($p=.833$). A quadratic measure for the percentage of Hispanic teachers within a school does not have a significant effect on the percentage of Black students who dropout. However as is the case with Model 1A, eight of ten control variables are significant. The direction and significance of the control variables remain the same in this model. The coefficients and standard errors of all control variables are presented in Table 4-7.

Hispanic Teachers → Black Student Graduation Percentage Nonlinear Interpretation

Model 2B. Model 2BA presents the results from the GLM estimation in relation to Black student graduation percentage in Table 4-6 using a nonlinear quadratic model. In this model, the key independent variables of interest are Hispanic teacher percentage and Hispanic teacher percentage squared. In order to determine if there is a nonlinear relationship between Hispanic teachers and Black student dropout percentage, both Hispanic teacher percentage and Hispanic teacher percentage squared (the quadratic term) must be significant. The independent variable Hispanic teacher percentage results in a $-.097$ association that is not significant ($p=.313$). Similarly the independent variable Hispanic teacher percentage squared (the quadratic term) results in a $.003$ association that is not significant ($p=.193$). A quadratic measure of the percentage of Hispanic teachers within a school does not have a significant effect on the percentage of Black students who graduate. As is the case with model 2A, the direction of the eight control variables remains the same in this model and all eight control variables retain significance, however the control variables student economically disadvantaged percentage, years of teacher experience, and student disciplinary percentage see a slight change in significance. Student economically disadvantaged percentage sees a decrease in marginal significance. The percentage of economically disadvantaged students is significant ($p < .01$) and has a negative effect ($-.057$) on the change in the dependent variable percentage of Black students who graduate). Years of

teacher experience and student disciplinary percentage see an increase in marginal significance. Years of teacher experience is significant ($p < .001$) and has a negative effect (-.554) on the change in the dependent variable (percentage of Black students who graduate). Similarly student disciplinary percentage is significant ($p < .01$) and has a negative effect (-.070) on the change in the dependent variable (percentage of Black students who graduate). The coefficients and standard errors of all control variables are presented in table 4-7.

Hispanic Teachers → Black Student Graduation Percentage Nonlinear Interpretation

Model 3B. Model 3B presents the results from the GLM estimation in relation to Black student college readiness percentage in Table 4-7 using a nonlinear quadratic model. In this model, the key independent variables of interest are Hispanic teacher percentage and Hispanic teacher percentage squared. In order to determine if there is a nonlinear relationship between Hispanic teachers and Black student college readiness percentage, both Hispanic teacher percentage and Hispanic teacher percentage squared (the quadratic term) must be significant. The independent variable Hispanic teacher percentage is significant ($p < .01$) and has a positive effect (.308) on the change in the dependent variable. However the independent variable Hispanic teacher percentage squared (the quadratic term) results in a -.003 association that is not significant (.164). A quadratic measure for the percentage of Hispanic teachers within a school does not have a significant effect on the percentage of Black students who demonstrate college readiness. Again seven of ten control variables are significant, as is the case with Model 3A. The direction and significance of the control variables remain the same in this model. The coefficients and standard errors of all control variables are presented in table 4-7.

Black Teachers+ White Teachers +Hispanic Teachers →Black Student Dropout Percentage Linear Interpretation

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-10. The key variables of interest are count of Black teachers, White teachers, and Hispanic teachers respectively and their effects on Black student

dropout percentage. The counts of Black and Hispanic teachers respectively are significant. The independent variable the count of Black teachers respectively is significant ($p < .05$) and has a positive effect (.021) on the change in the dependent variable. A one count change in the count of Black teachers leads to a .021 increase in the percentage of Black students who dropout. As the count of Black teachers increases within Texas high schools, the percentage of Black students who dropout increases. The independent variable the count of Hispanic teachers respectively is also significant ($p < .01$) and has a negative effect (-.042) on the change in the dependent variable. A one count change in the count of Hispanic teachers leads to a .042 decrease in the percentage of Black students who dropout. As the count of Hispanic teachers increases within Texas high schools, the percentage of Black students who dropout decreases. Analyzing the count of White teachers respectively results in a -.002 association that is not significant ($p = .766$). Again nine of ten control variables are significant, as is the case with Model 1B. The direction and significance of the control variables remain the same in this model. The magnitudes of all control variables are presented in Table 4-10.

Black Teachers + White Teachers + Hispanic Teachers → Black Student Graduation Percentage
Linear Interpretation

Model 1A. Model 1A presents the results from the GLM estimation in relation to Black student dropout percentage in Table 4-10. The key variables of interest are count of Black teachers, White teachers, and Hispanic teachers respectively and their effects on Black student dropout percentage. The counts of Black and Hispanic teachers respectively are significant. Analyzing the count of Black teachers respectively results in a -.013 association that is not significant ($p = .386$). Analyzing the count of Hispanic teachers respectively results in a .034 association that is not significant ($p = .159$). Analyzing the count of White teachers respectively results in a -.004 association that is not significant ($p = .630$). While eight of the ten control variables that were in Model 2A retain significance and retain the same direction, the control variable percentage of economically disadvantaged students sees an

increase in marginal significance. The percentage of economically disadvantaged students within a school is significant ($p < .01$) and has a negative effect (-.059) on the change in the dependent variable percentage of Black students who graduate). In addition the control variables years of teacher experience and student disciplinary percentage see a slight decrease in marginal significance. Years of teacher experience within a school is significant ($p < .01$) and has a negative effect (-.520) on the change in the dependent variable (percentage of Black students who graduate). The student disciplinary percentage within a school is significant ($p < .05$) and has a negative effect (-.065) on the change in the dependent variable (percentage of Black students who graduate). The magnitudes of all control variables are presented in Table 4-10.

*Black Teachers+ White Teachers +Hispanic Teachers →Black Student Graduation Percentage
Nonlinear Interpretation*

Model 3B. Model 3B contains the results from the GLM estimation in relation to Black student college readiness percentage. In this model, the key variables of interest are count of Black teachers, count of Black teachers squared (the quadratic term), count of White teachers, count of White teachers squared (the quadratic term), count of Hispanic teachers, and count of Hispanic teachers squared (the quadratic term) respectively and their effects on Black student college readiness percentage. In order to determine if there is a nonlinear relationship between these respective variables and Black student dropout percentage, both the teacher race percentage and teacher race percentage squared (the quadratic term) must be significant, which is not the case here. Only the counts of White and Hispanic teachers respectively are significant. The independent variable the count of White teachers respectively is significant ($p < .001$) and has a positive effect (.054) on the change in the dependent variable. However analyzing the count of White teachers squared respectively results in a -.0003 association that is not significant ($p = .114$). The independent variable the count of Hispanic teachers respectively is also significant ($p < .05$) and has a positive effect (.114) on the change in the dependent variable. However analyzing the count of Hispanic teachers squared respectively results in a .001 association that is not significant ($p = .642$). Analyzing the count of Black teachers respectively results in a .005 association that is

not significant ($p=.993$). Similarly analyzing the count of Black teachers squared respectively results in a .0004 association that is not significant ($p=.383$). While seven of the ten control variables that were in Model 3A retain significance and retain the same direction, the control variable teacher compensatory percentage loses significance in this model. The control variable teacher compensatory percentage within a school comes close to approximating significance however (.059) leading to a positive effect (.138) on the change in the dependent variable (the percentage of Black students who demonstrate college readiness). The magnitudes of all control variables are presented in Table 4-10.

Appendix G

Texas High Schools Analyzed within the Study

SCHOOL NAME		SCHOOL DISTRICT	SCHOOL NAME		SCHOOL DISTRICT
1	LUFKIN H S	LUFKIN ISD	147	LANGHAM CREEK H S	CYPRESS-FAIRBANKS ISD
2	BASTROP H S	BASTROP ISD	148	CYPRESS FALLS H S	CYPRESS-FAIRBANKS ISD
3	ELGIN H S	ELGIN ISD	149	CYPRESS SPRINGS H S	CYPRESS-FAIRBANKS ISD
4	BELTON H S	BELTON ISD	150	CYPRESS RIDGE H S	CYPRESS-FAIRBANKS ISD
5	KILLEEN H S	KILLEEN ISD	151	CYPRESS WOODS H S	CYPRESS-FAIRBANKS ISD
6	C E ELLISON H S	KILLEEN ISD	152	GALENA PARK H S	GALENA PARK ISD
7	HARKER HEIGHTS H S	KILLEEN ISD	153	NORTH SHORE SENIOR H S	GALENA PARK ISD
8	ROBERT M SHOEMAKER H S	KILLEEN ISD	154	LEE H S	GOOSE CREEK CISD
9	TEMPLE H S	TEMPLE ISD	155	STERLING H S	GOOSE CREEK CISD
10	BRACKENRIDGE H S	SAN ANTONIO ISD	156	BELLAIRE H S	HOUSTON ISD
11	HIGHLANDS H S	SAN ANTONIO ISD	157	DAVIS H S	HOUSTON ISD
12	MACARTHUR H S	NORTH EAST ISD	158	LAMAR H S	HOUSTON ISD
13	ROOSEVELT H S	NORTH EAST ISD	159	LEE H S	HOUSTON ISD
14	MADISON H S	NORTH EAST ISD	160	MADISON H S	HOUSTON ISD
15	EAST CENTRAL H S	EAST CENTRAL ISD	161	REAGAN H S	HOUSTON ISD
16	HOLMES HS	NORTHSIDE ISD	162	STERLING H S	HOUSTON ISD
17	JAY H S	NORTHSIDE ISD	163	WALTRIP H S	HOUSTON ISD
18	MARSHALL HS	NORTHSIDE ISD	164	WESTBURY H S	HOUSTON ISD
19	CLARK HS	NORTHSIDE ISD	165	WHEATLEY H S	HOUSTON ISD
20	TAFT H S	NORTHSIDE ISD	166	WORTHING H S	HOUSTON ISD
21	WARREN H S	NORTHSIDE ISD	167	YATES H S	HOUSTON ISD
22	STEVENS HS	NORTHSIDE ISD	168	SHARPSTOWN H S	HOUSTON ISD
23	JUDSON H S	JUDSON ISD	169	CHAVEZ H S	HOUSTON ISD
24	KAREN WAGNER H S	JUDSON ISD	170	BARBARA JORDAN H S	HOUSTON ISD
25	TEXAS H S	TEXARKANA ISD	171	WESTSIDE H S	HOUSTON ISD
26	MANVEL H S	ALVIN ISD	172	HUMBLE H S	HUMBLE ISD
27	ANGLETON H S	ANGLETON ISD	173	ATASCOCITA H S	HUMBLE ISD
28	BRAZOSPORT H S	BRAZOSPORT ISD	174	KINGWOOD PARK H S	HUMBLE ISD
29	BRAZOSWOOD H S	BRAZOSPORT ISD	175	KATY H S	KATY ISD
30	PEARLAND H S	PEARLAND ISD	176	TAYLOR H S	KATY ISD
31	A & M CONS H S	COLLEGE STATION	177	MAYDE CREEK H S	KATY ISD

32	BRYAN H S	BRYAN ISD	178	CINCO RANCH H S	KATY ISD
34	ALLEN H S	ALLEN ISD	180	SEVEN LAKES H S	KATY ISD
35	LOWERY FRESHMAN CENTER	ALLEN ISD	181	KLEIN H S	KLEIN ISD
36	FRISCO H S	FRISCO ISD	182	KLEIN FOREST H S	KLEIN ISD
37	CENTENNIAL H S	FRISCO ISD	183	KLEIN OAK H S	KLEIN ISD
38	WAKELAND H S	FRISCO ISD	184	KLEIN COLLINS H S	KLEIN ISD
39	LIBERTY H S	FRISCO ISD	185	LA PORTE H S	LA PORTE ISD
40	MCKINNEY H S	MCKINNEY ISD	186	SOUTH HOUSTON H S	PASADENA ISD
41	MCKINNEY NORTH H S	MCKINNEY ISD	187	DOBIE H S	PASADENA ISD
42	MCKINNEY BOYD H S	MCKINNEY ISD	188	SPRING H S	SPRING ISD
43	PLANO SR H S	PLANO ISD	189	WESTFIELD H S	SPRING ISD
44	WILLIAMS H S	PLANO ISD	190	ANDY DEKANAY H S	SPRING ISD
45	VINES H S	PLANO ISD	191	SPRING WOODS H S	SPRING BRANCH ISD
46	CLARK H S	PLANO ISD	192	STRATFORD H S	SPRING BRANCH ISD
47	PLANO EAST SR H S	PLANO ISD	193	TOMBALL H S	TOMBALL ISD
48	SHEPTON H S	PLANO ISD	194	C E KING H S	SHELDON ISD
49	JASPER H S	PLANO ISD	195	MARSHALL H S	MARSHALL ISD
50	PLANO WEST SENIOR H S	PLANO ISD	196	HALLSVILLE H S	HALLSVILLE ISD
51	WYLIE H S	WYLIE ISD	197	LEHMAN H S	HAYS CISD
52	COPPERAS COVE H S	COPPERAS COVE ISD	198	SULPHUR SPRINGS H S	SULPHUR SPRINGS ISD
53	SMITH H S	CARROLLTON-FARMERS	199	GREENVILLE H S	GREENVILLE ISD
54	CREEKVIEW H S	CARROLLTON-FARMERS	200	MEMORIAL H S	PORT ARTHUR ISD
55	CEDAR HILL H S	CEDAR HILL ISD	201	CENTRAL SENIOR H S	BEAUMONT ISD
56	BRYAN ADAMS H S	DALLAS ISD	202	OZEN H S	BEAUMONT ISD
57	HILLCREST H S	DALLAS ISD	203	WEST BROOK SR H S	BEAUMONT ISD
58	JUSTIN F KIMBALL H S	DALLAS ISD	204	FORNEY H S	FORNEY ISD
59	L G PINKSTON H S	DALLAS ISD	205	TERRELL H S	TERRELL ISD
60	W W SAMUELL H S	DALLAS ISD	206	DAYTON H S	DAYTON ISD
61	SEAGOVILLE H S	DALLAS ISD	207	CORONADO H S	LUBBOCK ISD
62	SOUTH OAK CLIFF H S	DALLAS ISD	208	LUBBOCK H S	LUBBOCK ISD
63	W T WHITE HIGH SCHOOL	DALLAS ISD	209	MONTEREY H S	LUBBOCK ISD

64	WOODROW WILSON H S	DALLAS ISD	210	BAY CITY H S	BAY CITY ISD
65	DAVID W CARTER H S	DALLAS ISD	211	MIDWAY H S	MIDWAY ISD
66	NORTH DALLAS H S	DALLAS ISD	212	WACO H S	WACO ISD
67	SKYLINE H S	DALLAS ISD	213	UNIVERSITY H S	WACO ISD
68	DESOTO H S	DESOTO ISD	214	LEE H S	MIDLAND ISD
69	DUNCANVILLE H S	DUNCANVILLE ISD	215	MIDLAND H S	MIDLAND ISD
70	GARLAND H S	GARLAND ISD	216	CONROE H S	CONROE ISD
71	S GARLAND H S	GARLAND ISD	217	OAK RIDGE H S	CONROE ISD
72	N GARLAND H S	GARLAND ISD	218	COLLEGE PARK H S	CONROE ISD
73	LAKEVIEW CENTENNIAL H S	GARLAND ISD	219	WILLIS H S	WILLIS ISD
74	NAAMAN FOREST H S	GARLAND ISD	220	NACOGDOCHES H S	NACOGDOCHES ISD
75	ROWLETT H S	GARLAND ISD	221	CORSICANA H S	CORSICANA ISD
76	SACHSE H S	GARLAND ISD	222	CARROLL H S	CORPUS CHRISTI ISD
77	GRAND PRAIRIE H S	GRAND PRAIRIE ISD	223	LIT CYPR-MRCEVILLE H S	LITTLE CYPRESS-MAURICEVIL ISD
78	SO GRAND PRAIRIE H S	GRAND PRAIRIE ISD	224	LIVINGSTON H S	LIVINGSTON ISD
79	IRVING H S	IRVING ISD	225	PALO DURO H S	AMARILLO ISD
80	MACARTHUR H S	IRVING ISD	226	TASCOSA H S	AMARILLO ISD
81	NIMITZ H S	IRVING ISD	227	ROCKWALL H S	ROCKWALL ISD
82	JACK E SINGLEY ACADEMY	IRVING ISD	228	ROCKWALL-HEATH H S	ROCKWALL ISD
83	LANCASTER H S	LANCASTER ISD	229	ROYSE CITY H S	ROYSE CITY ISD
84	MESQUITE H S	MESQUITE ISD	230	ROBERT E LEE H S	TYLER ISD
85	NORTH MESQUITE H S	MESQUITE ISD	231	JOHN TYLER H S	TYLER ISD
86	WEST MESQUITE H S	MESQUITE ISD	232	WHITEHOUSE H S	WHITEHOUSE ISD
87	POTEET H S	MESQUITE ISD	233	ARLINGTON H S	ARLINGTON ISD
88	HORN H S	MESQUITE ISD	234	SAM HOUSTON H S	ARLINGTON ISD
89	LAKE HIGHLANDS H S	RICHARDSON ISD	235	LAMAR H S	ARLINGTON ISD
90	RICHARDSON H S	RICHARDSON ISD	236	BOWIE H S	ARLINGTON ISD
91	PEARCE H S	RICHARDSON ISD	237	MARTIN H S	ARLINGTON ISD
92	BERKNER H S	RICHARDSON ISD	238	SEGUIN H S	ARLINGTON ISD
93	RYAN H S	DENTON ISD	239	HALTOM H S	BIRDVILLE ISD
94	DENTON H S	DENTON ISD	240	RICHLAND H S	BIRDVILLE ISD
95	GUYER H S	DENTON ISD	241	BIRDVILLE H S	BIRDVILLE ISD
96	LEWISVILLE H S	LEWISVILLE ISD	242	EVERMAN H S	EVERMAN ISD

97	THE COLONY H S	LEWISVILLE ISD	243	ARLINGTON HEIGHTS H S	FORT WORTH ISD
98	HEBRON H S	LEWISVILLE ISD	244	SOUTH HILLS H S	FORT WORTH ISD
99	NORTHWEST H S	NORTHWEST ISD	245	EASTERN HILLS H S	FORT WORTH ISD
100	LAKE DALLAS H S	LAKE DALLAS ISD	246	PASCHAL H S	FORT WORTH ISD
101	LITTLE ELM H S	LITTLE ELM ISD	247	TRIMBLE TECHNICAL H S	FORT WORTH ISD
10	PERMIAN H S	ECTOR COUNTY ISD	248	SOUTHWEST H S	FORT WORTH ISD
103	ENNIS H S	ENNIS ISD	249	WESTERN HILLS H S	FORT WORTH ISD
104	RED OAK H S	RED OAK ISD	250	O D WYATT H S	FORT WORTH ISD
105	WAXAHACHIE H S	WAXAHACHIE ISD	251	FOSSIL RIDGE H S	KELLER ISD
106	ANDRESS H S	EL PASO ISD	252	CENTRAL H S	KELLER ISD
107	IRVIN H S	EL PASO ISD	253	MANSFIELD SUMMIT H S	MANSFIELD ISD
108	CHAPIN HS	EL PASO ISD	254	MANSFIELD H S	MANSFIELD ISD
109	LAMAR CONS H S	LAMAR CISD	255	MANSFIELD TIMBERVIEW H S	MANSFIELD ISD
110	B F TERRY H S	LAMAR CISD	256	MANSFIELD LEGACY H S	MANSFIELD ISD
111	FOSTER H S	LAMAR CISD	257	CROWLEY H S	CROWLEY ISD
112	DULLES H S	FORT BEND ISD	258	NORTH CROWLEY H S	CROWLEY ISD
113	WILLOWRIDGE H S	FORT BEND ISD	259	BELL H S	HURST-EULESS-BEDFORD ISD
114	KEMPNER H S	FORT BEND ISD	260	TRINITY H S	HURST-EULESS-BEDFORD ISD
115	LAWRENCE E ELKINS H S	FORT BEND ISD	261	BOSWELL H S	EAGLE MT-SAGINAW ISD
116	STEPHEN F AUSTIN H S	FORT BEND ISD	262	SAGINAW H S	EAGLE MT-SAGINAW ISD
117	HIGHTOWER H S	FORT BEND ISD	263	BREWER H S	WHITE SETTLEMENT ISD
118	GEORGE BUSH H S	FORT BEND ISD	264	ABILENE H S	ABILENE ISD
119	THURGOOD MARSHALL H S	FORT BEND ISD	265	COOPER H S	ABILENE ISD
120	WILLIAM B TRAVIS H S	FORT BEND ISD	266	MOUNT PLEASANT H S	MOUNT PLEASANT ISD
121	DICKINSON H S	DICKINSON ISD	267	AUSTIN H S	AUSTIN ISD
122	BALL H S	GALVESTON ISD	268	LANIER H S	AUSTIN ISD
123	TEXAS CITY H S	TEXAS CITY ISD	269	MCCALLUM H S	AUSTIN ISD

124	CLEAR CREEK H S	CLEAR CREEK ISD	270	TRAVIS H S	AUSTIN ISD
125	CLEAR BROOK H S	CLEAR CREEK ISD	271	CROCKETT H S	AUSTIN ISD
126	CLEAR SPRINGS H S	CLEAR CREEK ISD	272	ANDERSON H S	AUSTIN ISD
127	DENISON H S	DENISON ISD	273	AKINS H S	AUSTIN ISD
128	SHERMAN H S	SHERMAN ISD	274	PFLUGERVILLE H S	PFLUGERVILLE ISD
129	LONGVIEW H S	LONGVIEW ISD	275	JOHN B CONNALLY H S	PFLUGERVILLE ISD
130	PINE TREE H S	PINE TREE ISD	276	HENDRICKSON H S	PFLUGERVILLE ISD
131	SEGUIN H S	SEGUIN ISD	277	MANOR H S	MANOR ISD
132	SAMUEL CLEMENS H S	SCHERTZ-CIBOLO-U CITY ISD	278	DEL VALLE H S	DEL VALLE ISD
133	BYRON P STEELE II HS	SCHERTZ-CIBOLO-U CITY	279	HUNTSVILLE H S	HUNTSVILLE ISD
134	ALDINE H S	ALDINE ISD	280	WALLER H S	WALLER ISD
135	MACARTHUR H S	ALDINE ISD	281	BRENHAM H S	BRENHAM ISD
136	EISENHOWER H S	ALDINE ISD	282	RIDER H S	WICHITA FALLS ISD
137	NIMITZ H S	ALDINE ISD	283	WICHITA FALLS H S	WICHITA FALLS ISD
138	HASTINGS H S	ALIEF ISD	284	HUTTO H S	HUTTO ISD
139	ELSIK H S	ALIEF ISD	285	ROUND ROCK H S	ROUND ROCK ISD
140	TAYLOR H S	ALIEF ISD	286	MCNEIL H S	ROUND ROCK ISD
141	CHANNELVIEW H S	CHANNELVIEW ISD	287	STONY POINT H S	ROUND ROCK ISD
142	ALICE JOHNSON J H	CHANNELVIEW ISD	288	LEANDER H S	LEANDER ISD
143	CROSBY H S	CROSBY ISD	289	VISTA RIDGE H S	LEANDER ISD
144	CY-FAIR H S	CYPRESS- FAIRBANKS ISD	290	ADVANTAGE ACADEMY	ADVANTAGE ACADEMY
145	JERSEY VILLAGE H S	CYPRESS- FAIRBANKS ISD	291	LIFE SCHOOL OAK CLIFF	LIFE SCHOOL
146	CYPRESS CREEK H S	CYPRESS- FAIRBANKS ISD			

Appendix H
Representative Bureaucracy Codebook

Subcategory	Code	Code Description
Subcategory 1: Personal level	Code: Affirmative belief	Affirmative belief in discretion on a personal level
Subcategory 2: Organizational	Code: Affirmative belief	Affirmative belief in discretion on an organizational I level
	Code: Negative belief	Negative belief in discretion on an organizational I level
Subcategory 1: Negative attitude	Code: Low expectations	Low expectations in regards to Black student achievement
	Code: Little emphasis on learning	Belief that there is little emphasis on learning in regards to Black student achievement
	Code: Significant achievement gap	Belief that there is a significant achievement gap for Black students
Subcategory 2: Positive attitude	Code: Overcoming obstacles	Belief in the ability of Black students to overcome obstacles and achieve
	Code: Closing gaps	Belief in the ability of Black Students to close gaps and achieve
	Code: No achievement gap	Belief that there is no achievement gap in regards to Black student achievement ability
Subcategory 1: Role for students	Code: Role model	Black teachers note that Black students see them as role models
	Code: Mother/Father Figure	Black teachers note that Black students view them from a mother figure/father figure role
Subcategory 2: Value derived from relationship	Code: Relatibility	Black teachers note that Black students can relate to them
	Code: Familiarity	Black teachers note that Black students share a familiarity with them
Subcategory 1: Value to Black teachers	Code: Shared Racial Identity	Black teachers see value in a shared racial identity
	Code: More Black teachers	Black teachers see value in more Black teachers
Subcategory 2: Value Derived from Relationship	Code: Trust/Camaraderie	Black teachers see their value in creating trust/camaraderie with Black students
	Code: Academic Outcomes	Black teachers see their value in facilitating academic outcomes for Black students
	Code: Looking out for/Helping Students	Black teachers see their value in looking out/helping Black students
Subcategory 1: Personalized	Code: Mentoring	Black teachers personally mentor Black students
	Code: Counseling	Black teachers personally counsel Black students
	Code: Tutoring	Black teachers personally tutor Black students

	Code: Disciplining	Black teachers personally discipline Black students
	Code: Personal Intervention	Black teachers personally intervene on behalf of Black students
Subcategory 2: Generalized Strategies for students	Code: Cultural Oriented Activities	Black teachers create culturally oriented activities to benefit Black students
	Code: Higher Expectations/Accountability	Black teachers utilize higher expectations and demand increased accountability to benefit Black students
	Code: Special Designation	Black teachers work to garner special designations for the benefit of Black students
Subcategory 1: Action	Code: Outreach/Conversation/Talk	Black teachers utilize outreach oriented conversations to influence non-Black co-workers
	Code: No Action	No action is taken to influence non-Black co-workers
Subcategory 2: Influence	Code: Less Discipline	Black teachers encourage non-Black co-workers to utilize less discipline
	Code: Increased Cultural Sensitivity and Understanding	Black teachers encourage non-Black co-workers to utilize increased cultural sensitivity and understanding
	Code: Example	Black teachers encourage non-Black co-workers to follow their example
	Code: No Influence	Black teachers express that they have no influence on non-Black teachers
Subcategory 1: Positive Effects	Code: Overcoming Obstacles	Belief that Black students can overcome obstacles related to being economically disadvantaged
	Code: Achievement Ability	Belief that Black students have an achieve despite being economically disadvantaged
Subcategory 2: Negative Effects	Code: Cultural Barriers/Environment	Belief that cultural barriers/environment hinder students who are economically disadvantaged
	Code: Personal Mindset	Belief that a personal mindsets hinder students who are economically disadvantaged
	Code: Fall Behind	Belief that economically disadvantaged students fall behind their peers
Subcategory 1: Positive Effects	Code: Better Opportunities	Student mobility allowing Black student to leave for better opportunities

Subcategory 2: Not An Issue	Code: No Effect on Black Students	Student mobility not considered an issue for Black students
Subcategory 3: Negative Effects	Code: No Consistency	Lack of consistency due to student mobility that works to hinder Black students
	Code: No Interest in School	lack of interest in school due to student mobility
	Code: Learning Gaps	Gaps in learning due to student mobility that works to hinder Black students
Subcategory 1: Lack of Relatibility	Code: Lack of Relatibility	Lack of relatibility issues that work to hinder Black teacher effectiveness
Subcategory 2: Generational	Code: Generational	Generational differences that work to hinder Black teacher effectiveness
Subcategory 3 Background issues	Code: Background	Background issues that work to hinder Black teacher effectiveness
Subcategory 4: Parenting issues	Code: Parenting	Parenting issues that work to hinder Black teacher effectiveness
Subcategory 5: Behavioral/discipline issues	Code: Behavior	Parenting issues that work to hinder Black teacher effectiveness
Subcategory 6: Issues with self-separation from the kids	Code: Self-Separation	Self-separation issues that work to hinder Black teacher effectiveness
Subcategory 7: Motivation/Kid issues	Code: Motivation/Kid Issues	Motivation/Kid issues that work to hinder Black teacher effectiveness
Subcategory 8: Issues with Trust	Code: Trust	Trust issues that work to hinder Black teacher effectiveness
Subcategory 9: Time Allotment	Code: Time	Time issues that work to hinder Black teacher effectiveness
Subcategory 1: Negative Effects from	Code: Negative Non-Black Teachers	Negative effects generated by non-Black teachers
Subcategory 2: Negative Black Teacher Effects	Code: Negative Black Teachers	Negative effects generated by Black teachers
Subcategory 3: Teachers of Other Races Neutral Effects	Code: Neutral Non-Black Teachers	Neutral effects generated by non-Black teachers
Subcategory 4: Black Teachers Having a Positive	Code: Positive Black Teacher/Non- Black Student	Positive effects generated by Black teachers for Non-Black students

Appendix I
Analytic Memo

May 16, 2015

I just completed my first interview today. It was a test one with my middle school teachers. Overall I feel pretty good about the questions. I just realized that my question “Who bears the responsibility for improving Black student outcomes regarding dropouts, graduation and college readiness?” is a pretty pointless question. All the teachers basically say the same thing; everybody does, parents, teachers, the community. I will keep it obviously, since it’s set in the IRB question list. I guess I was expecting there to be clear delineation where I could pinpoint teachers highlighting a certain group as shouldering most of that responsibility; however none of the teachers seem to perceive it that way.

May 20, 2015

I’m actually really surprised at the candor of some of the interviewers. They say things that I really did not expect. For instance at the end of the interview today the lady I was interviewing noted that she believed that Black teachers were better than Whites for Black students, and it would almost be beneficial to go back to self- segregated classrooms. I guess I could not hold my expression (the interview was in person) because she then added or gender selected classrooms since that seems to be more socially acceptable nowadays. I’m glad she felt comfortable being honest and forthright with her opinions but that did catch me off guard today.

May 21, 2015

When I transcribe interviews I’m noting quite a bit of slang and alternative grammar being utilized. I’m trying to stay as true as I can to the words of the interviewee so I do not change it. I guess it’s a sign that they feel comfortable with me. But I wonder how much to incorporate into the writing. I do not want to change anyone’s voice. Also I notice people tend to be much more candid in telephone interviews, which is what the research said. They will say things that I find a bit shocking e.g. talking about a student wanting to be a trap queen and things like that but I guess that’s good because it makes my research more authentic.

May 30, 2015

I’m definitely noticing some patterns in my interviews. The HED teachers seem to be a lot

more negative in describing Black students than the LED teachers, which I guess makes sense. They're as a whole teaching more Black students and they seem to be mentioning more issues that they have with the students but some of things they say are quite surprising. For example, one teacher noted "Like African American students aren't positive about going to school. I don't think they love learning. They don't love going to school. Whereas other majority races well also Chinese and Asian they love going to school. They're taught early on you have to go to school.". I guess it's interesting that I had not thought of it, because I had not expected such a difference but I may need to create a separate category on how Black teachers view Black students.

June 2, 2015

I've noticed that it's like pulling teeth to get some of the respondents to open up more. They'll give me really basic answers and even when I probe to try to tease out their responses they still do not open up. Others are much more candid. Maybe it's a personality thing where they do not feel as comfortable talking to me and I'm not sure how to address this. For instance I asked one male teacher about his efforts to influence Black students. He gives a general answer saying oh I do things like talk to them about college and help them fill out applications. So I ask if that's it, after mentioning a host of other strategies and he's like yeah. I even ask explicitly about his relationship affecting Black males particularly as a Black male and he's like yeah I sit down and talk with them to and I serve as a role model, but then says out of five Black males I talk to, I may only reach one or two. He had expressed earlier that a lot of Black kids did not see education as important earlier on, so the answer was not surprising. I guess I was looking for a little more but I did not know what to say after that when that's the statement they leave you with as a result of probing.

June 4, 2015

Coding is so much more complicated than it looks. The books make it seem so easy. My first time coding I had like two categories and then I realized um this is way too broad. You're better served looking at this as a theme. So this time I'm determined to get much more specific,

maybe tapping more into specific theories from representative bureaucracy like symbolic and active representation.

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Nita Clark received her PhD from the College of Architecture, Planning, and Public Affairs (CAPPA) in Public Administration at the University of Texas Arlington. During her time at UTA she served as a Teaching Assistant during the school year to help fund her studies. Originally from Baton Rouge, Louisiana, she received a Bachelor's of Science degree in Coastal and Environmental Science and a Masters of Public Administration from the University of North Texas. Nita has a passion for public service and interned with a variety of governmental agencies, including the Food and Drug Administration, The North Texas Tollway Authority, North Central Texas Council of Governments, and U.S Citizenship and Immigration Services. She is also a 2007 Morris K. Udall Scholar and a member of Pi Alpha Alpha and Phi Kappa Phi Honor Societies. Upon graduation, Nita plans to begin her career in government at U.S. Citizenship and Immigration Services, taking heart to fulfill President Franklin Delano Roosevelt's vision that "We are trying to construct a more inclusive society. We are going to make a country in which no one is left out."