

AN EXAMINATION OF DIFFERENCES BETWEEN INSTRUCTIONAL  
CONSULTATION TEAMS AND TRADITIONAL STUDENT ASSISTANCE TEAMS IN  
EVALUATION AND IDENTIFICATION OF MINORITY STUDENTS FOR SPECIAL  
EDUCATION

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## ABSTRACT

ERIN MCDONOUGH: An examination of a response-to-intervention model as a potential solution to racial disproportionality in special education  
(Under the direction of Steve Knotek, Ph.D.)

**Objective:** The purpose of this study was to examine differences between traditional student assistance teams and an innovative consultation-based assistance team in terms of the risk ratios for minority students for evaluation and eligibility for special education services. It was hypothesized that the innovative consultation-based assistance team would be associated with lower risk of evaluation for and placement in special education services.

**Participants:** Twelve schools in North Carolina elected to receive training in the Instructional Consultation Team (IC-Team) model during the 2003-2004 and 2004-2005 academic years. Within each school, the IC-Team and traditional team operated concurrently, so 12 IC-Teams and 12 traditional teams were studied herein.

**Methods:** Each of the 12 schools submitted year-end program evaluation data containing the number of students served, the ethnicity/race of students served, the number of students referred for psychoeducational evaluation, and the number of students considered eligible for special education. Based on these data, the relative risks (i.e., risk ratio) were calculated for African American and Hispanic students, respectively. For each ethnic group, two relative risk indexes were calculated; one for the risk for evaluation and a second for the risk for special education eligibility. Secondary analyses were also conducted to examine differences between teams in risk indexes for African American, Hispanic and White students.

**Results:** There were no significant differences between teams in terms of relative risk for evaluation for special education services for either ethnic group. Instructional Consultation Teams were associated with a significantly lower relative risk of eligibility for special education services for both the Hispanic and African American student groups. Risk indexes considered independent of the risk of White students indicated that IC-Teams were associated with lower risk for placement in special education for each racial/ethnic group. Descriptive statistics also revealed significant differences in patterns based on race between teams in terms of the proportion of students referred for evaluation and placed in special education.

**Conclusions:** IC-Teams were associated with more equitable practices of referral and identification for special education services, while traditional assistance teams were associated with proportionally higher referral rates for White students.

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## CHAPTER I

### INTRODUCTION AND LITERATURE REVIEW

American education has struggled with the issue of disproportionate representation of minority students in special education for nearly half a century. As Dunn observed in his seminal 1968 article, minority students have been referred to and placed in special education at rates exceeding their proportion of the population. This finding has also emerged in recent literature in all regions of the country (Artiles & Trent, 1994; Chinn & Hughes, 1987). And while recognition is certainly a first step toward resolution, we as a society have been challenged to understand why disproportionality continues to plague our education system and how best to rectify it.

Historically, the education system in the U.S. has had an unfortunate legacy regarding equitable opportunities for all students, including total segregation. As desegregation laws required states to educate all students in the same system, those who opposed desegregation began to isolate minority students through various mechanisms including ability tracking (Mickelson, 2001) and special education (Ferri & Connor, 2005). Policies and procedures were developed to provide a disguise for continued segregation, within buildings rather than between buildings.

Despite decades of litigation against inequitable practices, the special education system operating today serves disproportionately greater numbers of minority students than White students. African American students are at higher risk for identification in categories of

mental retardation (MR) and serious emotional disturbance (SED) than their White counterparts. Hispanic students are more likely than White students to be identified as learning disabled (LD).

Overrepresentation in special education has numerous negative implications for racially diverse students. Minority students are more likely to be placed in restrictive settings, limiting exposure to the general education curriculum (Fierros & Conroy, 2002; Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006). Once placed in special education, minority students are subject to a variety of negative consequences including lowered expectations on the part of teachers (Mehan, Hertwick, & Miehl, 1986) and decreased likelihood of experiencing positive educational outcomes (Wagner, D'Amico, Marder, Newman, & Blackorby, 1992). These consequences will be discussed in detail.

Many theories have been suggested to explain the continuation of disproportionality in special education. Some researchers have focused on the role of poverty (National Research Council, 2002), while others have sought to investigate the role of systemic bias against minority students (Fierros & Conroy, 2002; Harry & Klingner, 2006; O'Connor & Fernandez, 2006; Parrish, 2002). While there is still a great deal to be learned about the causes of overrepresentation of minority students in special education, fairness and justice demand the development and evaluation of interventions to address this problematic situation.

The current literature review lays out the historical and legal context of disproportionality and the most relevant research in the field, while this study sought to evaluate the outcome of an educational intervention team on one measure of disproportionality.

## Historical and Legal Context of Disproportionality

Despite the decision of *Brown v. the Board of Education* in 1954, our schools remain segregated, though the mechanism currently responsible for the separation of minority from majority students is subtle and difficult to detect. Following the *Brown* decision, many states developed “pupil placement laws” whose goals were to undermine desegregation mandates. Southern states such as Virginia and North Carolina wrote laws including no mention of race or ethnicity, but allowed districts to place students on the basis of “aptitude of the child and curriculum adjustment” (Richmond *Afro American*, 1955, as cited in Ferri & Connor, 2005). Laws such as these served to continue segregation within schools, rather than between schools, and were responsible for continued educational inequity for minority students.

Resegregation methods including “ability tracking” were rooted in biological deterministic beliefs of racial superiority in terms of intelligence (Mickelson, 2001). This practice ensured the maintenance of social and class structure, but did so under the guise of being based on “natural abilities” rather than outright discrimination. This system of separating White from African American students helped to deter *White flight*, or the large numbers of White students enrolling in private schools to escape desegregation (Ferri & Connor, 2005).

Additionally, the referral of students of color to special education in disproportionate numbers was another effective means of subverting desegregation laws. Schools in Washington, DC achieved a high level of segregation by placing many newly admitted African American students in special education classes, doubling the enrollment of special education between 1955 and 1956 (“Negroes,” 1956, as cited in Ferri & Connor, 2005).

Combined with ability tracking, special education has been complicit in attempts to resegregate our nation's schools and has unfortunately been successful in this endeavor.

Litigation has been attempted in order to provide more equitable opportunities for minority students. Addressing the inequitable practices mentioned above in the Washington, DC schools during the late 1950s and early 1960s, *Hobson v. Hannon* (1967, 1969) challenged the assignment of African American and underprivileged children to lower ability tracks on the basis of group-administered aptitude tests. Judge Wright abolished the discriminatory tracking system, stating that it was unfair, that students were tracked on the basis of race and that the tests used were standardized on White students of a higher socioeconomic class (Jacob & Hartshorne, 2003).

*Diana v. State Board of Education* (1970) was a class-action suit filed in California objecting to the placement of Mexican-American children in classes for students with mental retardation based on intelligence tests administered in English. The result of this case was a federal ruling that children must be assessed in their primary language or with sections of tests that do not depend on their knowledge of English.

Taking the decision made in the *Diana* case a step further, *Guadalupe Organization, Inc. v. Tempe Elementary School District* (1972), filed on behalf of Yaqui Indian and Mexican American children, not only required assessment in the student's primary language or with nonverbal measures, but also demanded the inclusion of adaptive behavior measures and parent interviews in assessment procedures. *Guadalupe* also set forth requirements for informed consent from parents for the evaluation and placement of their children in special education.

One of the most influential cases pertaining to disproportionate placement of minority students, *Larry P. v Riles* (1984), was filed on behalf of all African American children placed in the educably mentally retarded category of special education. The plaintiffs in this case set forth evidence that many of the children were misclassified with IQ tests serving as the primary basis for the mistaken classification. Experts testified that IQ tests were racially and culturally discriminatory. The court found that the administration of IQ tests was not “rational” or valid for classifying African American students and outlawed further such use of testing procedures (Jacob & Hartshorne, 2003). Judge Peckham rendered an opinion in which he characterized classes for students with educable mental retardation as “inferior” and “dead end.” Subsequent legal procedures, most recently in 1994, debated the use of IQ testing for African American children in California, but the original decision of Judge Peckham has been upheld.

Similar to the *Larry P.* case, *P.A.S.E. v. Hannon* (1980) was filed disputing the use of IQ testing in the Chicago Public School system. Jane Mercer, who had testified in the aforementioned *Larry P. v. Riles* case, presented testimony to Judge Grady on the issue of racial and cultural bias in the assessment process. Judge Grady personally read through each test item on the popular measures of IQ and found fewer than ten items to be biased. His opinion stated that IQ tests used in the context of a multifaceted assessment were not likely to result in racially or culturally discriminatory practices and upheld the current practices of the school system (Bersoff, 1982, as cited in Jacob & Hartshorne, 2003).

The U.S. Office of Civil Rights (OCR) has collected data on disproportionality through surveys since the mid-1970s, and Chinn and Hughes (1987) were among the first researchers to analyze this data on a national scale. Their findings indicated that African American

students were overrepresented in categories of serious emotional disturbance and mild mental retardation. Hispanic students were overrepresented in the category of learning disabilities.

Since the Chinn and Hughes study, numerous researchers utilized this national database to describe the situation of disproportionality at both the national and state levels. In 1994, Harry found that African American students continued to be overrepresented in the categories of serious emotional disturbance and mild mental retardation, but additionally, she reported that African American students were overrepresented in the moderate-to-severe mental retardation range as well. Her findings elaborated on earlier reports of Hispanic overrepresentation by providing information that these students were at increased risk in states where they represented a larger portion of the population.

The Individual with Disabilities Education Act (IDEA, 1997) has since put the burden on each state to collect and report data relevant to the issue of disproportionality of race within special education. If a state reports disproportionality, the state must review and revise policies and practices. Each state or local education agency must implement procedures to ensure that each child is evaluated individually and fully before classification and placement decisions are made. Schools must have problem-solving teams to assist teachers in developing appropriate strategies in the general education environment for children who are experiencing academic struggles. The goal of these procedures is to decrease the number of inappropriate referrals and prevent unnecessary testing and misclassification (Jacob & Hartshorne, 2003).

#### *Definition of Disproportionality*

The term “disproportionality” refers to the over- or underrepresentation of students receiving special education services from particular racial or ethnic groups relative to their

representation in the population (Muller & Markowitz, 2003). Chinn and Hughes (1987) defined disproportionality more specifically as any situation in which the representation of a group of students is above or below 10 percent of the percentage that would be expected based on the group's representation in the total student body. The Office of Special Education Programs (OSEP) uses a formula of .2 times the percentage of representation in the student population to determine a window of acceptable difference. So, for example, if 30% of the student body is African American, then it would be acceptable for African American students to comprise anywhere from 24% to 36% of students receiving special education services (Muller & Markowitz, 2003).

Three common statistics are used to describe disproportionality. They are the risk index (RI), odds ratio (OR) and composition index (CI). The risk index is obtained by dividing the number of students of a given group served within a specific category by the enrollment of that group within the school population. The risk index essentially answers the question, "What is the risk of a student of ethnicity X being identified for services in category Y?" The odds ratio is calculated by dividing the risk index of one group by the risk index of another group. Odds ratios greater than one indicate that the first group (numerator) are at greater risk of being identified as eligible for services within a certain category. And finally, the composition index is calculated by dividing the number of students of a certain ethnicity within a category by the total number of students within that category.

#### *The Current Situation of Disproportionality*

A recent report indicates that 44 states reported disproportionate representation of minority students in special education for the academic year of 2000-2001 (Muller & Markowitz, 2003). Forty-four states reported that African American students were

overrepresented; 36 states reported that Asian/Pacific Islander students were overrepresented; 33 states reported that Hispanic students were overrepresented. Native American students were overrepresented in 34 states, while White students were overrepresented in 25 states. The available data demonstrated that disproportionality still existed in all regions of the country.

Within special education, minority students are often overrepresented in specific categories of eligibility. African American students are the most overrepresented group of minority students in nearly every state (Parrish, 2002) and tend to be overrepresented in categories of mild mental retardation (MMR) and seriously emotionally disturbed (SED; Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006; Parrish, 2002).

American Indian/Alaskan Native students tend to be overrepresented in the category of specific learning disability (SLD), and Asian students have slightly higher representation in the category of autism (AU).

Oswald, Coutinho, Best, and Singh (1999) used the OCR database to characterize disproportionality on a national scale. Their analysis examined odds ratios and found that African American students were 2.4 times more likely than White students to be identified as MMR and 1.5 times as likely to be identified as SED. Asian/Pacific Islander students were two-fifths as likely to be identified as MMR and one-fifth as likely to be labeled SED as their White peers. Hispanic students tended to be underrepresented in categories of MMR, SED, and LD.

However, districts and states vary in terms of the categories most likely to demonstrate disproportionality. De Valenzuela, Copeland, Huaqing Qi, and Park (2006) examined one district in a Southwestern state where minority representation in the total student population

was greater than 50%. The results showed that African-American students were overrepresented in categories of SED, LD, and MMR and were underrepresented in gifted programs (GI).

It is most likely not a coincidence that the categories of eligibility most often demonstrating disproportionate representation of minority students are also those that are “socially determined” (Coulter, 1996). Artiles and Trent (1994) pointed out that “cultural difference” and “disability” are both socially constructed terms and argued that there is an unconscious equating of the two terms, borne out in disproportionate referral to and placement in special education. Patton (1998) suggested that ambiguity and subjectivity are involved in the eligibility decision and contribute to the problem of disproportionality.

*Why is disproportionality a problem?*

It might initially seem to some that overrepresentation of minority students in special education is not problematic and indicates that students who need academic assistance are receiving appropriate services. However, the crux of the problem lies in inappropriate identification and placement in special education due to subjective and sometimes biased criteria for eligibility. The school is limited in its ability to detect “true” cases of disability due to a lack of precision, particularly in judgmental categories (National Research Council, 2002). If a student is identified for special education in the absence of a “true” disability, the placement is best described as a “false positive.” It is impossible to estimate the number of false positives, but previous research suggests that the number is substantial, particularly in the category of LD (see Gottlieb et al., 1994; MacMillan et al., 1998; Shaywitz et al., 1990).

Patton (1998) argued that placement in special education, particularly when students spend most of their time outside the general education environment, limits exposure to the

core curriculum and perpetuates the cycle of academic underachievement. The lack of exposure to a college-preparatory academic curriculum restricts future employment possibilities to unskilled and technical jobs, limiting financial success and independence. The inequitable access to educational opportunity represents a terrible social injustice, particularly when placements are erroneous.

*Efficacy of special education services.* A central element of the discussion on the problem of disproportionality pertains to the efficacy of special education. Zigmond (2003) reviewed the research evaluating special education effectiveness. The early literature on the subject reported conflicting results, with some studies demonstrating equivalent progress for students with disabilities placed in special versus regular education (Dunn, 1968; Kirk, 1964, as cited in Zigmond, 1993). One study by Sindelar and Deno revealed benefits for learning disabled students in resource rooms over regular education classrooms (as cited in Zigmond, 1993). Carlberg and Kavale (1980) replicated the findings of Dunn and Kirk, but added complexity to the issue by also reporting a modest advantage for students with learning or behavior disorders in both self-contained and resource settings.

After a national movement during the 1980s to provide more inclusive service-delivery models, the contrast between special education services and general education placements was less stark, and the research bore out findings that reflected equivocal results for special and regular education placements. More recent studies offer mixed results for academic gains in fully inclusive schools (e.g, Manset & Hammel, 1997; Rea, McLaughlin, & Walther-Thomas, 2002). Zigmond concluded that there was no compelling research evidence to suggest the effectiveness of one place versus another for the academic and social progress of students with high-incidence mild-to-moderate disabilities.

*Restrictiveness of placement.* In addition to arguments over efficacy, disproportionality is problematic in terms of placement, with African American students disproportionately placed in more restrictive settings. Several studies have been conducted documenting this trend toward exclusion of minority students from the general education curriculum (Serwatka, Deering, & Grant, 1995; Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006; Fierros & Conroy, 2002). IDEA mandated students be educated in the least restrictive environment, recognizing the social value of educating students with disabilities with nondisabled peers and allowing them maximum access to the general education curriculum.

This alarming trend toward exclusion of minority students has been found at district, state and national levels. Serwatka, Deering, and Grant (1995) noted that African American students were more often placed in segregated settings than were White students. Skiba et al. (2006) also discovered the trend of exclusion in their study of data collected in Indiana. They found that within categories of eligibility such as MR, LD, ED, and SL, African American students were still at significantly increased risk for more restrictive placements than their White counterparts. Fierros and Conroy (2002) examined national statistics using the OCR database and found that the categories of eligibility most likely to demonstrate disproportionality were also categories where placement is generally highly restrictive, representing a case of “double jeopardy” for minority students. Both Hispanic and African American students were less likely to be educated in fully inclusive classrooms and were far more likely to be educated in a substantially separate setting than White students. Fierros and Conroy found that in the state of Connecticut, minority students were placed more restrictively than White students within categories of eligibility. These data strongly suggest

that minority students are being unfairly and unlawfully treated within our education system. Yet the trend of exclusion was entirely overlooked in the NRC report (2002).

In an attempt to identify potential causes for more restrictive placements for minority students, Hosp and Reschly (2002) examined data from four districts in Delaware involved in a civil rights lawsuit over restrictive placements. The school records for 230 students who had been identified as LD were selected for analysis; in these districts, the largest discrepancy in representation is in the LD category, most likely because of Delaware's funding formula for special education. The researchers selected 102 variables that could possibly influence restrictiveness of placement, which was measured in terms of minutes spent outside the general education classroom. Significant interactions were not detected between demographic variables and race, indicating that the relationship between restrictiveness of placement and the independent variables was similar for White and African American students.

Perhaps the most interesting finding reported by Hosp and Reschly (2002) related to the disproportionality discussion was that there was a significant interaction between race and individual help from the classroom teacher as a prereferral intervention. Among students who did not receive this kind of assistance, African American students spent more time outside the general education classroom. The authors also reported that the presence of behavioral problems was also related to the amount of time spent outside the regular classroom, with poor anger control, distractibility, peer relations, and a number of oppositional defiant symptoms comprising "behavioral problems." So, though patterns for predicting restrictiveness of placement appear to be similar for White and African American students,

these findings highlighted the importance of prereferral intervention in the examination of disproportionality and restrictiveness of placement for minority students.

*Stability of special education population.* Once identified for special education services, the likelihood of returning to the general education environment is small. In a recent evaluation of special education, Bielinski and Ysseldyke (2000) analyzed achievement of students in special and regular education for one large state in the U.S., and reported that 80% of the special education population in their study remained unchanged. The chances of leaving special education decreased after every grade, with only 9.6% of students leaving special education after 7<sup>th</sup> grade. Of students who left special education after 4<sup>th</sup> grade, 16% of them returned after 5<sup>th</sup> grade. Harry and Anderson (1994) reported that only 6% of African American males return to regular education after placement in special education. Notably, once a student is identified for special education, the likelihood of remaining in special education is high.

*Effects of labeling.* Numerous authors have also argued that identification for placement in special education bears stigmatizing effects and decreases in students' self-esteem (Patton, 1998; Artiles & Trent, 1994; Harry & Anderson, 1994). The assignment of labels to students indicates that the student is inherently deficient in some way. Mehan, Hertwick, and Miehl (1986) conducted a study of teachers' attention to negative behaviors to labeled and non-labeled students and found that teachers tended to focus on a higher percentage of negative behaviors when exhibited by a labeled student. A small study conducted by Snowden (2004) found that students with disabilities placed in inclusive classrooms had higher self-esteem than those students in special education settings. Although the evidence is limited in scope,

it does support the claims made by authors who suggest the deleterious effects of labeling in terms of teacher expectations and student self-esteem.

*Outcomes for minority youth in special education.* Post-high school outcomes for African American youth with disabilities are distressing. In a study conducted by Wagner, D'Amico, Marder, Newman, and Blackorby (1992), 75% of African American students with disabilities were unemployed two years after high school, compared to 47% of their White counterparts. Three to five years post high school, a similar disparity existed; 52% of African American youth with disabilities remained unemployed, while the concurrent arrest rate for these youth was 40% (Wagner et al., 1992). These kinds of outcomes provide evidence for a system that has been failing minority students identified for special education services.

### Factors Contributing to Disproportionality

#### *Poverty*

The economic disparities between Whites and minority groups in the U.S. have prompted many researchers and policymakers to cite poverty as the responsible factor for the disproportionate representation of minority students in special education. African Americans in this country are more likely than Whites to be poor, and poverty is associated with poorer health, inferior schools and family stress (Parrish, 2002). According to the 2006 U.S. Bureau of the Census, 33.3% of African American children under the age of 18 were living at or below the poverty level. The percentage rose to 40 for African American children under the age of five. Twenty-six percent of Hispanic children under the age of 18 were living at or below the poverty level; this percentage rose to 29.6% for Hispanic children under the age of 5. For White children, 13.6% under the age of 18 were living in poverty, while 16.8% of

children under the age of 5 were living in poverty. Clearly, huge discrepancies existed between the living conditions of minority and non-minority children in the U.S.

The disparities in socioeconomic conditions between minorities and Whites have prompted many to argue that disproportionality is simply a manifestation of inequalities in living conditions. The National Research Council in its 2002 report on minority students in special and gifted education emphasized the effect of poverty on the identification of students with “disabilities.” The report cited research indicating that children living in poverty have lower IQ, verbal ability, and achievement test scores. The report also cited findings which suggested that parenting interactions and the home environment are affected by poverty. Children from low-income families have a smaller vocabulary size, which impedes reading. Mothers living in poverty are more likely to experience depression, which has been implicated in disrupting the quality of mother-child interactions. Children from families with low SES are less likely to demonstrate skills associated with school readiness, but these findings are entangled with maternal education, race, marital status and English as a second language. While the report did not explicitly state that poverty is responsible for disproportionate representation of minority students in special education, it appeared to be strongly suggested.

In response to this argument, O’Connor and Fernandez (2006) critically evaluated the claims made in the NRC report, which implicated the role of poverty in disproportionality. The authors labeled the theory set forth in the NRC report as the Theory of Compromised Human Development. Their major criticism of this theory was that it inferred inherent deficits in the child, particularly in the poor minority child and ignored the social construction of the term “disability.” The authors further criticized the NRC report for

characterizing the households of the poor as “less than optimal” and parent-child interactions therein as “negative.” O’Connor and Fernandez cited research demonstrating that parenting practices and developmental goals of a cultural community emerge as a product of the sociopolitical environment in which the community exists (Arzubiaga, Ceja, & Artiles, 2000; as cited in O’Connor & Fernandez, 2006).

O’Connor and Fernandez (2006) argued that it is not poverty which places children “at-risk” for special education placement, but rather the school structure which uses the behaviors and competencies of the middle-class White student as the normative standard. For the subjective categories of special education eligibility, normative expectations are used to determine “problematic” performance, both in behavioral and academic terms. They argued that if, for example, African American Vernacular English (AAVE) were the language used in classrooms across the U.S., African American students would generally demonstrate higher levels of competency than their White counterparts. In a system structured to advantage White students, minority students are likely to display behaviors and academic performance that will be judged to be problematic.

Studies examining the relationship between poverty and overrepresentation are few, but the available evidence suggests that race contributes to disproportionality even when socioeconomic factors are taken into account. Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz, and Chung (2005) examined data in one Midwestern state in order to determine the contribution of poverty to the overrepresentation of minority students in special education. Their findings indicated that poverty was a weak and inconsistent predictor of disproportionality in overall special education enrollment. Poverty did not contribute to identification for categories of SED or MMR, but higher rates of poverty were predictive of

disproportionality in the category of mild mental retardation. Logistic regression analyses demonstrated independent effects for both poverty and race on disproportionality. When poverty was controlled, African American students were 2.5 times as likely to be identified for services in the category of MMR, 1.5 times as likely to be identified as moderately mentally retarded and 1.5 times as likely to be identified as SED when compared to White students. At all levels of poverty, racial disparities were evident, and in some cases, poverty magnified extant racial differences in eligibility for special education services.

Hosp and Reschly (2004) have also examined the relationship between poverty, race and disproportionality. They gathered data from the Elementary and Secondary Schools Civil Rights Compliance Report, the Common Core of Data, and district level achievement data. They examined disproportionality in terms of relative risk, defined below:

$$\text{Relative Risk} = \frac{\# \text{ students of X ethnicity in category Y} \div \# \text{ students X ethnicity in student population}}{\# \text{ White students in category Y} \div \# \text{ White students in student population}}$$

Using a least squares regression model for three special education categories and four minority groups, the researchers looked at predictor variables of academic achievement, demographic information and economic indicators. Demographic information included base rate of White students, base rate of each ethnicity group, percentage of students with limited English proficiency, and base rate of students with disabilities. Independently, each of the predictor variables (academic, demographic and economic) was found to account for a significant portion of the variance in each model. Economic and demographic variables were found to be more important than academic variables in 10 of the 12 models for predicting categories of eligibility. The demographic block of variables was a stronger predictor for African American students for categories of SED and LD. The fact that demographic

variables were more important for predicting emotional disturbance supports the claim of O'Connor and Fernandez (2006) that the reference group influences which students are deemed as demonstrating "behavior problems."

Perhaps the most significant and interesting outcome of this study was that the academic block of variables was the weakest predictor across racial/ethnic groups and categories of disability. The authors explained this finding as due in part to the likelihood that economic and demographic factors influenced academic achievement and after those factors have been accounted for, the unique variance contributed by academic achievement is thereby reduced. Another explanation offered was that the variables in the academic block were strongly correlated with one another, with more shared variance and less unique variance to predict disproportionate representation.

In a study of a nationally representative sample, Coutinho, Oswald, Best, and Singh (1999) examined the relationship between environmental variables on disproportionate placement in categories of mild mental retardation and serious emotional disturbance. The environmental variables included in the analyses were median housing value, median income for households with children, percentage of children below the poverty level, percentage of children enrolled in school who are at-risk, percentage of adults in the community who have less than a 12<sup>th</sup> grade education, percentage of children who are Limited English Proficient (LEP), and percentage of student enrollment that is African American. All of the environmental variables were found to be related to the likelihood of a student being placed in the SED and MMR categories. However, a model including both environmental variables and racial/ethnic differences accounted for a significantly greater amount of variance in identification rates. A poverty effect was observed for African American students, with

African American students more likely to be identified as MMR in communities with higher poverty, where they were also less likely to be identified as SED. African American students were most likely to be identified as SED in wealthier communities with lower African American enrollment, suggesting an intolerance of diversity in these locations.

If race were simply a proxy for socioeconomic status, biologically determined categories of eligibility would also be expected to demonstrate a similar degree of disproportionality to that evidenced in subjectively diagnosed categories, but this is not the case. Parrish (2002) examined data from the U.S. Department of Education Office of Special Education Programs (OSEP) and compared risk ratios for African American and White students in “hard” (i.e., medically diagnosable) versus “soft” (i.e., judgmental) categories of eligibility. Hard categories of special education include hearing impairments, visual impairments, orthopedic impairments, deaf-blindness, and multiple disabilities. Nationwide, African American and White students are identified in hard categories of eligibility at nearly identical rates. Looking at the ten states with the highest degree of disproportionality in the MR category, risk ratios for hard categories of eligibility are close to 1 in nearly every one of those states. North Carolina is one of the ten “worst offending” states according to the 1998 OCR database, with a risk ratio for placement in the MR category of 4.08, and yet has a risk ratio for placement in any of the hard categories of 1.03. The data for North Carolina and for the U.S. suggest that poverty is not wholly responsible for the disparity between African American and White students in their placement in special education.

Investigators have set out to examine disproportionality in so-called “hard” categories of eligibility such as orthopedic impairment, deafness and visual impairment. These categories tend not to demonstrate disproportionate representation (MacMillan & Reschly, 1998; Ferri

& Connor, 2005). In the recent Biannual Performance Report, deaf-blindness, hearing impairment, multiple disabilities, orthopedic impairment, traumatic brain injury, visual impairment and developmental delay were the categories least often reported by states as having disproportionate racial/ethnic representation (Muller & Markowitz, 2003).

### *Cultural Differences in Behavior*

As perhaps the category most subject to interpretation and judgment, social-emotional disturbance reflects patterns of disproportionality, with African American males most likely to be overrepresented. In North Carolina, African American students are identified for the category of SED at twice the rate of White students, reaching statistical significance (Parrish, 2002).

Differences in behavior and learning styles between African American children and European American children have been presented as a possible source of disproportionality in the category of emotional and behavior disorders. Hosp and Hosp (2001) discussed these differences in three domains: orientation, physicality and communication style. They characterized African American Behavioral Style (AABS) as being people-oriented rather than object-oriented, with a higher degree of physicality and a more interactive communication style when compared to Caucasian Behavioral Style (CBS). Each of these domains of cultural differences has direct implications for how classroom behavior of a student exhibiting AABS is viewed.

In the domain of orientation, AABS is typically associated with a person-oriented rather than an object-oriented approach. Students exhibiting AABS tend to be particularly tuned into social cues such as body language and facial expressions. A student with a people-orientation might ask a fellow student for directions to an assignment, rather than looking at

the board or the textbook. Also included in the people-orientation is a cooperative method for completing assignments rather than an individual or competitive style. It is fairly apparent that these behaviors are not as highly valued by the education system as qualities such as “independence,” competition, and individualism which are the values of the dominant middle-class White culture. (Hosp & Hosp, 2001).

Physicality is another domain of difference between students exhibiting CBS and those exhibiting AABS. Students who act in the AABS tend to prefer to be more active rather than passive. A study conducted by Almanza and Mosley (1980, as cited in Hosp & Hosp, 2001) documented this difference, reporting that African American students tend to stand still 26% of the time compared to 60% of the time for White students. Physicality also has implications for learning style, with students acting in the AABS preferring to engage in hands-on activities rather than listening passively to a lecture. Unfortunately, assumptions are often made about students with a higher need for movement that the student is immature or has a behavioral disorder.

The AABS is also associated with a communication style consistent with a people-orientation and a high degree of physicality. The listener in a conversation is more of an active participant than in CBS, delivering more emphatic, descriptive reinforcers. This kind of communication extends to the classroom, which may be viewed as a social situation. The student acting in the AABS may interact with the teacher while the teacher is speaking. This kind of communication style might be interpreted as disruptive, resulting in disciplinary action or verbal reprimands.

It is important to note that these differences in orientation, physicality and communication style are not deficits or disabilities. They do not represent an inability to learn or even an

inability to learn in a more passive way. They simply represent a cultural style different from CBS, which is often the behavioral style that the teacher is accustomed to and perhaps expects, either implicitly or explicitly in his or her classroom.

In an effort to further examine the behavior of African American and White students in schools, Skiba, Michael, Nardo, and Peterson (2002) examined disciplinary data in one urban school district. Examining office discipline referrals and consequences in terms of race, gender, and socioeconomic status, the authors found that males and African American students were overrepresented on all measures of school discipline. Disproportionality appears to increase with the severity of consequences from referral to suspension to expulsion. Socioeconomic status did not significantly change the results of the two-factor ANOVAs for gender and race and appeared to be a minimal influence on race and gender differences for all of the disciplinary measures. The disproportion in suspension rates for African American students was primarily accounted for by the number of office referrals made by classroom teachers. Examining the data for the reason (i.e., behavior of the student) leading to the referral, African American and White students differed significantly. Though African American students were referred at a higher rate, they did not differ from White students in terms of the seriousness of the offense or variety of offenses. African American students were referred to the office for *disrespect*, *excessive noise*, *threat*, and *loitering*, which the authors interpreted as more subject to interpretation and judgment than *smoking*, *leaving without permission*, *vandalism*, and *obscene language*. White students were more likely to be referred for offenses in the latter categories, two of which were less subject to interpretation in that they leave behind an observable, permanent product.

The Skiba et al. (2002) study was consistent with previous literature in documenting that the overrepresentation of African American students in discipline referrals was not related to actual differences in the severity or range of offenses. Again, the evidence indicated that judgments are assigned differently to behaviors of different students, resulting in more punitive, exclusionary consequences for minority students.

### *Systemic Bias*

Some researchers have proposed that in addition to poverty and cultural differences, there are factors contributing to disproportionality at the system level (Oswald et al, 2000). These sources include instructional, referral procedures and assessment practices. As actions that can be altered, these issues may in fact be the most important to understanding and finally resolving the problem of disproportionality.

### *Instructional Factors*

As school quality varies quite considerably from school to school, district to district, and even state to state, so does instructional quality. Many minority children attend schools in low-income areas, where schools have lower pupil expenditure than children in wealthier communities. With lower expenditures come lower teacher salaries, which generally attract teachers with less training and experience. According to the U.S. Department of Education (2001), low-income districts had higher numbers of uncertified teachers. These factors contributed to lower teaching quality and less exposure to standard curriculum for students in low income districts (Rhodes, Ochoa, & Ortiz, 2005).

The role of instruction in the eligibility for special education has received great attention, such that IDEA 1997 mandated that a student cannot be placed in special education if a “lack adequate of instruction” is the determinant factor. The role of instruction is especially an

issue for students identified as limited English proficient (LEP) who may not yet possess sufficient English knowledge to learn in an English-only classroom. The academic difficulties of minority and LEP students may be the result of inadequate instruction.

### *Referral Processes*

Students, regardless of race, are identified for special education through a series of steps, all of which are subject to bias against the minority student. First, a student comes to the attention of his teacher as one who is struggling to achieve academically or as one who struggles to exhibit appropriate behavior, and the teacher makes a referral to the intervention team often called a student assistance team. The importance of this initial referral as a strong predictor of future special education eligibility has been described in several studies (Artiles & Trent, 1994; Mehan et al., 1986); most referred children are subsequently placed.

Teachers as individuals are influenced by the climate of race relations in which they live. One county in Kentucky found that teacher expectations for African American students' academic performance were contributing to the over-identification of minority students for special education services (Fayette County, Lexington KY, 1996, as cited in Harris et al., 2004). If teachers expect minority students to be academically lower performing or behaviorally challenging, they might be more likely to refer a student for special education identification and placement.

It also seems that a cultural mismatch between teachers' expectations for classroom behavior and the behavior exhibited by minority students is driving a large proportion of special education referrals. This finding was suggested in a survey conducted of school personnel including teachers, school psychologists and special educators (Skiba et al., 2006). Teachers reported feeling inadequately prepared to meet the needs of students from

socioeconomically disadvantaged backgrounds. They seemed to perceive the disproportionality issue as one that resulted largely from the overlap between race and poverty status and were uncomfortable discussing issues of only race. This discomfort in addressing a student's minority status and the influence of cultural match may be contributing to the over-referral of minority students for special education services.

Cultural mismatch as a source of referral bias was also implicated in a study conducted by Herrera (1998). She studied 10 urban school districts across the U.S., testing the hypothesis that African American educators would be equally as likely to place African American students in special education as White educators. The findings demonstrate that urban districts with the highest percentage of White educators also have the highest proportion of African American special education students. For example, New York City's teachers are 77% White and identified 66.7% of enrolled African American males as requiring special education services when they only represent 35.7% of the student population. Cities such as Atlanta and Washington, D.C. with the highest proportion of African American teachers placed African American males in special education at the lowest rates.

A study conducted by Neal, McCray, Johnson, & Bridgest (2003) examined teachers' perceptions of achievement, aggression and need for special education services based on cultural movement styles. Participants were 136 middle school teachers, the majority of whom were European American. In the experiment, teachers observed one of four videos, each depicting either a European American or an African American student either "strolling" or walking in a standard fashion from a school locker to a classroom and seating himself at a desk. Teachers reported that the student "strolling" was more likely to require special

education services, more likely to be aggressive, and less likely to achieve, regardless of race. This expectation even extended to the European American student who was observed walking in a movement style typically seen as part of the African American culture. The implication is clear that cultural movement styles influence teacher expectations for student performance, regardless of actual student ability. It is also clear that there should be a focus on teacher beliefs and experiences when addressing the issue of disproportionality in special education.

Hosp and Reschly (2003) examined referral rates reported in the literature to determine if referral rates of minority students were similar to eligibility rates. They performed a meta-analysis on studies published between 1978 and 1999; inclusion of the study necessitated that demographic data be reported for referrals and for the population. Of 121 eligible studies, only 9 reported the required information, but sufficient data were available in public records from New York State, allowing inclusion of 32 additional school districts. The results of their analysis indicated that African American students were significantly more likely to be referred than White students, and this discrepancy was not significantly influenced by which racial group was predominant in the population under study. Referral rates were found to be similar for Hispanic and White students. The referral rates for African American students were even higher than their eligibility rates as reported by OSEP. Elevated referral rates can perhaps be linked to teacher perceptions of academic and behavioral difficulties on the basis of cultural differences as described above in the Neal et al. (2003) study. Hosp and Reschly acknowledge limitations due to a limited sample (42 out of 16,000 districts in the U.S.), exclusion of additional descriptor variables, and a large proportion of the effect sizes were obtained from a single research study conducted in a single state.

Once referred to a student assistance team, minority students have been found to have a lower chance of being discussed objectively. Knotek (2003) used an ethnographic method for evaluating student assistance teams and found that there was a confirmatory bias whereby the members of the team were likely to support the teacher's initial presentation of the problem. Students from lower socioeconomic backgrounds or who had behavior problems were less likely to receive pre-referral interventions and were more likely to be referred for testing. In this study, African American boys were more likely to come from a lower socioeconomic demographic and were more likely than their White counterparts to present with behaviors perceived as problematic. For all of these reasons, African American students, particularly males, are subject to bias in the referral process for special education services.

#### *Assessment Practices*

Once referred for special education services, the assessment process to determine eligibility is subject to biases against minority students at several points. First, there is variability in the selection of tools used to evaluate students. Harry, Klingner, Sturges, and Moore (2002) found that school psychologists selected tests or test batteries that were likely to produce the results desired by teachers and/or the student assistance team. A study conducted by O'Reilly, Northcraft, and Sabers (1988, as cited in de la Cruz, 1996) found that school psychologists tended to refer students for placement as learning disabled or as gifted according to the teachers' original reason for referred. These findings are consistent with the confirmatory bias suggested by Knotek (2003).

Assessment practices are highly dependent on the skill and level of training of the school psychologist, and unfortunately, some school psychologists have not had sufficient training in culturally-sensitive assessment practices. Through self-report studies of school

psychologists, researchers have found that many do not believe that they were adequately trained by their graduate programs to conduct emotional and behavioral assessments with Hispanic and African American students (Amado, Sines & Garza, 1999; Ochoa, Garza & Amado, 1999). Many school psychologists do not possess the skills necessary to assess students in other languages and often use untrained interpreters to conduct these evaluations. Hence, the lack of training of some school psychologists to deal with issues of cultural and linguistic diversity has meant that unethical and unsound assessment practices have contributed to the false identification of diverse students for special education services.

Furthermore, assessment tools, once selected, tend to produce less favorable scores for minority children. It has been well-documented that African American children score significantly lower than White children on measures of intelligence (MacMillan & Forness, 1998). The *Larry P. vs. Riles* case during the 1970s brought attention to the issue of disproportionate minority representation in California and the role of IQ testing. The judge in that case ruled that intelligence tests were unfairly biased against African American children, especially given that measures of adaptive functioning were often not administered. Consequently, he mandated that IQ tests were not to be administered to African American children in the California public education system.

Over time, it has become widely accepted that all tests, particularly those designed to measure intelligence, reflect the culture of their authors. The tests are based on the values and beliefs of their creators. Neisser et al. (1996) stated “it is obvious that the cultural environment...has a significant effect on the intellectual skills developed by individuals” (p. 86). Thus, when used with a population that is culturally different from the population of its invention, a test is likely to produce a biased, and therefore invalid, result.

### *IQ, Intelligence and Race*

The source of the differences in mean IQ scores between White and minority children is a highly debated topic and extends beyond the scope of this literature review. To briefly summarize, Jensen (1980) suggested that these differences were the result of inherent differences in abilities between ethnic groups. Herrnstein and Murray (1994) are often cited for contributing to this controversy because their book posited that racial differences in intelligence were the result of genetic heritability. The American Psychological Association assembled a task force to examine the claims of Herrnstein and Murray and concluded that there was little direct evidence for a genetic basis for racial differences in IQ and that the available evidence failed to support a genetic hypothesis.

Stephen Jay Gould (1996) argued against the claims made by Herrnstein and Murray by observing that a correlation between parent and child IQ scores does not mean that child IQ scores are entirely caused by genetic factors. His position was that social and environmental factors might also contribute to a high positive correlation between parent and child IQ scores. Findings from the Hawaii Family Study of Cognition and the Colorado Adoption Project indicated that heritability accounts for 50% of the variance in intellectual skill (Plomin & DeFries, 1999; as cited in Ceci & Williams, 1999). These studies also suggested that heritability estimates of intellectual skill are not absolute and vary with changes in the environment.

The Flynn effect, which describes the rising trend in IQ scores across generations, also calls into question the validity of intelligence tests as measures of heritable abilities. Between 1940 and 1970, the IQ scores of populations in economically advantaged countries rose by 15 points (Lynn, 1990, as cited in Sattler, 2001). There have been many speculative

explanations for the rise in IQ scores, including better nutrition, smaller families, nursery education, and the availability of cognitively stimulating toys.

Flynn most recently explained this trend as the result of environmental changes and demands as the result of modernization; occupations are now more intellectually demanding, requiring more abstract rather than concrete thinking. This explanation of the Flynn effect purports that human intelligence scores increase with the demands that are made upon it in daily experiences and can be affected by social and environmental factors. Early intervention programs such as in the Abecedarian Project have been associated with durable gains in IQ scores (Campbell & Ramey, 1994). Schooling has also been shown to be important, with children excluded from schooling demonstrating subsequent decreases in IQ scores; this effect was observed when African American school children were excluded from educational opportunities when several counties in Virginia closed their public schools to avoid racial integration.

Dickens and Flynn (2006) also documented a trend in IQ gains made by African Americans over the past several decades. By examining the data from standardization samples, they argued that positive changes in the environment were responsible for the increases in IQ scores made by African Americans in recent times. These changes included gains in occupational status and school funding. If these changes are responsible for the increases observed in IQ scores, equitable educational practices are even more essential to ensure opportunities to scaffold growth in cognitive abilities.

*What can be done to promote equitable education practices?*

As our society is becoming increasingly more diverse, estimates predict that roughly half of the elementary and secondary school population will belong to an ethnic minority group

(USDE, 2003, as cited in Harris, Brown, Ford, & Richardson, 2004). If rates of disproportionate referral and placement of minority students in special education programs continue, the increasing population of minority students will exhaust and overwhelm an already taxed system. Principles of justice and efficiency demand that our educational system finds a more equitable way to address the learning needs of minority students.

Unfortunately, many of the proposed solutions for disproportionality are speculative in nature, rather than evidence-based. While the suggestions posed by many of the researchers are thoughtful conclusions drawn from studies of disproportionality, few published articles have examined the impact of school- or district-wide programs on the overrepresentation of minority students in special education. There is agreement among researchers that systematic changes are necessary along many dimensions of the disproportionality problem.

Firstly, a reconceptualization of the notion of disability is required to decrease disproportionate representation of minority students in special education; there is a broad consensus that we need to move beyond a “within child” deficit perspective (Artiles & Trent, 1994; Harris-Murri, King, & Rostenberg, 2006; Patton, 1998). The current system views special education as a tool to “fix” defective students, consistent with a medical model of disabilities. The assumptions that disabilities are pathological conditions, inherent in students, that differential diagnosis is objective and useful, and special education is beneficial to students all need to be questioned and modified (Patton, 1998). Artiles and Trent (1994) suggested changing this functionalist view of special education to a constructivist paradigm, where students are viewed as part of a system, thinking and acting within different contexts. Thoughts and actions are learned and are mediated by beliefs, values, and perceptions that may vary between cultures. Individuals construct meaning and shape interactions. These

conceptual changes shift the view of disability as an outcome of the interaction between student and context, rather than an inherent characteristic requiring repair.

Put into practice, these conceptual changes necessitate a different system of identifying “disabilities” from the one currently in use. Artiles and Trent (1994) proposed system-wide reform emphasizing prevention, functional assessment, culturally-sensitive instruction based on critical reflection, and redefinition of the relationships between schools, families and communities. Similarly, Serna, Forness and Nielsen (1998) have suggested early detection, primary prevention, and academic and social competence interventions as strategies for alleviating disproportionality within schools.

Several authors have also suggested that the disproportionality problem will be solved when teacher practices, including instruction, are aligned with the needs of culturally diverse students. Initiatives emphasizing quality, rather than setting, of instruction will be more likely to benefit students from culturally diverse backgrounds (Harris-Murri, King, & Rostenberg, 2006). Bynoe (1998) recommends that teacher practices should be aligned with the needs of culturally diverse students by using protocols that promote critical self-reflection and that measure the effort necessary to produce positive learner outcomes. Instructional methods should build on the resiliency factors and competencies of diverse learners (Serna, Forness, & Nielsen, 1998). Specific instructional strategies are outlined by Hosp and Hosp (2001). They recommend including cooperative learning exercises in the classroom to build on the people orientation and physicality competencies of students who display AABS. Interactive activities where children are physically engaged in lessons may also be beneficial to minority students in the regular education classroom.

### *The Potential of Response-to-Intervention*

Several researchers have suggested that the Response-to-Intervention (RTI) model holds promise to address the problem of disproportionate representation of minority and culturally and linguistically diverse students in special education (Harris-Murri, King, and Rostenberg, 2006; Harry & Klinger, 2007; Klingner & Edwards, 2006; Xu & Drame, 2007). Harris-Murri, King, and Rostenberg (2006) recommended using an RTI model to address disproportionality in special education, particularly in the category of emotional disturbance. This model of identifying a disability relies on measuring a student's response to an intervention; an insufficient response to the intervention would then qualify the student for special education services under the reauthorization of IDEA. The RTI model removes the IQ-achievement discrepancy formula from the identification process and should therefore decrease minority overrepresentation in special education. The authors stated, "the use of the RTI approach implies that general education must assume active responsibility for the delivery of high quality instruction, research-based interventions, and prompt identification of individuals with disabilities, while collaborating with families as well as special education personnel" (p.780).

The RTI model uses a tiered approach for providing interventions. The first tier examines the quality of instruction within the general education setting, utilizing progress monitoring. Intensive interventions, as required by federal law prior to referral for evaluation, are provided in the second tier in an RTI model. If adequate progress is not made in the second tier, a teaming approach is used to develop individualized interventions for the student. If a student still does not make progress with direct, individualized support in the general

education classroom, the fourth tier is available to evaluate the need for special education services.

There are numerous benefits to using an RTI model to provide assistance to struggling students. Vaughn and Fuchs (2003) identified five of the potential benefits, all of which are relevant in the discussion of disproportionality. The first potential benefit is that RTI is not a deficit model, but rather a risk model. Secondly, identification bias is reduced by the use of progress monitoring in each step or tier of the process, which decreases the reliance on teacher referral. An RTI model also increases attention on student outcomes rather than student deficit and placement. The fourth benefit is that an RTI model provides more immediate intervention to the struggling student, as compared with the lengthy process of evaluation and identification for special education services. Lastly, access to the general education curriculum is afforded to struggling students.

There are several forms of the RTI model, including the Problem Solving Model and Instructional Consultation Teams, with various researchers arguing for one versus another. For the purposes of this paper, focus will be on describing the Instructional Consultation Team (IC-Team) model and how its implementation might affect disproportionality. Traditional Student Assistance Teams (SATs) are described first as a basis for comparison for IC-Teams.

### Student Assistance Teams

In order to understand the unique characteristics of IC-Teams, it is first necessary to describe traditional models of providing assistance to teachers and their students in the regular education setting. These teams have various names across schools and districts

including child study teams, teacher assistance teams, pre-referral intervention teams. In North Carolina, the names of the teams change from student assistance teams, student support teams, and student-teacher support teams. For the purposes of this study, these teams will be referred to as student assistance teams (SATs).

Student assistance teams emerged after the Education for All Handicapped Children Act of 1975 mandated the use of Multidisciplinary Teams in the special education placement and referral process (Rosenfield & Gravois, 1999, as cited in Knotek, 2003). The development of Multidisciplinary Teams was intended to protect children from inappropriate placement in special education and to help ensure that children had received interventions in the regular education setting prior to identification. Despite some possible evolution in response to various mandates set forth by federal, state and local laws; however, the two basic functions remain the same.

Student assistance teams are intended to help general education teachers by clarifying student learning difficulties and providing intervention suggestions (Pugach & Johnson, 1989, as cited in Logan, Hansen, Nieminen, & Wright, 2001). Teachers implement the suggested interventions and monitor student progress in the area of learning difficulty. If the proposed solution is ineffective, the teacher returns to the team for further assistance. If all suggested interventions fail, the team may make the recommendation for the student to be tested by the school psychologist to determine eligibility for special education services. If the student is not found to be eligible for special education services, the student assistance team may make further recommendations for remedial education programs.

In an ethnographic study, Knotek (2003) described the content and context of SAT meetings in two North Carolina schools, one rural and one “in town.” The findings of this

study suggested that discussions of children from low socioeconomic backgrounds tended to revolve around the lack of resources of their families and tied their academic problems to family and economic factors, over which the team had no control. Knotek (2003) described a problem-solving process that tended to be biased by team members' social status within the team and by characteristics of the students' family background such as SES and education. The resulting intervention design and implementation process was also biased by the social processes inherent in the discussion of the students' problems. Knotek linked the overreferral of African American students to special education to the break down in the problem-solving process that occurs when teams discuss students from low SES and students who display behaviors perceived as problematic.

In a nationwide study, Truscott, Cohen, Sams, Sanborn and Frank (2005) surveyed four randomly-selected elementary schools in each of the 50 states with regard to the goals of their pre-referral intervention teams. The results of their study indicated that pre-referral intervention teams were aimed at increasing student academic performance in only 28% of schools surveyed. Creating instructional match between skill level and instructional strategy was a goal in 2% of schools surveyed. Reducing inappropriate referrals to special education was a goal of pre-referral intervention teams in 28% of schools surveyed. Providing intervention in the regular education classroom was a goal of the teams in 12% of schools surveyed. In this study, the most common teacher-implemented intervention was decreasing the amount of work required of the student. Very few specific interventions were reported. Modifications in classroom structure were also commonly reported as an intervention and usually just included changing the student's seat.

Some research has supported the effectiveness of SATs in providing assistance to teachers and reducing referrals to special education; however, it has been suggested that the implementation of SATs in these studies was aided by university-affiliated personnel and that implementation of vital elements is less stringent when technical assistance from research personnel is not present (Logan et al., 2001). Logan et al. (2001) investigated teachers' beliefs of SATs in the absence of training and support from university personnel using qualitative, story-telling interviews and found that teachers viewed the SAT process as serving as the mechanism by which to have their students placed in special education. In this study, teachers made clear statements indicating their belief that special education services would help their students by providing a higher teacher-student ratio. The authors discussed their results as demonstrating that SATs were not functioning as intended because teachers viewed the team as the gateway to special education rather than a source of help for teachers and students in regular education. These beliefs translated into approaching the team with prior documentation indicating that all suggested and feasible interventions had been tried and had failed. Traditional models of SATs appear to serve a pre-referral function, but they lack a well-defined problem-solving process based on data. Furthermore, SATs involve a team approach that fosters problem validation rather than specific problem identification and targeted intervention development and implementation.

### Instructional Consultation

Instructional Consultation (IC) was initially described by Rosenfield as a merger of the fields of school psychology and educational consultation, in an effort to combine the available information on school consulting and instructional practices (Rosenfield, 1987).

The main assumption of IC holds that teacher behavior in the form of instructional practice has a great impact on the learning of students and views the learner as part of an instructional system. The emphasis is on the quality and appropriateness of instructional practices rather than on a deficit inherent in the learner. The belief is that instruction can and should be tailored to the diverse, individual needs of students within the regular education environment if students are experiencing learning difficulties. In fact, federal law requires that the appropriateness and adequacy of instruction be assessed prior to the diagnosis of a learning disability, but evaluation teams often do not have the means to assess instruction and often assume that instruction has been minimally adequate.

The process of instructional consultation shares many similarities with other forms of educational consultation in that it is a “voluntary, nonsupervisory relationship between professionals from differing fields established to aid one in his or her professional functioning” (Conoley & Conoley, 1982, p. 1). Instructional consultation provides primarily indirect service to the student through a collaborative consultation relationship between that student’s teacher and an educational consultant. Occasionally, the consultant might engage in direct service by assessing, observing or interviewing the student. The consultation process follows the basic stages of entry and contracting, problem identification and analysis, intervention or implementation, and evaluation and termination (Rosenfield, 1987).

The entry and contracting stage provides the opportunity for the consultant and consultee to gain a mutual understanding of the goal of the consultation process and the roles of each participant. It is important during this stage that the consultant explains that primarily he or she will be providing an indirect service to the student by assisting the teacher in problem solving. And the entry stage also allows the consultant to differentiate the process from one

that is focused on diagnosing a deficit in the student. Contracting is essential for gaining a commitment from the consultee to engage in the problem-solving process.

The problem identification and analysis stage is perhaps the most important in the process, as it provides the necessary information to guide the design of the intervention. Initially, the consultant conducts an interview with the teacher to determine the nature of the concern. Communication skills such as summarizing, paraphrasing, and asking clarifying questions are essential during this stage to ensure accurate understanding of the student's difficulty. The consultant should focus on gaining an understanding of the objective for the student, the requisite skills to reach that objective, the student's current skill level, and interventions that have already been attempted. Through observations and curriculum-based assessment (CBA; see Gickling & Havertape, 1982), the specific instructional needs of a student are identified; for example, the student might need a larger vocabulary in order to comprehend reading passages or decoding skills in order to read words. The focus of the assessment is not on identifying the grade-level ability of the student but rather on finding the student's instructional level. The assessment of a student's skills informs the intervention, differentiating it from the kind of evaluation that takes place after a referral to special education.

Interventions are designed by the teacher in collaboration with the consultant, using the information resulting from the problem identification and analysis stage. The interventions must be manageable for the teacher, who is usually responsible for implementing the intervention. Ongoing consultation during this stage helps to ensure that the intervention is being implemented as planned and to provide support to the teacher, who is engaging in new behaviors (Rosenfield, 1987).

As interventions are implemented with the individual student, it is of critical importance that evaluation of the student's progress be conducted. Evaluation activities include conversations with the teacher and most importantly, data collection. The data collected allow the teacher and consultant to determine if the intervention is effective and if modifications to the intervention are needed. Interventions likely provide maximum benefit after at least one modification (Rosenfield & Gravois, 1996).

Termination of the consultation relationship can occur under a variety of circumstances. Ideally, termination will be the natural result of the student reaching his goals, but sometimes, the relationship will be terminated without success. If both consultant and consultee agree that there are no modifications to the current intervention that can be made to improve the outcome, then the relationship may be terminated. Termination is important to provide an official end to the relationship so that both parties are clear on the status (Rosenfield, 1987; Rosenfield & Gravois, 1996).

#### *Instructional Consultation Teams*

The concept of IC was originally developed as a model for individual practitioners, but as researchers and practitioners became dissatisfied with the state of special education, Rosenfield and Gravois collaborated to expand the concept from one of individual practice to a school-based intervention teaming process. In response to the lack of excellence and equity provided by special education programs, the motivation behind instituting IC- Teams was to create a problem-solving culture and to provide needed academic and behavioral interventions to struggling students within the regular education setting, thereby reducing the need for separate services (Rosenfield & Gravois, 1996). The fundamental intent behind the

implementation of IC at a school-wide level was to change the process of referral of students for whom teachers had academic or behavioral concerns.

There are three critical assumptions of IC-Teams, expanding on the original assumption of IC that teacher behavior affects student learning. The first assumption is that all students are learners, shifting the focus from deficit to capability. The second assumption builds on the first, and states that the focus should be on the match between the learner, the task, and the instruction, rather than placing the student in a particular classroom. This assumption also removes the responsibility for a learning difficulty as residing solely within the student, empowering school personnel to address the malleable aspects of the match. And the third tenet of IC-Teams purports that academic and behavioral development can be most effectively addressed within a problem-solving school environment. Within a problem-solving environment, the emphasis is not only on student outcomes, but also on teacher and staff professional development.

Within IC-Teams, the essential consultation relationship between consultant and teacher as described by Rosenfield (1987) is preserved, but the consultant is a member of a team. The team is comprised of a facilitator and other consultants who regularly meet to enhance members' communication, problem-solving, and instructional intervention skills. Consultants represent general, special education, administration, specialist areas, and student support personnel, with participation from the school principal absolutely key to successful implementation of IC-Teams. Each consultant acts as a case manager, following the sequence of stages as described above, while integrating research-based assessment and intervention practices.

The process of soliciting assistance from the IC-Team addresses some of the shortcomings of typical student assistance teams. The only required effort on the part of the teacher is completion of a Request for Assistance form, which is submitted to the team. The facilitator or systems manager then takes the completed forms to the team meetings, where cases are assigned to case managers (i.e., consultants). Typically, the case manager contacts the teacher within one week of the date on the Request for Assistance form and establishes a mutually convenient time to meet for entry and contracting. This relatively simple process circumvents the delays associated with pre-referral interventions and documentation required by special education assistance teams; both the teacher and the student are provided with support in a timelier manner.

A characteristic distinguishing IC-Teams from traditional SATs is ongoing evaluation of the implementation and outcomes of the model. Evaluation of IC-Teams occurs at two levels; both student progress toward clearly defined academic and/or behavioral objectives and the integrity of the program implementation are assessed on an ongoing basis. Student progress is assessed through individualized assessments and is documented regularly. The integrity of program implementation is monitored on a yearly basis through Level of Implementation (LOI) interviews and data collection. Student outcome data are included in evaluating a school's LOI. The results of the LOI analysis inform team training needs.

#### *IC-Teams in North Carolina*

The IC-Team Training and Evaluation Initiative was proposed as a collaborative effort between the School of Education at UNC-Chapel Hill and the North Carolina Department of Public Instruction. At the time of the proposal, state education officials were considering how to support districts and schools in the development of quality classroom interventions and

viewed the implementation of IC-Teams as a mechanism to do so. The goals were to expand IC-Team implementation in six regions of North Carolina, specifically in schools with rural and/or low-achieving minority populations and to provide ongoing evaluation and research into the effectiveness and sustainability of IC-Teams in the state. The expected outcome of IC-Team implementation was decreased referral and overrepresentation of minority students in special education, improved academic achievement and behavioral competence of students, provision of services to underserved rural students and enhancing participating teachers' assessment and instructional skills (Knotek, 2006?). The author of this study was a research and project assistant supporting this initiative.

#### *Previous Evaluations of IC-Teams*

Gravois and Rosenfield (2006) attempted to evaluate the impact of IC-Teams on the disproportionate referral and placement of minority students in special education. Previous research has shown that implementation of IC-Teams does decrease the number of overall referrals to and placements in special education (Gravois & Rosenfield, 2002), but the effect on minority students was unknown. Data were collected during the summer prior to and at the end of each of two years of project implementation. Composition indexes, risk indexes and odds ratios were examined for thirteen project schools and nine comparison schools. Risk and composition indexes did not reveal statistically significant differences between treatment schools and comparison schools, but general trends indicated a reduction on both types of disproportionality indices. Examination of odds ratios revealed that a minority student in IC schools was 1.38 times as likely to be evaluated and 1.53 times as likely to be placed as a minority student in a comparison school during the baseline year. After two years of project implementation, a minority student in an IC school was half as likely to be placed

in special education. Given the stability of the special education population, it is quite remarkable and promising that a decrease in disproportionality was observed after only two years of project implementation.

*How might IC-Teams address disproportionality?*

The IC-Teams model offers the paradigm shift suggested by many researchers as necessary to reduce disproportionality in special education. The set of assumptions that all students are learners, the focus should be on instructional match, and students are best served in a problem-solving environment, offers a viable alternative to the “within child” deficit perspective, as recommended by various scholars (e.g., Artiles & Trent, 1994; Harris-Murri, King, & Rostenberg, 2006). The model provides a lens through which to view the student as part of a system, namely the instructional system, interacting with the instructional method and task. The task and the instructional method can both be modified to meet the needs of the student, thereby empowering the teacher to enhance student learning.

By assessing the instructional match, the competencies and abilities of the student come into focus. In order to create this match, the student’s prior knowledge, home language, interests and motivation are considered, as recommended by Harris-Murri, King, and Rostenberg (2006), and by examining this information on an individual basis, the norm-based comparisons are avoided. Individualized assessment emphasizing what a student *does* know, rather than what he *doesn’t* know provides a more culturally sensitive way to address the academic difficulties of all students, particularly those of minority status.

In addition, the goal of assessment in IC-Teams is to inform intervention, differentiating it from evaluations performed as part of the special education referral process. Whereas the tools used in the special education referral process assign the student a score, the curriculum-

based assessment method identifies the student's current instructional level and the specific skill requiring intervention. For example, if a child is struggling to read, his or her decoding, vocabulary, fluency, and comprehension skills are all separately analyzed. The analysis reveals a specific skill area for which an intervention can be designed and implemented. This assessment for intervention is considerably more useful than a standard score from a norm-referenced achievement test, the purpose of which is to qualify a student for special education placement.

In essence, IC-Teams provide a structure for an RTI approach for addressing academic and behavioral difficulties in general education. Two important objectives are achieved through this RTI model. Firstly, IC-Teams ensure that every child, minority or not, receives an intervention within the general education classroom, consistent with federal law (Blanchett, Mumford, & Beachum, 2005). This provision is crucial to establishing equity in educational practices as highlighted by evidence suggesting that African American students who do not receive an intervention preceding referral to special education spend more time outside of the general education classroom (Hosp & Reschly, 2002).

Secondly, the RTI approach is an alternative to the discrepancy model of identifying children for special education services, which has been cited as a significant contributor to the dilemma of disproportionality (Donovan & Cross, 2002). Instructional Consultation Teams seek to identify methods of intervention which do not require placement outside the general education classroom, and only those children whose services are beyond what can be provided in regular education are identified for special education. The important distinction here is that the services are labeled, which helps to reduce the stigma associated with special education placement.

Artiles (1998) recommended “aligning teacher thinking and teacher practices with the conditions and needs of students by establishing protocols that promote self-reflection and that gauge the quality and quantity of intent and effort necessary to be effective teachers who guide students to viable career choices.” (p. 39). The consultation relationship central to IC-Teams provides the ideal occasion for the teacher to critically reflect on his or her assumptions of minority learners; this critical reflection has been cited as a potential way of reducing teacher referrals of minority students to special education (Artiles & Trent, 1994; Bynoe, 1998). By using reflective listening skills, the consultant can create the opportunity for the teacher to explore his or her own beliefs, cultural experiences and biases (Artiles, 1998); not only can this exploration address the needs of the target student, but it has the potential to change the teacher’s future conception of and instructional practice with all minority students in his or her classroom.

By incorporating data-based decision making methods, objectivity in referral and placement decisions is enhanced. Through goal setting and data collection before and during interventions, the process emphasizes student progress and ability to learn under certain instructional circumstances. By evaluation progress toward goals with appropriate interventions, the IC process relies less on teacher preconceptions and unconscious biases regarding students’ capabilities or “disabilities”.

Implementation of IC-Teams in schools changes the critical events associated with disproportionate referral and placement of minority students in special education. First, it ensures that all students receive unbiased, individualized assessment which informs appropriate intervention strategies. Second, it increases objectivity by establishing goals for student performance and then collecting data documenting progress toward those goals.

Third, IC-Teams create opportunities for the kind of reflection that is thought to be needed in order to address the assumptions and biases made by teachers toward minority students.

Fourth, IC increases the likelihood that students with academic or behavioral difficulties will be served in the general education environment, granting access to the core curriculum and future educational and employment opportunities. The process removes the necessity of diagnosing “disabilities” which are socially constructed in the first place, reducing stigma and the chances of lowered self-esteem.

### *Current Study*

Given the alignment of the IC-Teams model with suggestions made by researchers in the field of disproportionality, the current study sought to examine the outcome of the implementation of IC-Teams in terms of the overrepresentation of minority students in special education. This study also addressed the lack of evidence for programs aimed at reducing disproportionality in special education. The preceding literature review suggests that by changing the process of referral and assumptions of minority learners, IC-Teams have the potential to transform educational practices for struggling minority students into more equitable, just, and caring ways of promoting student success and future opportunities.

Based on the review of the literature, the following questions and hypotheses were developed:

***Question 1:*** *Within schools using IC Teams, are there observable differences between IC Teams and student assistance teams in their referral practices regarding minority students?*

***Hypothesis 1a:*** *The relative risk of referral for evaluation for African American and Hispanic students referred to IC-Teams will be lower than the relative risk of African*

*American and Hispanic students initially referred to SATs during the first year of full implementation.*

*Hypothesis 1b: During the first year of full implementation, the relative risk of eligibility for special education services for African American and Hispanic students referred to IC-Teams will be lower than the relative risk of eligibility for special education services for African American and Hispanic students referred to SATs.*

*Hypothesis 1c: When controlling for differences in relative risk for referral for evaluation, there will be no significant differences between IC-Teams and SATs in the relative risk of eligibility of African American and Hispanic students.*

## CHAPTER II

### METHODS

#### *Participating Schools*

A total of 14 elementary schools were initially included in the current study. Two schools submitted incomplete program evaluation data and were therefore dropped from the analyses. All schools were located in North Carolina and were recruited by North Carolina Department of Public Instruction for participation in the IC-Teams model implementation. District administrators ultimately selected individual schools within their district to begin

implementation of the IC-Teams model. Seven schools began participation in the implementation process immediately prior the 2003-2004 academic year (Cohort 1), and seven additional schools began participation in December of the 2004-2005 academic year (Cohort 2). See Table 1 for demographic data.

#### *Data Collection*

The current study required the use of data provided during annual program evaluations at the end of the first year of full implementation of the IC-Team model. These year-end, within-school evaluations assembled data on referrals to the IC-Team and to the student assistance team, referrals from each of those teams for psychoeducational assessment, and eligibility; these data were disaggregated by race. Additional data were obtained from the National Center of Education Statistics (NCES) Common Core of Data (CCD), which maintains information on schools' total enrollment and enrollment by race/ethnicity.

### *Calculation of Relative Risk Ratio*

The relative risk ratio was selected as the measurement for disproportionality in the current study because it is easier to interpret when used alone unlike risk indexes which are only meaningful when compared with other risk indexes (Bollmer, Bethel, Garrison-Mogren, & Brauen, 2007). Relative risk ratios for each team for both evaluation and identification were calculated according to the formula described by Hosp and Reschly (2004) below:

$$\text{Risk Ratio} = \frac{\# \text{ students of X ethnicity in category Y} \div \# \text{ students X ethnicity in student population}}{\# \text{ White students in category Y} \div \# \text{ White students in student population}}$$

A total of eight relative risk ratios were calculated. One relative risk ratio was calculated per ethnicity (i.e., African American or Hispanic), team type (i.e., IC-Team or SAT), and step in referral procedure (i.e., evaluation or identification).

### *Bootstrapping*

The bootstrapping method is used as an alternative to a paired-samples *t*-test in cases where the data may violate assumptions of normality and samples are relatively small (Hesterberg, Moore, Monaghan, Clipson, & Epstein 2005). The procedure for bootstrapping includes first creating hundreds of new samples by sampling with replacement from the original population; each sample is the same size as the original population. The resulting bootstrap distribution approximates the sampling distribution of the statistic. For use when comparing two samples, as is the case in this study, the resampling procedure is completed for each population (i.e., for IC-Teams and for SATs). Then, the means of the two populations can be compared by calculating a difference. This procedure is repeated hundreds of times to create the bootstrap distribution of the differences between the means of the two groups. The confidence interval of the bootstrap distribution is examined in order to

determine whether the results differ significantly from zero. When the resulting confidence interval does not include zero, the results are judged to be significant.

When used with particularly small samples, the bootstrapping method may be vulnerable to inaccuracy based on bias and skewness. In order to improve the accuracy in these cases, the bootstrap bias-corrected accelerated (BCa) interval is used. The BCa interval adjusts for bias and skewness.

The current study used the bootstrap procedure as a method of comparing means because it could not be assumed that the relative risk ratios were normally distributed and because the sample was relatively small.

#### *Data Analyses:*

Statistical analyses comparing relative risk ratios and risk indexes were performed using the R-CRAN statistical computing software the bootstrapping procedure (R Development Core Team, 2008). Descriptive statistics were obtained using SPSS 17.0 Graduate Pack software.

***Question:*** *Within schools using IC Teams, are there significant differences between IC-Teams and SATs in their referral practices regarding minority students?*

***Hypothesis 1:*** *The risk ratio of referral for evaluation for African American and Hispanic students referred to the IC-Team will be lower than the relative risk of referral for evaluation for African American and Hispanic students after one full year of IC-Team implementation.*

- **Data Analysis 1:** Bootstrapping methods were used to compare students' relative risk of being referred for evaluation by IC-Teams or by traditional SATs; analyses were conducted separately for African American students and for Hispanic students. Significance was evaluated at the .05 level.

***Hypothesis 2:** After one full year of IC-Team implementation, the relative risk for special education identification African American and Hispanic students referred to IC-Teams will be lower than the relative risk for special education identification for African American and Hispanic students referred to SATs.*

- **Data Analysis 2:** Bootstrapping methods were used to compare students' relative risk of being identified for special education services by IC-Teams or by traditional SATs; analyses were conducted separately for African American students and for Hispanic students. Significance was evaluated at the .05 level.

***Hypothesis 3:** When controlling for differences in relative risk for referral for evaluation, there will be no significant differences between IC-Teams and SATs in the relative risk of eligibility of African American and Hispanic students.*

- **Data Analysis 3:** A nonparametric version of an ANCOVA was planned, controlling for differences between teams in relative risk for referral for evaluation. However, this analysis was not performed because Data Analysis 1 did not reveal statistically significant results.

## CHAPTER III

### RESULTS

#### *Descriptive Statistics*

*Referral Patterns by Team Type.* There were 200 total students referred to SATs and 143 students referred to IC-Teams. Seventy-five percent of the students referred to SATs were referred for psychoeducational evaluation to determine eligibility for special education services. Thirty-nine percent of students referred to IC-Teams were referred for psychoeducational evaluation to determine eligibility. A two-way contingency table analysis found a significant relationship between referral for evaluation and team type,  $\chi^2(1, N = 341) = 64.98, p < .001$ . The probability of a student being referred for evaluation by an SAT was 2.42 times the probability of a student being referred for evaluation by an IC-Team.

Sixty-nine percent of those referred for testing by SATs were deemed eligible for special education services, as compared with 73% deemed eligible when referred by IC-Teams. A two-way contingency table analysis did not detect significant differences between teams in terms of the probability of a student being found eligible for special education services,  $\chi^2(1, N = 193) = .359, p = .549$ .

*Referral Patterns by Ethnicity.* Of the 1738 African American students included in the sample, 147 (8.5%) were referred to either SATs or IC-Teams for learning problems. Sixty-two percent of African American students referred for academic problems were referred to SATs, while 38% were referred to IC-Teams. Of the 2572 White students included in the

sample, 166 (6.5%) were referred to either SATs or IC-Teams for learning problems. Of those White students referred for learning problems, 57% were referred to SATs, and 43% were referred to IC-Teams. There were 591 Hispanic students included in the sample, of which 30 (5.7%) were referred to either SATs or IC-Team for learning problems. Hispanic students were referred in equal numbers to SATs and IC-Team. A two-way contingency table analysis found a significant relationship between race/ethnicity and team type,  $\chi^2(1, N = 341) = 11.46, p = .003$ . Follow-up analyses revealed significant differences between the proportion of White and African American students referred to each team,  $\chi^2(1, N = 311) = 11.43, p = .001$ . A White student was 1.45 times more likely than an African American student to be referred to an IC-Team. There were no significant differences detected between White and Hispanic students in terms of probability of being referred to either SATs or IC-Teams,  $\chi^2(1, N = 175) = 1.47, p = .225$ . There were no significant differences detected between African American and Hispanic students in terms of the probability of being referred to either SATs or IC-Teams,  $\chi^2(1, N = 196) = .539, p = .463$ .

*Referral Patterns by Ethnicity and Team Type.* Referral patterns by ethnicity and team type are depicted in Table 2. Within IC-Teams, there were no significant differences between White, African American, and Hispanic students in terms of the probability for referral for evaluation as examined by a two-way contingency table,  $\chi^2(1, N = 141) = 3.562, p = .169$ . The probability of a student being referred by an IC-Team for psychoeducational evaluation was 31.2%.

A two-way contingency table analysis found a significant relationship between ethnicity and the likelihood of referral for evaluation within SATs,  $\chi^2(1, N = 199) = 7.178, p = .028$ . White students were significantly more likely than African American students to be referred

for psychoeducational evaluation as detected by a follow-up pairwise comparison,  $\chi^2$  (1, N=184) = 6.786,  $p = .009$ . There were no significant differences in the probability for evaluation between White and Hispanic students or between African American and Hispanic students.

Within IC-Teams, there was no relationship detected between ethnicity and eligibility as examined by a two-way contingency analysis,  $\chi^2$  (2, N = 44) = .204,  $p = .903$ . White, African American and Hispanic students were equally likely to be identified for special education services once referred for an evaluation by IC-Teams.

Similarly, within SATs, there were no statistically significant differences between racial groups in the probability of being found eligible for special education services detected by a two-way contingency analysis,  $\chi^2$  (2, N = 149) = 2.059,  $p = .357$ . White, African American and Hispanic students were equally likely to be identified for special education services once referred by SATs.

### *Primary Analyses*

*Relative Risk.* The results of the relative risk calculations occasionally resulted in a denominator of zero, indicating that either no White students had referred for evaluation or no White students had been identified for special education by one of the teams in a particular school. In cases where the numerator and denominator were both zero, the relative risk was set equal to 1, reflecting that minority group students and White students were equally at risk for evaluation or identification. In cases where the denominator alone was equal to zero, the relative risk calculated equaled infinity. Since further statistical calculations with a value of infinity were then impossible, the relative risk was set equal to a number slightly larger than the largest value of that particular variable in order to reflect the elevated

risk of the minority group and allow for further statistical analyses. So for example, if the relative risk of Hispanic students in School A for evaluation was found to equal infinity, the relative risk was set to a value slightly larger than the largest relative risk of Hispanic students for evaluation in Schools B-L. After relative risk indexes were calculated, hypotheses were tested according to the procedures described in the previous chapter.

*Relative Risk for Minority Students by Team Type. **Question 1:** Within schools using IC-Teams, are there observable differences between IC-Teams and SATs in their referral practices regarding minority students? **Hypothesis 1:** The relative risk of referral for evaluation for African American and Hispanic students will be lower when referred to IC-Teams than when compared to the relative risk of African American and Hispanic students initially referred to SATs during year 1 of full implementation. See Table 3 for results of the bootstrapping procedure. For African American students, the bootstrapping method did not result in statistically significant differences in the relative risk of referral for evaluation between SATs and IC-Teams. There was no statistically significant difference in the relative risk of Hispanic students for referral for evaluation between SATs and IC-Teams. These results did not support Hypothesis 1.*

***Hypothesis 2:** During year 1 of implementation, the relative risk of eligibility for special education services for African American and Hispanic students referred to IC-Teams will be lower than the relative risk of eligibility for special education services for African American and Hispanic students referred to SATs. Bootstrapping methods detected significant differences in African American students' relative risk for eligibility for special education services between SATs and IC-Teams. Similarly, there was a significant difference between*

IC-Teams and SATs in terms of relative risk of Hispanic students for eligibility for special education services. (See Table 4). These results supported Hypothesis 2.

*Hypothesis 3: When controlling for differences in relative risk for referral for evaluation, there will be no significant differences between IC-Teams and SATs in the relative risk of eligibility of African American and Hispanic students.* Because there were no significant differences between IC-Teams and SATs in terms of relative risk for evaluation, follow-up tests to control for these differences were not completed, and therefore, this hypothesis was not tested.

#### *Post-Hoc Analyses*

In order to examine potential differences between teams when considered independently of the reference group (i.e., White students), risk indexes were examined for each group of students (White, African American, Hispanic). The risk index for identification was calculated according to the following formula:

$$\text{Risk index} = \frac{\text{\# students of X ethnicity in category Y}}{\text{\# students of X ethnicity in student population}}$$

Using the same bias-corrected accelerated bootstrapping methods described in the Methods section, there were significant differences detected for each ethnicity group when comparing the risk for special education identification between IC-Teams and SATs. For White, African American and Hispanic students, the risk of being identified for special education was significantly lower when referred to IC-Teams than when referred to traditional SATs. (See Table 5).

## CHAPTER IV

### DISCUSSION

The purpose of the current study was to examine differences between IC-Teams and SATs in referral patterns of minority students for evaluation and placement in special education. The first hypothesis stated that the relative risk of referral for evaluation for African American and Hispanic students will be statistically significantly lower when initially referred to the IC-Team than the relative risk of African American and Hispanic students when initially referred to the SAT. The second hypothesis stated that the relative risk for special education services for African American and Hispanic students referred to the IC-Teams will be statistically significantly lower than the relative risk of eligibility for special education services for African American and Hispanic students referred to the SAT. The third hypothesis stated that when controlling for the differences between the IC-Teams and SATs in terms of the relative risk for evaluation, there would be no statistically significant differences between IC-Teams and SATs in relative risk for eligibility for special education services. Differences between teams and ethnicity groups will be discussed herein according to the order of steps in the identification of students for special education: initial teacher referral, referral by one of the teams (i.e., IC-Team or SAT) for psychoeducational evaluation, and determination of eligibility for special education services.

### *Initial Teacher Referral*

There were significant differences in patterns of teachers' referrals based on student race/ethnicity. White students were significantly more likely than African American students to be referred by classroom teachers to the IC-Team, which means that White students were more likely to receive an individualized academic intervention from the teacher within the regular education setting. This finding is consistent with previous research which has reported that African American students were less likely to receive a prereferral intervention provided by the classroom teacher (Hosp & Reschly, 2002). This finding may be suggestive of biased perceptions of the referring teachers of White students as more likely to respond to individualized intervention or of African American students as more likely to require special education services even in the absence of academic data as previous research has suggested (Neal, McCray, Johnson & Bridgest, 2003). It is also possible that referring teachers were more willing to work individually with White students; previous studies have reported that White teachers, comprising the majority of the teaching force, felt more equipped to address the learning issues of White students.

Dissimilarly, teacher referrals of Hispanic students did not differ significantly from teacher referrals of White students in terms of the type of team to which teachers referred; in other words, Hispanic and White students were referred in similar proportions to IC-Teams and to SATs. This finding may suggest that teachers may perceive Hispanic and White students as equally likely to respond to classroom interventions implemented in regular education classrooms and equally likely to require special education services. It could be that Hispanic and White students are less subject to potential biases of referring teachers than their African American counterparts due to differences in cultural behavior styles. It may be

that Hispanic students also exhibit behavior in the school setting that is consistent with teacher expectations, values and beliefs.

In light of the differences observed between teacher referrals of African American and those of White students, the lack of differences between teacher referrals of Hispanic students and those of White students suggests that the process of identification for special education services in this sample differed between Hispanic students and African American students. The factors contributing to this difference were not examined in the current study, but may include African American Behavioral Style, behavioral similarities between Hispanic students and White students in the school setting, and distinct teacher perceptions of the abilities of African American and Hispanic students. Further research is needed to examine these possibilities.

#### *Referrals by Teams for Psychoeducational Evaluation*

Students served by SATs were significantly more likely than students served by IC-Teams to be referred for psychoeducational testing to determine eligibility for special education services. Once referred for services, students served by SATs were equally likely as students served by IC-Teams to be identified for services. This finding highlights the significance of the referral for evaluation; nearly four out of five students referred for testing were identified for special education services in the current study. These results suggest that IC-Teams may be associated with lower student risk for special education placement because numerous referrals for evaluation are prevented. Struggling students who presumably would have been referred to traditional SATs but instead were referred to recently implemented IC-Teams received academic support within the regular education setting; in most cases, these students were not referred for psychoeducational testing or placement in special education.

In addition, there were significant differences between racial/ethnic groups in referral for evaluation for students served by SATs. Within SATs, White students were significantly more likely than African American students to be referred for psychoeducational evaluation to determine eligibility for special education services. This finding suggests that there may be inequitable treatment of students according to racial or ethnic background in traditional student service teams.

The higher likelihood of evaluation for White students than African American students found in the current study is contrary to the argument that traditional methods of addressing students' academic problems contribute to the overrepresentation of minority and is a challenge to explain. It is possible that SATs used screening procedures including brief intellectual and achievement measures to ascertain whether it was likely a student demonstrated sufficient deficits to qualify for special education services and then made recommendations for full psychoeducational evaluations based on the findings of the screening procedures. If this were the case, it would suggest that screening procedures to detect internal deficits did not support initial teacher referrals. This explanation is consistent with previous research indicating that teachers are more likely to perceive African American students as needing special education services even in the absence of information regarding academic achievement (Neal, McCray, Johnson & Bridgest, 2003). The current study did not examine specific procedures within SATs, and future research should seek to examine this possibility.

In addition, the greater likelihood of referral for testing of White students within SATs diverges from previous research results reported by MacMillan, Gresham, Lopez and Bocian (1996). These researchers found that teachers were less likely to refer minority students, and

those minority students referred actually exhibited lower verbal abilities, more externalizing behavior problems, and lower reading skills than their White counterparts. The authors suggested that teachers were hesitant to refer minority students except in cases where clear academic problems existed. If this pattern were applicable to the current study, one would have expected higher rates of referral of African American students for psychoeducational testing, as they would have demonstrated a higher degree of academic problems.

Another explanation for the higher rates of evaluation for White students than African American students within SATs is that school personnel were less likely to refer African American students for evaluation in an effort to minimize the representation of minority students in special education. This explanation was also offered by MacMillan et al. (1996), who suggested that the teachers they studied in California were reluctant to refer minority students due to the legacy of the *Larry P. v. Riles* case in their state. Disproportionality has received enough political attention to warrant biyearly monitoring of special education enrollment, and school personnel may be increasingly aware of the problem. The referral of fewer African American students to special education may represent a reaction to the negative political attention associated with disproportionality. However, this practice may not represent socially responsible ways of addressing the learning needs of underachieving minority students.

On the other hand, IC-Teams appeared to refer students equitably by race. Within IC-Teams, there were no significant differences between racial groups in terms of proportions of students referred for evaluation. White, African American and Hispanic students were equally likely to be referred for evaluation by IC-Teams. This finding may be due to several factors of the IC-Team model including the data-based decision-making process and the

critical reflection inherent in the consultee-consultant relationship. The data-based decision-making process of measuring student progress toward academic goals is likely to reduce the subjectivity and bias that might be present in referrals for evaluation. The critical reflection that is part of the consultation relationship may also help to reduce subjectivity and bias in referrals for evaluation as it may allow the consultee to develop an awareness of biased judgments or assumptions of minority students; the importance of critical reflection has been discussed by previous authors (Artiles & Trent, 1994; Bynoe, 1998). The equitable referral of students by IC-Teams may also be in part due to the shift in focus from the internal “deficits” of the student to establishing an instructional match between student, instruction, and task and then objectively assessing their need for additional resources.

The current study did not reveal significant differences between IC-Teams and SATs in terms of the relative risk of minority students for evaluation for special education services. However, these results should be considered in conjunction with the finding of higher proportions of White students referred for evaluation by SATs: the relative risk ratio of African American students grows smaller as the denominator (i.e., risk ratio of White students for evaluation) grows larger. This surprising finding of higher proportions of White students referred by SATs for evaluation may account for the lack of support found for Hypothesis 1.

It is also possible that other factors contributed to a lack of differences between teams in terms of relative risk for evaluation. The lack of statistically significant differences between teams in terms of relative risk for evaluation may be partially attributable to the challenges encountered when attempting to create organizational change. When implementing an educational innovation that seeks to create this change, it is important to recognize that

change is a process, not an event (Rosenfield, 1992) and consists of three distinct phases: initiation, implementation and institutionalization. Common concerns when implementing IC include training concerns, problems transferring to a new model, faculty resistance to change, and an unsupportive school culture (Rosenfield, 1992). The current study examined differences in relative risk during the first year of the implementation phase, and when considered in light of the considerable concerns in this stage of change, perhaps it is not surprising that significant results in terms of relative risk were not discovered in the current study.

At the point in which the current data were collected, a small percentage of individuals in each school had been trained in the IC model and its assessment and intervention strategies. The teams are comprised of 8-12 members including administrative, regular education and special education personnel who receive training from certified trainers and the team facilitator. This number is a small percentage of the entire faculty at each school. Team members periodically provide information at school-wide faculty meetings, but do not provide specific training to the rest of the faculty. As an increasing number of faculty members in each school receive training in the IC model, it is possible that minority students' relative risk for evaluation and placement in special education would diminish.

It also possible that in later stages of IC-Team consultants' skill development, IC-Teams may be associated with lower relative risk indexes for special education evaluation. Gravois, Knotek and Babinski (2002) provided conceptual alignment of the staff development methods used in IC-Teams with training methods described by Joyce and Showers (1980). In order for training to be put into practice effectively, professional development models should address awareness, conceptual understanding, skill acquisition and skill application. During

the first year of full project implementation, IC-Team consultants have developed awareness and conceptual understanding and are beginning skill acquisition and application. Coaching, which has been shown to be effective in increasing the application of skills to new problems (Showers, Joyce & Bennett, 1987), is provided by advanced trainers to beginning consultants. As consultants become more adept with skill application, it is likely that they will be able to address the learning needs of more students in the regular education setting. If an increasing number of learning challenges can be addressed in the regular education setting, fewer students will be referred for special education evaluation. As discussed above, when fewer students are referred for evaluation, fewer students are placed.

Previous research results regarding referral practices during initial implementation also provide a possible explanation for the lack of significant differences in relative risk measurements. Rosenfield (1992) discovered that in the first year of implementation of IC-Teams, relatively few children are referred for consultation as the school begins to make changes in its referral procedures. Significant differences in relative risk for evaluation may be detected as the process of organizational change moves through the implementation phase toward institutionalization when larger numbers of children are referred to the IC-Team and initial problems of implementation are addressed and resolved.

#### *Eligibility for Special Education Services*

Patterns observed within teams for special education eligibility diverged from patterns observed within teams for psychoeducational evaluation. Within both SATs and IC-Teams, there were no significant differences between racial groups in terms of proportions of students found eligible after the evaluation process.

Significant differences were detected between IC-Teams and SATs in terms of relative risk of African American students for eligibility for special education services. Similarly, significant differences were detected between teams in terms of the relative risk of Hispanic students' eligibility for special education services. Instructional Consultation Teams were associated with a significantly lower risk of identification for special education services for both minority groups.

Similarly, when risk for special education eligibility was evaluated independently of the White majority student group, IC-Teams were found to be associated with lower risk for special education placement versus SATs; this finding was consistent across racial groups, including the White majority group.

The lower risk of White students for special education placement when referred to IC-Teams is likely related to their elevated risk of referral for psychoeducational evaluation when referred to SATs, considering that once referred for evaluation, students served by SATs were equally likely as students served by IC-Teams to be identified for services. This finding highlights the significance of the referral for evaluation; almost four out of five students referred for testing were identified for special education services in the current study. These results suggest that IC-Teams may be associated with lower student risk for special education placement because numerous referrals for evaluation are prevented. By targeting instructional practice to the learning needs of students in the regular education setting, IC-Teams increase access to the core general education curriculum, allowing for educational and occupational advancement for struggling students.

The results of the secondary analyses support existing research by providing further evidence of association between IC-Teams and lower overall risk of identification for special

education services when compared with traditional SATs. A study conducted in 2002 by Gravois and Rosenfield demonstrated decreased evaluations for and placement in special education for all students, regardless of minority status, when schools used the IC-Team model. The results of the current study also provide evidence of lower risk for placement in special education when students are referred to the IC-Team than when referred to traditional SATs.

The results of the secondary analyses are consistent with previous findings of the impact of IC-Teams on special education placement of minority students. Gravois and Rosenfield (2006) found minority students in IC schools to be less likely to be identified for special education when compared to minority students in schools using more traditional intervention models. Similarly, the current study suggests that IC-Teams are associated with lower risk of identification for special education services for African American and Hispanic students when compared with SATs.

Findings from the current study diverged from the previous investigation of the relationship between IC-Teams and minority disproportionality in special education with regard to differences in risk indices. Gravois and Rosenfield (2006) did not find differences between schools using the IC-Team model and comparison schools in terms of the risk index, while the current study detected significant differences between IC-Teams and SATs in the risk indices for special education identification for African American, Hispanic and White students. The divergent findings in the two studies can most likely be explained by differing methodology used in the two studies. The previous study examined the risk index based on the entire enrollment of special education, while the current study examined the risk index for new referrals only. As discussed in the introductory chapter, the special education

population is quite stable and therefore probably contributed to dilution of differences between IC schools and comparison schools in the previous study. It should also be noted that in the previous study, there was a general trend of reduction, though non-significant, in the risk index after IC implementation in those schools utilizing the model.

The statistically significant differences in both relative risk indexes and risk indexes for each student group must be interpreted cautiously as there may have been several confounding factors related to teacher characteristics that may have contributed to the observed differences. These potential confounds include years of teaching experience, self-efficacy beliefs, and perceptions of student performance. These characteristics may make a teacher more or less likely to refer a student to the IC-Team rather than the traditional SAT.

#### *Implications for African American Students*

The results of both primary and secondary analyses also provide support for previous findings regarding the likelihood that an African American student will spend time outside the regular education setting. Hosp and Reschly (2002) found that African American students who received individual help from the classroom teacher were less likely to spend time outside the regular education classroom. Similarly, the current study suggests that the risk for special education identification of African American students is significantly less when they receive an individualized, intensive academic intervention from the classroom teacher, as is the case in the IC-Team model.

Furthermore, results of the current study indicate that African American students were less likely than White students to receive academic intervention of any kind. As mentioned above, African American students were less likely to be referred to IC-Teams, which prescribed individualized academic interventions to referred students. The learning needs of

African American students were less likely to be addressed with modified instructional strategies than those of their White counterparts. Without instructional support, struggling African American students are more likely to continue to fall behind in school and are more likely to be referred in the future for special education services.

In addition, African American students were less likely than White students to be referred for evaluation for special education services, and therefore less likely to be identified as eligible for services such as resource rooms or modifications to the learning environment. In conjunction with the findings discussed above, this indicates that African American students were less likely to receive instructional support and were more likely to remain in the regular education environment. In this situation, African American students may be more likely to experience academic failure, frustration, acting out behaviors, and higher rates of school dropout. This finding may capture a point at which African American students with academic problems could “fall through the cracks” in our educational system. .

#### *Implications for Hispanic Students*

The current study found that Hispanic students in the sample were at relatively low risk of referral for evaluation and were also at relatively low risk for special education identification when compared with White students. This finding is consistent with previous research that has found risk ratios less than one for Hispanic students in North Carolina across categories of eligibility (Parrish, 2002). This finding is also consistent with previous reports of the underrepresentation of Hispanic students in special education in North Carolina (Chinn & Hughes, 1987; Fierros & Conroy, 2002) and with existing evidence that Hispanic students may be underrepresented at the elementary school level (Artiles, Rueda, Salazar, & Higuareda, 2005).

The current study found that the risk of special education identification was lower for Hispanic students when the process of intervention included targeted instruction in the area of academic weakness in comparison to Hispanic students receiving the standard academic interventions. This finding is consistent with several studies which have indicated that providing supplemental instruction to Hispanic students not only prevented special education identification (Moore-Brown et al., 2005) but also improved reading outcomes (Gunn, Smolkowski, Biglan and African American, 2002). Moore-Brown et al. examined a school district that recognized that the traditional methods of identifying children for special education services were inappropriate for the predominantly Hispanic population, and in response, the district implemented an RTI program to provide intervention in the regular education setting. Their study demonstrated that the RTI approach helped to prevent placement of Hispanic students in special education (Moore-Brown et al., 2005). Similarly, Gunn et al. (2002) found that Hispanic students benefitted from a supplemental reading instruction teaching basic decoding and comprehension skills, regardless of their English proficiency prior to implementing the intervention as indicated by improvement on standardized reading measures. In conjunction with previous research, the current study highlights the potential impact of RTI, specifically the IC model, on preventing erroneous placements of Hispanic students in special education.

### *General Implications*

Although there were no significant differences between IC-Teams and the SATs in terms of the relative risk for evaluation, there were significant differences between teams in terms of relative risk for placement in special education for African American and Hispanic students and in terms of the risk indexes for special education identification of African

American, Hispanic, and White students. An implication of these findings is that IC-Teams, one RTI model, has significant potential to help alleviate overrepresentation of minority students in special education as suggested by Harris-Murri, King and Rostenberg (2006); by providing intensive instructional intervention, RTI empowers teachers to address the learning challenges experienced by their students in the regular education setting.

The most important implication of the current study is to provide an indication that schools can address the problem of flooded special education programs and possibly, disproportionality. Academic intervention targeting the specific learning problem (e.g., decoding skills) in the regular education classroom may prevent the identification of high numbers of students, minority or White, as requiring special education. Given the limitations of the current study regarding possible differences between teams in terms of student and teacher characteristics, it cannot be concluded that the IC-Team model solely contributed to the observed lower risk indices for African American, Hispanic, and White students, but the current results certainly support RTI as having the potential to alleviate the problem of disproportionality.

These results of the current study challenge the assumptions made about students identified for special education services. If the placement of minority students in special education occurs at a lower rate when individualized interventions are provided in the regular education setting, it cannot be assumed that these students possess internal “deficits” warranting labeling and special education placement. On the contrary, the findings of the current study supported the idea that learning difficulties can be addressed in the regular education setting. These findings support other authors’ suggestions (e.g., Artiles & Trent,

1994) that the needs of diverse students are better addressed when they are viewed within the context of instruction and task.

### Limitations

There were several limitations to the current study which will be discussed so that future research may circumvent identified methodological flaws. Limitations include the selection of disproportionality measurement, nonrandom assignment of students to teams, lack of data on teacher characteristics, lack of data on student characteristics other than race, lack of data on the processes present in SATs, small sample of convenience, and attrition.

*Measurement.* There were numerous options for measuring disproportionality differences between teams. The odds ratio, risk index, and composition index are all commonly used indicators for investigations of disproportionality. The current study utilized the concept of relative risk because it represents a direct comparison between students in a minority group and students in the majority group, thereby eliminating the need for a statistical comparison between minority and majority students. However, it is possible that the use of other disproportionality indicators (i.e., odds ratio, risk index or composition index) would have produced a different result as was found in previous research (Gravois & Rosenfield, 2006).

As mentioned earlier, the selection of the relative risk index as a means of evaluating the effect of IC on disproportionality may represent a significant limitation to the current study. Because the relative risk index is a comparison of the risk of the minority group to the risk of White students, differences in the risk of the minority group may have been obscured by changes to the risk of White students.

There were also problems in the calculation of the relative risk index. When there were no White students referred to a team for either evaluation or identification, the resulting relative risk index could not be calculated since the denominator was zero. In these cases, the data had to be corrected so that a calculation could be made. These corrections could have altered the results, either making it more or less likely to have detected differences in terms of relative risk.

*Nonrandom assignment.* One limitation to the current study is the fact that students were not randomly assigned to teams, which would have allowed for the assumption that students did not differ on meaningful characteristics. Students served by the teams may have differed in terms of characteristics that were not measured in the current study. Previous studies have shown that there are certain student characteristics such as poverty (Knotek, 2003) and behavioral and learning styles (Neal, McCray, Johnson, & Bridgest, 2003) that may elicit bias in the referral process, thereby increasing the likelihood that a student would be referred for psychoeducational evaluation. By not assigning students randomly and not collecting data on individual students, this study must cautiously assert its conclusions.

Student characteristics other than race/ethnicity may also have influenced initial teacher perceptions and judgments, which are crucial to the referral process. For example, a teacher may have perceived a student as struggling but likely to respond to intensive academic intervention, and therefore he or she referred the student to the IC-Team. The same teacher may have perceived another student as struggling but unlikely to benefit from intensive intervention in the regular education setting and subsequently may refer the student to the SAT so that evaluation for special education placement occurs more immediately.

The teachers within the schools referred students to either the IC-Team or SAT, and therefore, these referrals could have been biased by teacher characteristics. The current study did not examine possible teacher characteristics such as race (Herrera, 1998) that may have influenced the initial referral to one of the student assistance teams. Teachers working with SATs may have differed significantly from teachers working with IC-Teams on important dimensions such as race, teaching ability, and self-efficacy beliefs, which may have contributed to the observed differences between teams in terms of risk indexes for identification. Unfortunately, the lack of random assignment of teachers to the IC-Team or SAT is inherent to the process of implementing IC during the first year; participation from the referring teacher is voluntary.

*Lack of data on SAT characteristics.* The current study did not attempt to examine characteristics of the SATs used as comparison groups. Such characteristics, including the interventions used, effectiveness of interventions, and decision-making processes when referring students for testing, were not monitored and may have varied within SATs. There may have been significant differences within SATs in terms of these characteristics, and some teams may have been less different from IC-Teams in terms of risk indexes for minority students. The lack of data on SAT characteristics represents a limitation of the current study and prevents a fuller understanding of the reasons for observed differences between team types in terms of patterns of referral and risk indexes.

*Sample of convenience.* Due to the small sample size of convenience, the current study lacks extensive generalizability. Schools were not selected at random for implementation of the IC process. Schools applied to be selected for training and support to implement the IC model. A relatively small number of schools completed the application process, and all

schools that applied were selected to begin the process of implementing IC. In essence, schools self-selected to receive training in IC and begin implementing the intervention model. This self-selection represents a limitation of the current study, as there may be differences between schools that applied to participate and those that did not.

In fact, one important difference between participating and non-participating schools may have been the degree to which schools were struggling with disproportionality. As part of the process to expand the IC program, schools were sent informational packets advertising the potential effect of IC on disproportionality as well as excessive special education identification. Schools struggling to address these issues may have been more interested in the IC program and therefore may also have been more likely to seek to implement the program. Therefore, the results of the current study may not be generalizable to schools where disproportionality or excessive special education identification are not evident.

*Attrition.* Of the original sample of 14 schools implementing IC, two schools submitted incomplete data, and therefore, these schools were excluded from the analyses. Because data were incomplete for these two schools, it is unknown whether these two schools differed significantly from the remaining 12 schools in terms of relative risk and risk indexes. Exclusion of the two schools submitting incomplete data might have contributed to a lack of significant differences in terms of relative risk.

*Limited statistical power.* Statistical power was limited by the relatively small sample size of 14 schools, each with two teams, and was further limited by attrition, previously discussed. The statistical power may have been insufficient to detect significant differences in terms of the relative risk of IC-Teams versus SATs. It is possible that with a larger sample of schools, the differences between teams in terms of relative risk may have been significant.

## Future Research

Future research is needed to further investigate the potential of the IC model to alleviate disproportionality. The following discussion presents some important considerations to address the limitations of the current study and to create an evidence base to inform educational policy with respect to the overrepresentation of minority students in special education.

*Measurement.* Previous studies have examined the association between IC-Teams and traditional disproportionality measures including the risk index, composition index and odds ratio (Gravois & Rosenfield, 2006), while the current study examined differences in terms of relative risk and risk indices. The current study did not show significant differences in the relative risk index of minority students for special education eligibility, but did reveal significant differences between teams when minority students were considered independently of White students. The results may vary based on the measurement statistic used, and therefore, the choice of disproportionality measure is crucial to the examination of the impact of intervention programs on the overrepresentation of minority students in special education. The index appropriate for use depends on the outcome of interest. Careful consideration is needed when selecting the relevant measure of special education representation.

*Assignment of students to teams.* As the IC model exists currently, nonrandom assignment of students to teams is unavoidable, as referring teachers must volunteer to work with the IC-Team. In order to deal with this limitation, future studies should seek to collect data on student and teacher characteristics as a method of controlling for potential confounding factors. Student characteristics including achievement level prior to

intervention, IQ, and socioeconomic status would provide a means of controlling for student differences when investigating differences between team types. In addition, future research should attempt to control for teacher characteristics such as teacher race, years of experience, and ratings of teaching ability when examining differences in referral patterns and rates between teams. Such studies would allow for researchers to draw more conclusive inferences from observed differences between team types.

Utilizing a multiple baseline design would help to increase internal validity. Schools wanting to implement IC would apply to participate and would be assigned to either the IC condition or to the wait-list control condition. After one year, the schools in the wait-list control condition would then begin the process of initiating the IC-Team model. This method of research would allow researchers to draw causal inferences between IC initiation and potential decreases in disproportionality.

*Increasing generalizability.* Future studies should seek to include a greater number of schools in order to increase generalizability of findings. Instructional Consultation is currently being implemented in schools and districts in seven states across the nation. Including data from as many schools as possible would help to increase representation from the population of schools in the U.S.

*Attrition.* To the extent possible, future research should seek to prevent attrition by ensuring that each school submits required end-of-year program evaluation information. If attrition occurs, every effort should be made to examine differences between schools that drop out of the study and schools that remain in the study.

*Statistical power.* In order to ensure sufficient statistical power, future studies with larger sample sizes should be conducted to examine differences between IC-Teams and traditional

models of identifying students for special education. It is possible the observed differences in relative risk in the current study were found to be insignificant because of the small sample and limited statistical power. Future studies should include power analyses, which provide guidance in terms of adequate sample size for the intended statistical calculations. Larger sample sizes would help to ensure sufficient statistical power.

*Longitudinal research.* As mentioned earlier, change is a process, not an event. Therefore, future longitudinal research would provide data on potential reductions in minority overrepresentation during later stages of IC implementation and institutionalization. Longitudinal research would also allow researchers to examine incremental changes over time in the population of students in special education, which has been shown to be relatively stable. Such studies would also provide the opportunity to explore whether differences in the risk indices for all students will translate into reduced disproportionality rates.

*Examining other intervention programs.* Instructional Consultation is not the only service-delivery model in existence to address excessive special education eligibility and placements. Other school reform models have been implemented in a similar way in order to create more inclusive educational environments (e.g., Bonner, Koch, & Langmeyer, 2004; Moore-Brown et al., 2005). Future research should seek to compare IC-Teams to other models aimed at reforming special education services.

*Self-Efficacy.* The concept of self-efficacy as it relates to teacher assumptions of students' learning problems and the decision-making process of referral to special education warrants further attention. It is possible that teaching efficacy influences assumptions about students' learning difficulties and that this assumption then mediates the decision to refer a student for special education. In light of the findings of previous investigations, efficacy beliefs may

contribute to the problem of disproportionality. If the relationship between teacher beliefs, assumptions and decision to refer can be more fully described, solutions to the problem of disproportionality can be found and improved upon.

*Additional considerations.* As discussed by Rosenfield (1992), it is not enough to change referral patterns and identification rates; without improving academic outcomes, programs aimed at reducing special education placements are minimally helpful. It is not enough to ensure access to regular education; the focus must be on improving educational outcomes for minority students. Previous research found better academic outcomes for students served by IC-Teams than for students served by traditional multidisciplinary teams (Kuralt, 1990), but this study did not specifically address the outcomes for minority students. Future studies are needed to examine academic outcomes of minority students served by IC-Teams in comparison to the academic outcomes of minority students served by traditional SATs. The examination of potential differences should include levels of academic performance during elementary, middle, and high school years as well as college attendance.

### Conclusion

The current study was one of very few investigations of an RTI model as a potential solution to the problem of disproportionality. Program evaluation data were examined in twelve schools in a Southeastern state comparing the IC-Team model to a traditional model of providing student assistance; data were examined with regard to the relative risk of African American and Hispanic students for evaluation and identification for special education services. There were no significant differences detected between IC-Teams and traditional SATs in terms of the relative risk of African American or Hispanic students for

evaluation for special education services. There were no significant differences detected between IC-Teams and traditional SATs in terms of relative risk of African American or Hispanic students for eligibility for special education services.

Secondary analyses were conducted to examine potential differences between teams in risk for identification for special education services for African American and Hispanic students independently of the risk for White students. These analyses revealed statistically significant differences between IC-Teams and SATs in terms of the risk for identification for special education for African American, Hispanic and White students.

The results of the study were discussed in terms of the limitations of the current investigation; suggestions for future scientific inquiry were made.

Table 1: Demographic Characteristics of Enrollment By Ethnicity Across Schools

<u>Ethnicity</u>	<u>N</u>	<u>M</u>	<u>Range</u>	<u>% of Total</u>
African American	2186	182.17	53-327	33
Hispanic	691	57.58	20-121	10
White	3271	272.58	24-641	49
Total	6626	552.16	364-717	-

Table 2: Percentage of Students Evaluated and Identified by Ethnicity and Team Type

<u>Ethnicity</u>	<u>SAT</u>			<u>ICT</u>		
	<u>N</u>	<u>% Eval</u>	<u>% Id</u>	<u>N</u>	<u>% Eval</u>	<u>% Id</u>
African American	91	66	63	56	29	63
Hispanic	15	80	83	15	13	50
White	93	83	71	70	53	79

Table 3: Differences in Relative Risk for Psychoeducational Evaluation

<u>Ethnicity</u>	<u>SAT</u> M	<u>ICT</u> M	diff	90% BCa CI
African American	1.110	1.262	-0.152	-0.955, 0.746
Hispanic	0.287	0.230	0.057	-0.576, 0.372

Table 4: Differences in Relative Risk for Special Education Identification

<u>Ethnicity</u>	<u>SAT</u> M	<u>ICT</u> M	<u>diff</u>	<u>90% BCa CI</u>
African American	1.439	0.812	0.612	0.0595, 1.627*
Hispanic	0.294	0.024	0.284	0.0567, 0.641*

\*significant at  $\alpha = .05$

Table 5: Differences Between Teams in Risk Indexes for Special Education Identification

<u>Student Group</u>	<u>SAT</u> M	<u>ICT</u> M	diff	90% CI BCa
African American	0.0178	0.0052	0.0126	0.0071, 0.0188*
Hispanic	0.0110	0.0007	0.01028	0.0037, 0.0208*
White	0.0293	0.0053	0.0240	0.0095, 0.0630*

\*significant at  $\alpha = 0.05$

Table 6: Summary of Findings Across Steps in Special Education Identification Process

<u>Step</u>	<u>Finding</u>
Initial Referral	<p>White students were significantly more likely to be referred to IC-Teams than African American students.</p> <p>White and Hispanic students were referred in similar proportions to IC-Teams and SATs.</p>
Referral for Psychoeducational Evaluation	<p>Students referred to SATs were significantly more likely to be referred for evaluation than were students referred to IC-Teams.</p> <p>Within IC-Teams, there were no differences between racial groups in terms of proportion of students referred for evaluation.</p> <p>Within SATs, White students were significantly more likely to be referred for evaluation.</p> <p>There were no significant differences between teams in the relative risk of either African American or Hispanic students for referral for evaluation.</p>

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Step	Finding
Eligibility for Special Education Services	<p>There were no significant differences between teams in terms of the probability of a student being found eligible once referred for testing.</p> <p>Within IC-Teams, there were no significant differences between racial groups in terms of proportions of students found eligible.</p> <p>Within SATs, there were no significant differences between racial groups in the probability of being found eligible for special education services once referred for testing.</p> <p>IC-Teams were associated with significantly lower relative risk ratios of African American students for eligibility versus SATs.</p> <p>IC-Teams were associated with significantly lower relative risk ratios of Hispanic students for eligibility versus SATs.</p>

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## References

- Amado, A. J., Sines, M., & Garza, S. (1999, August). *School psychology training: Psychological assessment of Hispanic English proficient students*. Paper presented at the meeting of the American Psychological Association, Boston.
- Artiles, A. J. (1998). The dilemma of difference: Enriching the disproportionality discourse with theory and context. *The Journal of Special Education, 32*, 32-26.
- Artiles, A. J., Rueda, R., Salazar, J. J., & Higareda, I. (2005). Within-group diversity in minority disproportionate representation: English language learners in urban school districts. *Exceptional Children, 71*, 283-300.
- Artiles, A. J. & Trent, S. C. (1994). Overrepresentation of minority students in special education: A continuing debate. *The Journal of Special Education, 27*, 410-437.
- Arzubiaga, A., Ceja, M., & Artiles, A. J. (2000). Transcending deficit thinking about Latinos' parenting styles: Toward an ecocultural view of family life. In C. Tejeda, C. Martinez, Z. Leonardo (Eds.) *Charting new terrains of Chicana(o)/Latina(o) education*. (pp. 93-106). Cresskill, NJ: Hampton Press.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.
- Bielinski, J., & Ysseldyke, J. (2000). *Interpreting trends in the performance of special education students*. (Technical Report 27). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.
- Blanchett, W. J., Mumford, V., & Beachum, F. (2005). Urban school failure and disproportionality in a post-brown era: Benign neglect of the constitutional rights of students of color. *Remedial and Special Education, 26*(2), 70-81.
- Bollmer, J., Bethel, J., Garrison-Mogren, R., & Brauen, M. (2007). Using the risk ratio to assess racial/ethnic disproportionality at the school-district level. *The Journal of Special Education, 41*, 186-198.
- Bonner, M., Koch, T., & Langmeyer, D. (2004). Organizational theory applied to school reform: A critical analysis. *School Psychology International, 25*, 455-471.
- Brady, K., & Woolfson, L. (2008). What teacher factors influence their attributions for children's difficulties in learning? *British Journal of Educational Psychology, 78*, 527-544.
- Bynoe, P. F. (1998). Rethinking and retooling teacher preparation to prevent perpetual failure by our children. *The Journal of Special Education, 32*, 37-40.

- Campbell, F. A. & Ramey, C. T. (1994). Effects of early intervention on intellectual and Academic achievement: A follow-up study of children from low-income families. *Child Development, 65*, 684-698.
- Carlberg, C. & Kavale, K. (1980). The efficacy of special versus regular class placement for exceptional children: A meta-analysis. *The Journal of Special Education, 14*, 295-309.
- Ceci, S. J., & Williams, W. M. (1999). *The Nature-Nurture Debate: The Essential Readings*. Malden, MA: Blackwell Publishing.
- Chinn, P. C., & Hughes, S. (1987). Representation of minority students in special education classes. *Remedial and Special education, 8*, 41-46.
- Conoley, J. C., & Conoley, C. W. (1982). The effects of two conditions of client-centered consultation on student teacher problem descriptions and remedial plans. *Journal of School Psychology, 20*, 323-328.
- Coulter, X. (1996). On rebuttals by scientists. *PsycCritiques, 41*, 1226-1226.
- Coutinho, M. J., & Oswald, D. P. (2000). Disproportionate representation in special education: A synthesis and recommendations. *Journal of Child and Family Studies, 9*(2), 135-156.
- Daniels, V. I. (1998). Minority students in gifted and special education programs: The case for educational equity. *The Journal of Special Education, 32*, 41-43.
- de la Cruz, R. E. (1996). *Assessment-bias issues in special education: A review of literature*. (ERIC Document Reproduction Service No. ED. 390246).
- Diana v. State Board of Education, C.A. 70 RFT (N.D. Cal, Feb. 3, 1970, 1973).
- De Valenzuela, J. S., Copeland, S. R., Qi, C. H., & Park, N. (2006). Examining educational equity: Revisiting the disproportionate representation of minority students in special education. *Exceptional Children, 72*, 425-441.
- Dickens, W.T., & Flynn, J. R. (2006). Black Americans reduce the racial IQ gap: Evidence from standardization samples. *Psychological Science,*
- Donovan, S., & Cross, C. (Eds.). (2002). *Minority Students in special and gifted education*. Washington, DC: National Academy Press.
- Dunn, L. M. (1968). Special education for the mildly retarded – Is much of it justifiable? *Exceptional Children, 23*, 5-21.
- Edwards, O. W. (2006). Special education disproportionality and the influence of intelligence test selection. *Journal of Intellectual & Developmental Disability, 31*, 246-248.

- Ferri, B. A., & Connor, D. J. (2005). In the shadow of Brown: Special education and overrepresentation of students of color. *Remedial and Special Education, 26*, 93-100.
- Fierros, E. G., & Conroy, J. W. (2002). Double-jeopardy: An exploration of restrictiveness and race in special education. In D. J. Losen & G. Orfield, (Eds), *Racial inequality in special education* (pp39-70). Cambridge, MA: Harvard Education Press.
- Gravois, T. A., Knotek, S. K., & Babinski, L. (2002). Educating practitioners as consultants: Development and implementation of the Instructional Consultation Team Consortium. *Journal of Educational and Psychological Consultation, 13*, 113-132.
- Gravois, T. A., & Rosenfield, S. A. (2002). A multi-dimensional framework for evaluation of instructional consultation teams. *Journal of Applied School Psychology, 19*, 5-29.
- Gravois, T. A., & Rosenfield, S. A. (2006). Impact of Instructional Consultation Teams on the placement of minority students in special education. *Remedial and Special Education, 27*, 42-52.
- Gould, S. J. (1995). Mismeasure by any measure. In R. Jacoby, & N. Glauberman (Eds). *The Bell Curve debate: History, documents and opinions*. (pp 3-13) New York: Times Books.
- Guadalupe Organization v. Tempe Elementary School District #3, No. 71-435. (D. Ariz., January 24, 1972) (consent decree).
- Gunn, B., Smolkowski, K., Biglan, A., & Black, C. (2002). Supplemental instruction in decoding skills for Hispanic and Non-Hispanic students in early elementary school: A follow-up. *The Journal of Special Education, 36*, 69-79.
- Harris, J. J., Brown, E. L., Ford, D. Y., & Richardson, J. W. (2004). African Americans and multicultural education: A proposed remedy for disproportionate special education placement and underinclusion in gifted education. *Education and Urban Society, 36*, 304-341.
- Harris-Murri, N., King, K., & Rostenberg, D. (2006). Reducing disproportionate minority representation in special education programs for students with emotional disturbances: Toward a culturally-responsive Response to Intervention model. *Education and Treatment of Children, 29*, 779-799.
- Harry, B., & Anderson, M. G. (1994). The disproportionate placement of African American males in special education programs: A critique of the process. *The Journal of Negro Education, 63*, 602-619.
- Harry, B., & Klingner, J. (2006). *Why are so many minority students in special education? Understanding Race and Disability in Schools*. New York: Columbia University, Teachers College Press.

- Harry, B., & Klingner, J. (2007). Discarding the deficit model. *Educational Leadership*, 49, 16-41.
- Harry, B., Klingner, J., Sturges, K. M., & Moore, R. F., (2002). Of rocks and soft places: Using qualitative methods to investigate disproportionality. In D. Losen & G. Orfield (Eds.), *Racial inequity in special education* (pp. 71-92). Cambridge, MA: Harvard Education Press.
- Herrera, J. (1998). *The disproportionate placement of african americans in special education: An analysis of ten cities*. (ERIC Document Reproduction Service No. ED. 423324).
- Herrnstein, R. J., & Murray, C. (1994). *The Bell Curve: Intelligence and class structure in American life*. New York: The Free Press.
- Hesterberg, T. C., Moore, D. S., Monaghan, S., Clipson, A., & Epstein, R. (2005): *Bootstrap Methods and Permutation Tests*. Second Edition. New York: W.H. Freeman.
- Hosp, J. L., & Hosp, M. K. (2001). Behavior differences between African-American and White students: Issues for assessment and intervention. *Education & Treatment of Children*, 24(3), 336-350.
- Hosp, J. L., & Madyun, N. H. (2007). Addressing disproportionality with response to intervention. In S. R. Jimerson, M. K. Burns & A. M. VanDerHeyden (Eds.), *Handbook of response to intervention: The science and practice of assessment and intervention*. (pp. 172-181). New York, NY, US: Springer Science + Business Media.
- Hosp, J. L., & Reschly, D. J. (2002). Predictors of restrictiveness of placement for African-American and White students. *Exceptional Children*, 68(2), 225-238.
- Hosp, J. L., & Reschly, D. J. (2003). Referral rates for intervention or assessment: A meta-analysis of racial differences. *The Journal of Special Education*, 37(2), 67-80.
- Hosp, J. L., & Reschly, D. J. (2004). Disproportionate representation of minority students in special education: Academic, demographic, and economic predictors. *Exceptional Children*, 70(2), 185-199.
- Individual with Disabilities Education Act Amendments of 1997, 20 U.S.C. 1499 *et seq*.
- Jacob, S., & Hartshorne, T. S. (2003). *Ethics and law for school psychologists*. (4<sup>th</sup> Ed.). Hoboken NJ: John Wiley and Sons.
- Jensen, A. R. (1980). *Bias in mental testing*. New York: Free Press.
- Joyce, B. & Showers, B. (1980). Improving inservice training: The messages of research. *Educational Leadership*, 37, 379-385.

- Klingner, J. K., & Edwards, P. A. (2006). Cultural considerations with response-to-intervention models. *Reading Research Quarterly, 41*, 108-117.
- Knotek, S. K. (2003). Bias in problem solving and the social process of student study teams: A qualitative investigation. *The Journal of Special Education, 37*, 2-14.
- Kuralt, S. (1990, August). *Classroom collaboration: Implementing consultation-based intervention in five multidisciplinary teams*. Paper presented at the Annual Meeting of the American Psychological Association, Boston.
- Larry P. v. Riles, 495 F.Supp. 926 (N.D. Cal. 1979).
- Logan, K. R., Hansen, C. D., Nieminen, P. K., & Wright, E. H. (2001). Student support teams: Helping students succeed in general education classrooms or working to place in special education? *Education and Training in Mental Retardation and Developmental Disabilities, 36*, 280-292.
- Losen, D. J., & Orfield, G. (2002). *Racial inequity in special education*. Cambridge, MA: Civil Rights Project, Harvard University.
- MacMillan, D. L., & Forness, S. R. (1998). The role of IQ in special education placement decisions: Primary and determinative or peripheral and inconsequential? *Remedial and Special Education, 19*, 239-253.
- MacMillan, D. L., Gresham, F. M., Lopez, M. F., & Bocian, K. M. (1996). Comparison of students nominated for prereferral interventions by ethnicity and gender. *The Journal of Special Education, 30*, 133-151.
- MacMillan, D. L., & Reschly, D. J. (1998). Overrepresentation of minority students: The case for greater specificity or reconsideration of the variables examined. *The Journal of Special Education, 32*, 15-24.
- Mehan, H., Hertweck, A., & Meihls, J. L. (1986). *Handicapping the handicapped: Decision-making in students' educational careers*. Stanford, CA: Stanford University Press.
- Mickelson, R. A. (2001). Subverting Swann: First- and second-generation segregation in the Charlotte-Mecklenburg schools. *American Education Research Journal, 38*, 215-252.
- Moore-Brown, B. J., Montgomery, J. K., Bielinski, J., & Shubin, J. (2005). Responsiveness to intervention: Teaching before testing helps avoid labeling. *Topics in Language Disorders, 25*, 148-167.
- Muller, E., & Markowitz, J. (2003). Biennial performance reports- Disproportionality Quick Turn Around. National Association of State Directors of Special Education, Incorporated. Project FORUM. (ERIC Document Reproduction Service No. ED476292).

- National Research Council (2002). *Minority students in special and gifted education*. M. S. Donovan and C. T. Cross (Eds.). Division of Behavioral and Social Sciences and Education. Washington, DC.: National Academy Press.
- Neal, L. V., McCray, A. D., Webb-Johnson, G., & Bridgest, S. T. (2003). The effects of African American movement styles on teachers' perceptions and reactions. *Journal of Special Education, 37*, 49-57.
- Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Ceci, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist, 51*, 77-101.
- Nisbett, R. E. (2005). Heredity, environment, and race differences in IQ: A commentary on Rushton and Jensen (2005). *Psychology, Public Policy, and Law, 11*(2), 302-310.
- O'Connor, C., & Fernandez, S. D. (2006). Race, class, and disproportionality: Reevaluating the relationship between poverty and special education placement. *Educational Researcher, 35*, 6-11.
- Ochoa, S. H., Garza, S., & Amado, A. (1999, August). *School psychology training pertaining to psychological assessment of African Americans*. Paper presented at the meeting of the American Psychological Association, Boston.
- Oswald, D. P., Coutinho, M. J., Best, A. M., & Nguyen, N. (2001). Impact of sociodemographic characteristics on the identification rates of minority students as having mental retardation. *Mental Retardation, 39*(5), 351.
- Oswald, D. P., Coutinho, M. J., Best, A. M., & Singh, N. N. (1999). Ethnic representation in special education: The influence of school-related economic and demographic variables. *Journal of Special Education, 32*(4), 194.
- Parrish, T. (2002). Racial disparities in the identification, funding and provision of special education. In D. J. Losen & G. Orfield (Eds), *Racial inequity in special education* (pp. 15-37). Cambridge, MA: Harvard Civil Rights Project.
- PASE v. Hannon, 506 F. Supp. 831 (D.N.D.I. 1980).
- Patton, J. M. (1998). The disproportionality representation of African Americans in special education: Looking behind the curtain for understanding and solutions. *The Journal of Special Education, 32*, 25-31.
- Podell, D. M., & Soodak, L. C. (1993). Teacher efficacy and bias in special education referrals. *Journal of Educational Research, 86*, 247-253.
- R Development Core Team (2008). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.
- Rhodes, R. L., Ochoa, S. H., & Ortiz, S. O. (2005). *Assessing culturally and linguistically diverse students: A practical guide*. Guilford Press, New York.

- Rosenfield, S. A. (1987). *Instructional Consultation*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Rosenfield, S. A. (1992). Developing school-based consultation teams: A design for organizational change. *School Psychology Quarterly*, 7, 27-46.
- Rosenfield, S. A. & Gravois, T. A. (1996). *Instructional Consultation Teams: Collaborating for change*. New York: Guilford Press.
- Rushton, J. P., & Jensen, A. R. (2005). Thirty years of research on race differences in cognitive ability. *Psychology, Public Policy, and Law*, 11(2), 235-294.
- Schwartz, N. H., Wolfe, J. N., & Cassar, R. (1997). Predicting teacher referrals of emotionally disturbed children. *Psychology in the Schools*, 34, 51-61.
- Serna, L. A., Forness, S. R., & Nielsen, M. E. (1998). Intervention versus affirmation: Proposed solutions to the problem of disproportionate minority representation in special education. *The Journal of Special Education*, 32, 48-51.
- Serwatka, T. S., Deering, S., & Grant, P. (1995). Disproportionate representation of African Americans in emotionally handicapped classes. *Journal of Black Studies*, 25, 492-506.
- Showers, B., Joyce, B., & Bennett, B. (1987). Synthesis of research on staff development: A framework for future study and state-of-the-art analysis. *Educational Leadership*, 45, 77-87.
- Skiba, R. J., Michael, R. S., Nardo, A. C., & Peterson, R. L. (2002). The color of discipline: Sources of racial and gender disproportionality in school punishment. *The Urban Review*, 34, 317-342.
- Skiba, R. J., Poloni-Staudinger, L., Gallini, S., Simmons, A. B., & Feggins-Azziz, R. (2006). Disparate access: The disproportionality of African American students with disabilities across educational environments. *Exceptional Children*, 72(4)
- Skiba, R. J., Poloni-Staudinger, L., Simmons, A. B., Feggins-Azziz, L. R., & Chung, C. (2005). Unproven links: Can poverty explain ethnic disproportionality in special education? *The Journal of Special Education*, 39(3), 130-144.
- Skiba, R., Simmons, A., Ritter, S., Kohler, K., Henderson, M., & Wu, T. (2006). The context of minority disproportionality: Practitioner perspectives on special education referral. *Teachers College Record*, 108(7), 1424.
- Truscott, S. D., Cohen, C. E., Sams, D. P., Sanborn, K. J., & Frank, A. J. (2005). The current state(s) of prereferral intervention teams: A report from two national surveys. *Remedial and Special Education*, 26, 130-140.
- Tschannen-Moran, M., Woolfolk-Hoy, A., & Hoy, W. K. (1998). Teaching efficacy: Its meaning and measure. *Review of Educational Research*, 68, 202-248.

- Valles, E. C. (1998). The disproportionate representation of minority students in special education: Responding to the problem. *The Journal of Special Education, 32*, 52-54.
- Vaughn, S., & Fuchs, L. S. (2003). Redefining learning disabilities as inadequate response to instruction: The promise and potential problems. *Learning Disabilities Research and Practice, 18*, 137-146.
- Xu, Y., & Drame, E. (2007). Culturally appropriate context: Unlocking the potential of Response-to-Intervention for English language learners. *Early Childhood Education Journal, 35*, 305-311.
- Zigmond, N. (2003). Where should students with disabilities receive special education services: Is one place better than another? *The Journal of Special Education, 37*, 193-199.