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EFFECTIVENESS OF THE TEACHING ENRICHMENT ACTIVITIES TO MINORITIES (TEAM) PROGRAM AT INCREASING UNDERREPRESENTED STUDENTS IN GIFTED PROGRAMS

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF EDUCATION

in

CURRICULUM AND INSTRUCTION

by

Lisette Teresa Camps

2005

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This dissertation, written by Lisette Teresa Camps, and entitled Effectiveness of the Teaching Enrichment Activities to Minorities (TEAM) Program at Increasing Underrepresented Students in Gifted Programs, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Stephen M. Fain

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Date of Defense: November 17, 2005

The dissertation of Lisette Teresa Camps is approved.

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DEDICATION

I dedicate this dissertation to my parents, Teresa and Rodrigo Rodriguez, for their continuous support, love, and encouragement.

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ABSTRACT OF THE DISSERTATION

EFFECTIVENESS OF THE TEACHING ENRICHMENT ACTIVITIES TO MINORITIES (TEAM) PROGRAM AT INCREASING UNDERREPRESENTED STUDENTS IN GIFTED PROGRAMS

by

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Florida International University, 2005

Miami, Florida

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This study examined the effectiveness of the TEAM (Teaching Enrichment Activities to Minorities) program in preparing and identifying underrepresented students for entrance into the gifted program. Miami-Dade County Public Schools (M-DCPS) developed the TEAM program as an intervention program aimed at developing student's thinking skills and critical thinking skills in all subject areas and prepare students for possible placement into the gifted program.

A systematic sampling strategy was utilized to select three TEAM schools from each of the six regions in M-DCPS for the sample, for a total of 18 schools. A pool of the students that participated in the TEAM program in 2003-2004 in the 18 schools selected were identified as the TEAM Sample students. A matching sample was created from 18 public schools in Miami-Dade County that did not implement the TEAM program in 2003-2004. The Matching Sample created a match for 806 students in the TEAM sample, for a total of 1612 subjects for the study.

This study used a logistical regression design to analyze the relationships of multiple independent variables, including: ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, mathematics achievement, and participation TEAM on the dependent variables of referral for the gifted program and eligibility into the gifted program. The first analysis found the variables of grade level, participation in TEAM, reading achievement, and mathematics achievement were all significant variables in determining if a student was referred for the gifted program. The second analysis found the variables of grade level, gender, free/reduced lunch status, reading achievement, and mathematics achievement were all significant variables in determining if a student was eligible for the gifted program.

Recommendations based on the results of this study include the expansion of the TEAM program in M-DCPS to include additional grade levels and schools. Additionally, adopting a broadened definition of giftedness and reviewing the screening and placement policies for potentially gifted students is recommended. Adopting multicultural and broader definitions of giftedness and constructing better tools and programs, such as TEAM, for assessing and identifying potential gifted students, represent small steps towards creating equitable education for all students.

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CHAPTER I

INTRODUCTION

The underrepresentation of minority groups in programs for the gifted has been of growing concern to educators and society at large. For many years culturally and linguistically diverse groups such as African Americans, Hispanics, and Native Americans are underrepresented by 30% to 70 % in national gifted programs and over represented by 40% to 50% in special education programs (Plummer, 1995). Other data suggests "Black, Hispanic, and Native American children appear in gifted programs at only about one half their prevalence in the larger society" (Gallagher, 1991, p. 16). The National Educational Longitudinal Study (NELS) sponsored by the U.S. Department of Education's National Center for Educational Statistics found that the representation of racial and ethnic groups in gifted programs favors some groups over others. The study found that gifted programs nationwide were comprised of 17.6% of all Asian students, 9% of all white students, 7.9% of all African American students, 6.7% of all Hispanic students, and 2.1% of all Native American students (Resnick & Goodman, 1997). Additionally, students from the bottom quartile in family income represented 9% of gifted program participants, whereas students from the top quartile made up 47% (Kitano & DiJiosia, 2002). The underrepresentation of minorities and the poor in gifted programs constitutes a potential waste of talent that our society cannot afford.

Background of the Problem

Education for learners who are gifted has been included within Florida's Exceptional Student Education (ESE) Program since 1968 (Florida Legislature, 1996, March). The first state mandate for gifted education was Rule 6A-6.3019, FAC (Florida

Administrative Code) which became effective July 1, 1977. This rule defined the gifted student as "one who has superior intellectual development and is capable of high performance" (Special Programs, 1977, p. 1). This definition of gifted was adapted from the federal definition written by Sidney P. Marland, Jr., U.S. Commissioner of Education. In his report to Congress, (Marland, 1972) gifted and talented children were defined as:

> Those identified by professionally qualified persons, who by virtue of outstanding abilities are capable of high performance. These children who require differentiated programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated high achievement and/or potential ability in any of the following areas, singly or in combination; general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual and performing arts, and/or psychomotor ability. (p. 2)

The Florida rule (6A-6.3019, FAC) defined the criteria for eligibility to include an intelligence quotient of two standard deviations or more above the mean on an individually administered standardized test of intelligence, a majority of characteristics of gifted children according to a standard scale or checklist, and a need for a special program (Special Programs, 1977). Under the state board rule, procedures for evaluation include an evaluation of intellectual potential characteristics of the gifted, a statement of nonacademic performance, and the need for a special program (Special Programs, 1977). In 1988 the U.S. Congress passed the Jacob K. Javits Gifted and Talented Students Education Act as part of the Elementary and Secondary Education Bill. "This act provided $8 million for the identification and services of gifted students, the professional development and training of teachers, and the creation of a National Center for the Eucation of the Gifted" (Heward, 1996, p. 33). The Jacob K. Javits Gifted and Talented Education Program gave the "highest priority to identifying and serving gifted and

talented students who may not be identified and served through traditional assessment methods (including economically disadvantaged, individuals of limited English proficiency, and individuals with disabilities)" (U. S. Department of Education, 2000, p. 2).

Research conducted in the early 1990's found that minority students were significantly underrepresented among the top-performing students across the nation. In one national sample, only ten percent of top performing students are African American, Hispanic, or Native American, even though they make up about 30 percent of the student population in the United States (U. S. Department of Education, 2000). As a response to this, the first and foremost component of the mission of the National Research Center on the Gifted and Talented (NRC/GT) is to investigate "factors related to identifying, nurturing, and developing a broad range of talent potentials in students from diverse ethnic and socioeconomic backgrounds" (National Research Center, 2002, p. 1).

The national attention given to underrepresented groups in gifted programs through the Jacob K. Javits Gifted and Talented Students Education Act and the NRC/GT led the state of Florida to revise their gifted rule in 1991 to include specific criteria for traditionally underrepresented students. This rule (6A-6.03019, FAC), titled Special Instructional Programs for Students Who Are Gifted (1991), continued to define a gifted student as "one who has superior intellectual development and is capable of high performance", but it redefined the criteria for eligibility. Section B of board rule 6A-6.03019(2)(b)1., FAC, provided greater flexibility in identifying students who are members of an underrepresented group, including limited English proficient students and students from a low socio-economic status families as measured by the student's

eligibility for the government subsidized free and reduced lunch program. This section, which became known as Plan B, allowed school districts to develop a plan for increasing the participation of underrepresented groups in programs for gifted students. Miami-Dade County Public Schools' District Plan to Increase Access of Underrepresented Students to Gifted Programs: Plan B (2003) states that if a student is limited English proficient or from a low socio-economic status family they can qualify for the gifted program with a documented need and a majority of gifted characteristics and a minimum score of 98th percentile on an achievement test or using a matrix, which quantifies teacher recommendation, achievement scores, creativity, and intellectual development.

In 1996 the Office of Program Policy Analysis and Government Accountability (OPPAGA) of the Florida Legislature reviewed Florida's K-12 gifted program. One area that was addressed by this two-part brief was the participation of under-represented students in the gifted programs (Florida Legislature, 1996, September). OPPAGA was interested in evaluating how successful districts were in using strategies to increase participation of underrepresented groups; which types of evaluation instruments were being used by districts; and whether or not the amended rule for gifted (6A-6.03019, FAC), known as Plan B, had increased the participation of underrepresented groups in gifted programs since its implementation in 1991. OPPAGA reviewed Department of Education gifted program documents, interviewed various school district staff, Department of Education staff, and reviewed FTE (Full-Time Equivalent Student) counts for the fiscal years 1994-95 through 1995-96. Through their research, they found that in 1995, 49 out of 67 school districts had developed and implemented Plan Bs for identifying students who are members of an underrepresented group.

School districts implementing Plan Bs were "using a variety of strategies to ensure the underrepresented students are screened for gifted programs" (Florida Legislature, 1996, September, p. 7). These screening strategies included: matrix scoring, gifted assessment teams, tests and referrals, training, grade point average, and achievement and IQ tests. Most districts used more than one screening strategy to identify potentially gifted students from under-represented groups (Florida Legislature, 1996, September). "Matrix scoring awards students points based on a combination of evaluation indicators such as test data, academic performance, gifted-characteristics checklists, and teacher/parent nomination forms. Students who receive a specified number of points are eligible for individual psychological assessment or are eligible for gifted programs" (Florida Legislature, 1996, September, p. 7). OPPAGA found that the intelligence tests most commonly used for Florida's Plan B students were the Stanford Binet Intelligence Test and the Weschler Intelligence Scale for Children III.

In their research, OPPAGA (1996, March) found that "between the 1991-92 and 1995-96 school years, the percentage of minority students in gifted programs in districts with Plan B increased by 9%" (p.16). Yet, minority representation in the districts that had not implemented the Plan B only grew by 1%. Data also indicates that during the same years, the percentage of students with limited English proficiency (LEP) in districts implementing Plan B increased by 0.11%, while the districts without a Plan B actually saw a decrease in LEP students by 0.25% (Florida Legislature, 1996, March). "Likewise, between the 1992-93 and 1995-96 school years, the percentage of gifted students from low socio-economic families, eligible for free or reduced lunch, in districts implementing Plan B increased by 6%. In contrast, the percentage of gifted students eligible for free or

reduced lunch in districts that have not implemented Plan B increased by 1%" (p. 16). While minority participation in gifted programs increased through Plan B, OPPAGA found that minority students were still under-represented in gifted programs. "In the 1995-96 school year, minority students made up 43% of the student population statewide, but only made up 22% of the gifted program statewide" (p. 22). The greatest gap was found to be with African American students, who in 1995-96 made up 25% of the student population in Florida's public schools, yet only represented 8% of students in gifted programs statewide (Florida Legislature, 1996, March).

Significance of the Problem

Although much advancement has been made since Plan B was implemented, white non-Hispanic students currently make up 64% of students in the gifted program in Florida, while African Americans make up 10%, Hispanics 19%, and Asian and others 7% (Florida Department of Education, 2004). In Miami-Dade County Public Schools, African American students are underrepresented in programs for the gifted by 14% and Hispanics are underrepresented by 2%; students on free/reduced lunch are underrepresented by 24%; and Limited English Proficient students by 20% (Florida Department of Education, 2004). The Miami-Dade County Public School district has developed and implemented several strategies and programs to provide greater opportunities and access to students from underrepresented groups in programs for gifted students. Current programs, such as the Teaching Enrichment Activities to Minorities (TEAM) program aims to develop student's thinking skills, link critical thinking skills to all subject areas, and prepare students for possible placement into the gifted program. The district also utilizes strategies such as teacher and parent training, conducted by

district staff and educational consultants, in the identification of gifted students as a way of raising awareness about gifted student education and the issue of underrepresentation of certain groups.

Purpose of the Study

This study will investigate the effectiveness of the TEAM (Teaching Enrichment Activities to Minorities) program in preparing and identifying underrepresented students for entrance into the gifted program. The goals of programs such as TEAM are to develop strategies and approaches capable of revealing hidden talents and abilities in individuals across ethnic, racial, and cultural lines and to then prepare them for screening and eligibility into programs for the gifted. The results of this study should be of interest to school district administrators and educators interested in curriculum and instructional strategies that address the concern over underrepresented populations in gifted and advanced programs.

Statement of the Problem

The Miami-Dade County Public School district has developed and implemented the TEAM program as one strategy to provide greater opportunities and access to students from underrepresented groups in programs for gifted students. An evaluation of the effectiveness of the TEAM program at increasing the number of underrepresented students in gifted programs is needed. Hence, this study seeks to answer the following questions.

Research Question

This research project seeks to answer two main questions:

1. What is the effectiveness of the TEAM program in increasing the number of underrepresented students referred for the gifted program?
2. What is the effectiveness of the TEAM program in increasing the number of underrepresented students eligible for the gifted program?

Subsidiary Questions

Additional, subsidiary questions include the following:

1. Are there differences with regard to ethnicity?
2. Are there differences with regard to limited English proficiency?
3. Are there differences with regard to gender?
4. Are there differences with regard to free/reduced lunch status?
5. Are there differences with regard to grade level?
6. Are there differences with regard to reading achievement?
7. Are there differences in with regard to mathematics achievement?

Definitions

Gifted. A student who has superior intellectual development and is capable of high performance (Marland, 1972).

Underrepresented. Underrepresented groups are defined as those whose racial/ethnic backgrounds are other than white, non-Hispanic, or who are limited English proficient, or who are from a low socio-economic status family (Florida Department of Education, 1992).

Screening. Screening is the process by which a rapid assessment is made to identify candidates for formal evaluation. The purpose of screening is to identify a pool of potentially gifted students (Coleman, 2003).

Referral. A referral is the process whereby a written request is made for a formal evaluation of a student who may need special instructional services (Heward,1996). A referral can be made by a teacher, a parent/guardian, or any qualified individual who has knowledge of the student's abilities.

Eligible. A student in Florida is eligible for special instructional programs for the gifted if the student meets the criteria under paragraph (2) (a) or (b) of the Florida Department of Education rule 6A-6.03019, FAC. (Special Instructional Programs for Students Who Are Gifted, 2005)

Need for gifted services. Need for gifted services exists where a student who is gifted requires differentiated educational services beyond that which can be provided through the general curriculum in order to progress at levels commensurate with his or her abilities (Marland, 1972).

Critical Thinking. Critical thinking is the productive thinking ability that enables individuals to solve problems, plan and implement ideas, and evaluate decisions (Frasier & Carland, 1982).

Creative Thinking. In creative thinking the individual strives to discover new solutions to problems, seek new relationships, or find new modes of expression (Frasier & Carland, 1982).

Enrichment. Enrichment practices are intended to increase the breadth and depth of students' learning experiences that may include special assignments, independent

study, small group work, and other adaptations of routine school processes (Frasier & Carland, 1982).

Assumptions

This research study assumes that the TEAM program has a positive influence regarding gifted referrals and gifted eligibility in the school sites that implement it. Teachers in the TEAM program are trained in strategies for identifying gifted students, recognizing giftedness in diverse students, and the referral and eligibility criteria for gifted, thereby increasing awareness in these areas.

Limitations

The results of this study will only be generalizable to subjects similar to those of the study itself (i.e., elementary students in Miami-Dade County Public Schools). This study would have to be replicated at other grade levels and schools and similar results would have to be obtained before further conclusions could be made about extending the results to other populations.

Summary

In summary, despite recent efforts, little progress has been made in improving the overall representation of diverse students in gifted education. Culturally and linguistically diverse students continue to be underrepresented in programs for the gifted. This study will investigate the effectiveness of the TEAM (Teaching Enrichment Activities to Minorities) program in preparing and identifying underrepresented students for entrance into the gifted program. The TEAM program aims to develop students' critical and creative thinking skills and develop strategies capable of revealing hidden talents in diverse students. The major assumption of the research study is that the TEAM

program has a positive influence regarding gifted referrals and gifted eligibility in the school sites that implement it. The major limitation of this study is that the results may only be generalized for the population studied.

CHAPTER II

REVIEW OF THE RELATED RESEARCH

This review examines the literature on the causes of underrepresentation in gifted programs, the characteristics of culturally and linguistically diverse gifted students, cross-cultural characteristics of gifted students, the research on intervention strategies for reversing underrepresentation in gifted programs, and an analysis of the Teaching Enrichment Activities to Minorities (TEAM) program.

Causes of Underrepresentation in Gifted Programs

There are several barriers and problems, which hinder the appropriate educational opportunities for culturally and linguistically diverse gifted students. Although many would like to believe that as a nation we have moved beyond prejudice and discrimination towards minorities, the attitudes of some regarding the abilities of minority children have in fact hampered their access to gifted programs. Publications like The Bell Curve (Herrnstein & Murray, 1994) have proliferated the prejudicial notion that minorities such as African Americans are innately intellectually inferior to others. Today, "the remnants of this belief continues to germinate within the schooling process and the field of gifted education" (Morris, 2002, p. 59). Studies have shown that some educators have negative stereotypes and inaccurate perceptions of the abilities of children who are racially, culturally, and linguistically diverse (Ogbu, 1992). The teacher and administrator's expectations impact on talent recognition. Results on Renzulli's SRBCSS, (Scale for Rating Behavioral Characteristics of Superior Students), found that "there were significant differences between teacher ratings of Anglo-American and Hispanic students based on the student's acculturation level" (Masten & Plata, 2000, p.

46). This leads to an under-referral of minority students for gifted education screening and placement.

Teacher nominations are the most common identification method used to identify gifted students. Yet, according to researchers (Davis & Rimm, 2004; Peterson & Margolin, 1997; Ford, 2003) teacher nominations for gifted are a highly invalid identification strategy. Teachers tend to nominate students who turn in their work on time, get good grades, work neatly, overachieve, and are teacher pleasers. "The extremely bright or the creative, curious, and questioning students, who may be stubborn, rule-breaking, egotistical, or otherwise high in nuisance value, may not be the teachers' favorites, but they sometimes are the most gifted" (Davis & Rimm, 2004, p. 85).

Peterson and Margolin (1997) found that White middle-class teachers often overlook minority students in gifted nominations because of their own cultural mainstream definition of giftedness. In their study, teachers tended to select members of their own culture and primary language. Teacher referrals are quite subjective because they tend to rest heavily on expectations and perceptions of students (Ford, 2003). Some reliability and validity issues related to teacher nomination can be overcome by better acquainting teachers with the characteristics of gifted students and training them to identify giftedness in children from culturally and linguistically diverse backgrounds.

Current definitions of giftedness have also contributed to the underrepresentation of minority groups in gifted programs. "Definition and identification procedures are the most frequently cited barriers to student nomination for gifted programs" (Clasen, Middleton, & Connell, 1994, p. 28). Research shows that nearly 90 percent of school districts rely primarily on standardized and norm-referenced tests to identify gifted

students (Davis & Rimm, 2004). "This nearly exclusive reliance on test scores for placement decisions keeps the demographics of gifted programs resolutely White and middle class" (Ford, Harris, Tyson, & Trotman, 2002, p. 54). According to researchers Scott, Perou, Urbano, Hogan, & Gold (1992), "the inappropriate use of standardized tests for initial screening or for subsequent evaluations, and their questionable validity with minority and/or culturally different students are often cited as major factors contributing to the under-identification of these children in programs for the gifted and talented" (p. 131).

With regard to specific minority groups, Barkan and Bernal (1991) found that an over-reliance on standardized test scores often kept many children from language minority groups out of gifted programs. Many times teachers, administrators, and school psychologists wait until the student is fluent in English before screening them for gifted. This practice further delays the identification process and often creates additional barriers for language minority students. An obvious point made by Barkan and Bernal (1991) is that "one does not have to be fluent in English to be intelligent" (p. 144). Additionally, educators who "work closely with minority language students argue that using standardized IQ tests as a primary measure of giftedness does not fairly accommodate the linguistic and cultural differences of these students" (Cohen, 1990, p. 1). Similar studies have shown that the underrepresentation of gifted African Americans persists because of the low referral rates of African American students for gifted education services, and the heavy reliance on tests that inadequately capture the strengths and cultural orientations of African American students (Ford et al., 2002). Baldwin (1996) explains, "IQ and achievement tests cannot be depended upon to assess the capabilities of these children"

(p. 20). Other variables need to be considered in order to locate the hidden talents of diverse students.

Many researchers have documented the fact that the language and content of standardized IQ tests are biased against culturally diverse and economically deprived students (Baldwin, 1996; Davis & Rimm, 2004; Frasier, Garcia, & Passow, 1995; Helms, 1992). IQ tests are constructed based on the language of the dominant culture (middle-class English). Students that are not closely identified with the dominant language and culture are more likely to have difficulties when taking tests of verbal ability or tests that are based on the knowledge and skills of the dominant culture. In fact, minorities, economically disadvantaged, and culturally different students tend to score one standard deviation lower than middle class Anglo students on standardized intelligence tests (Davis & Rimm, 2004). Studies have consistently found that "African Americans score on average 15 points lower than whites, and Hispanics score somewhere between these two groups on IQ tests" (Prifitera, Weiss, Saklofske, & Rolfhus, 2005, p. 21). Davis and Rimm (2004) note that the differences in scores stem from differences in linguistic structures, categories, and associations of culturally different students. Others, such as Thorndike and Hagen (1977), state that IQ tests are good predictors of success within the school environment. The tests describe how a student is doing at the present time; yet cultural, language proficiency, personal traits, and family backgrounds need to be considered when interpreting test scores.

Achievement test data is often used to screen and place students into gifted programs. According to Davis and Rimm (2004), "an excellent indicator of academic talent is standardized achievement tests, such as the Iowa Tests of Basic Skills, the

Stanford Achievement Tests, the Metropolitan Achievement Tests, the SRA Achievement Series, the California Test of Basic Skills, and the Sequential Tests of Educational Progress (STEP)" (p. 89). Standardized achievement tests produce scores based on national norms. They give teachers and administrators an opportunity to measure their students' talents compared to students nationwide at a particular grade level.

The use of achievement tests for placement decisions can also work against children from diverse backgrounds when no other consideration for assessing talents and abilities is made. Achievement tests are designed to measure achievement in specific subject areas. The results of achievement tests may vary with the amount of acquired knowledge and experience that children have as well as the amount of environmental enrichment that children are exposed to. "Children from economically disadvantaged backgrounds sometimes have not been exposed to the types of experiences that go into acquired knowledge" (Ryser, 2004, p. 33). Therefore, solely using achievement test data for screening and placement decisions for gifted programs will tend to overlook a large majority of culturally and linguistically diverse students.

Another cause of the underrepresentation of minority students in gifted programs is the lack of parent referrals. A study by the University of Miami found that "fewer minority parents than White parents refer their children for possible inclusion in the gifted program" (Scott et al., 1992, p. 131). This is a major problem, because parent referrals are often the first step in the identification of a gifted child. "Regardless of any inadequacies in the assessment process, children who are not referred will never have the opportunity to be selected" (p. 131). Parents may not refer students for gifted programs

because they may feel uneasy or threatened to approach teachers or administrators to request an evaluation of their child. "They may have a family background that is not rich in language or reading or family members who have not had positive experiences with school, who have not attained higher degrees", or who simply may be unaware that these services and programs exist (Johnsen, 2004, p. 18). Families of minority students do not properly understand the availability, purpose, and benefits of gifted education and are unfamiliar with the referral, screening, and eligibility requirements that initiate the gifted identification process.

Adding low economic status to the equation greatly complicates the problem of underrepresentation. Culturally, linguistically, and ethnically diverse children often come from low socioeconomic status (SES) homes and may not demonstrate the same academic skills as their higher SES peers (Briggs & Reis, 2004). A major factor in this gap is that families in poverty must choose between basic needs such as food and shelter over the costs of educational books and games; and early enriched environments are more likely to support gifted traits that lead to referral and to identification. Minority children from low-income families often lack enriching experiences such as trips to museums, libraries, and out of town or overseas trips. "Where financial resources are lacking, children may not be provided with stimulating toys and books" (Karnes & Johnson, 1990, p. 5). These children often lack the necessary basic skills foundation and general education skills that are needed to further develop their talents and gifted potential. As researchers Naglieri and Ford (2003) explain, "many smart minority children in our country may not be considered gifted because they lack the reading, writing, and arithmetic skills typically seen in gifted children" (p. 155).

Besides the lack of teacher and parent referrals, problems with testing and identification, and minority family's economic status and education level, different learning styles may also "contribute to the underrepresentation of gifted and talented minority language students" (Cohen, 1990, p. 2). Ewing and Young (1993) found that minority students may differ in learning preferred modalities and instructional strategy preference. This difference is often due to the culture, values, language, and experiences of students from diverse backgrounds. For example, African American learners may prefer to develop relationships between concepts rather than memorize isolated facts (Briggs & Reis, 2004). Their learning environment preferences may include activities with movement and verbosity rather than solitary and noiseless. "Failure to create a learning environment and a climate for achievement in which attention is given to both affective and cognitive elements of talent development" is another barrier in identifying and nurturing disadvantaged students (Passow, 1996, p. 5). Sternberg's Triarchic Theory of Intelligence and Gardner's Theory of Multiple Intelligence "contend that giftedness is a social construct that manifests itself in many ways and means different things for different cultural groups" (Ford et al., 2002, p. 56). In order to understand how these talents manifest themselves in minority students, it is important to analyze the characteristics common to underrepresented gifted students.

Characteristics of Culturally and Linguistically Diverse Gifted Students

Giftedness is most commonly characterized by academic achievement, high verbal ability, and high motivation to achieve. Thus, many children who do not fit this profile are often overlooked for gifted placement. Minority students have less oral skills in

spoken English, are less able to express themselves through written language, and come from less affluent backgrounds and are less likely to be noticed and recognized for their gifted potentials and abilities (Tomlinson, Callahan, & Lelli, 1997). Students from African American and Hispanic groups, as well as learners from low-income backgrounds are likely to use more external clues to solve problems and demonstrate artistic talent, social skills, and leadership (Tomlinson et al., 1997). Therefore, educators need to cast a wider net when looking for potentially gifted students. Creativity and problem solving are areas that need to be looked at more closely and pose better opportunity for the minority student for recognition of potential. Research shows that students who score high in creative and practical giftedness come from more diverse backgrounds (Talent and Diversity, 1998). According to O'Tuel (1994), gifted potential consists of ability, creativity, productivity, performance, and motivation, emotions, and values.

Characteristics of giftedness can also be classified by assessing the individual student's cultural considerations. For example, characteristics of gifted African American students include, "verve, mobility, oral tradition, communalism, spirituality, and affect" (Ford et al., 2002, p. 53). "African American students are likely to prefer physical and affective engagement in tasks rather than predominantly cognitive engagement" (Tomlinson et al., 1997, p.5). These children may excel in cooperative groups more than in competitive environments. Additionally, African American students are global versus analytical, visual versus auditory, highly mobile versus static, and less peer-oriented versus more peer oriented (Ford et al., 2002). Teachers should be aware that African American students tend to be concrete learners, social learners, field

dependent learners, and learners who value their peers (Ford et al., 2002). By recognizing these characteristics, teachers, parents, and administrators could better identify gifted potential in African American students.

Identifying gifted characteristic in Hispanic students is difficult because of the variety of variables that include cultural, linguistic, socioeconomic, political, and personal uniqueness relevant to this diverse group of students. As Castellano (2003) points out, "although Hispanics share a common origin and linguistic base, the groups that make up the Hispanic population are not monolithic; they differ significantly in many important ways" (p. 32).

> Among many Hispanics, cultural differences may also produce manifestations of giftedness that differ from the traditional manifestations in the majority culture. In Puerto Rico, for example, children learn to seek the advice of their family rather than act independently. Similarly, the Mexican-American child who respects elders, the law, and authority becomes vulnerable in a school system that values individual competition, initiative, and self-direction. (Cohen, 1990, p. 2)

Similarly, Robisheaux (2002) found that gifted Mexican American students rapidly acquire English language skills, exhibit leadership ability, have older playmates, enjoy effective risk-taking behavior, and accept responsibility. These findings are similar to that of other research (Cohen, 1990 and Castellano, 2003) that indicate that creativity, leadership, and verbal ability are valued characteristics for Hispanic gifted students. "Thus, those labeled gifted by their culture may posses a divergent profile of abilities that can easily be overlooked when utilizing the typical identification measures" (Gaddis, 1996, p. 59).

Identifying LEP (Limited English Proficient) and bilingual students for gifted can also be complex. Gifted attributes of bilingual students include motivation for learning,

use of social and academic languages, cultural sensitivity, familial collaboration, imagery, achievement, creative performance, problem solving, and inner locus of control (Irby & Lara-Alecio, 1996). Similarly, Granada (2003) found that gifted "bilingual students will be more likely to demonstrate a rapid acquisition of a second language while demonstrating a high degree of manipulation and sophistication in the use of the primary language" (p. 3). In fact, "evidence is mounting that the use of language proficiency tests may help uncover gifted or potentially gifted students" (Bernal, 1980, p. 17), inferring that faster acquisition of language can be an indicator of giftedness. Other research has found that language minority students show "higher nonverbal performance on cognitive tasks" (Gonzalez, 1996, p. 49). Aguirre and Hernandez (1999) list some characteristics of students who are linguistically and culturally diverse. They state that gifted LEP students eagerly share their native culture, show strong desire to teach their peers, have a strong sense of their culture, eagerly translate for others, possess cross-cultural flexibility, and demonstrate leadership abilities. There are many gifted students in LEP and bilingual programs who need to be identified and placed in programs where they can achieve their maximum academic potential.

Native American students are also underrepresented in gifted programs. Research in the area of gifted Native Americans is limited. Most of the literature focuses on African American and Hispanic gifted students since they make up the largest minority groups in our country. Characteristics of Native American gifted students include: high verbal ability, early reading, questioning attitude, keen power of observation, and willingness to take risks (Foley & Skenandore, 2003). Native Americans tend to be underrepresented in gifted programs for two main reasons: "(1) the traditions of oral

language and cooperation rather than competition in their society, and (2) the lack of selection criteria that take into account the unique culture of Native Americans" (Foley & Skenandore, 2003, p. 116). Native American students exhibit diplomacy, group cohesiveness, and collective decision-making among their peers. These characteristics are not generally associated with commonly recognized gifted traits. As Cohen (1990) explains, "Native Americans are often caught between the schools' value of independence and the home and community value of interdependence" (p. 2).

Cross-cultural Characteristics of Gifted Students

According to the current national definition, giftedness refers to students who display evidence of high performance or potential in areas such as intellectual, creative, artistic, or leadership, or in specific academic fields (U.S. Department of Education, 1994). The concept of "potential" is addressed by Gagne's (2003) Differentiated Model of Giftedness and Talent (DMGT). Gagne (2003) makes a distinction between gifts (general aptitude), which is untrained natural ability and talents (specific skills), which emerge through learning and practice. According to the DMGT, the development of gifts into talents is facilitated or hindered by intrapersonal catalysts (e.g., motivation, personality, self-management) and environmental catalysts (e.g., persons, provisions, events). Given the importance of developing gifts into talents, parents and school districts should identify children who exhibit outstanding abilities at the earliest age possible in order to provide the educational services that will fully develop such capabilities.

The overriding trait of intellectually gifted students is that they are developmentally advanced in language and thought. Some young gifted children begin to

speak, read, and comprehend complex and abstract concepts earlier than most children. "Compared with the average child, the thinking process of the gifted child are quick and logical" (Davis & Rimm, 2004, p. 35). For many parents and teachers this early precocity is more easily identified at an early age when the differences in abilities in verbal, conceptual, and mathematical skills are most evident between gifted and non-gifted children. "For many gifted children, advanced mathematical, musical, and artistic abilities also appear early, paralleling the verbal and conceptual skills" (Davis & Rimm, 2004, p. 35). Gifted children in early elementary grades are confident and assertive with high self-efficacy, believing they are good at many things (Kerr & Nicpon, 2003). As gifted children reach adolescence, they tend to mask their giftedness in order to be more socially accepted among their peer groups. Therefore, as children reach adolescence, their gifts and talents become more difficult to identify by parents and teachers.

Research on gender differences among gifted children indicates that for the most part, gifted boys and girls do not differ significantly in cognitive skills and aptitude (Kerr, 1994; Kerr & Nicpon, 2003; Kerr & Cohn, 2001). Gifted boys have high general intelligence, efficient perception, exceptional memory, and advanced reasoning ability (Kerr & Cohn, 2001). They tend to perceive the world differently from other children. For gifted boys, the typical school setting can become boring, particularly when the student is forced to do repetitive work and is not challenged. This often leads to disruptive behavior in the classroom. With regard to social skills, the gifted boy's interests and play activities are often more sophisticated and intense than those of his peers. "Some gifted boys like to lecture other children about what they have learned or involve them in their newest interests. Much of the time, these interests: astronomy,

geology, history, etc. are not interesting to other children" (Kerr & Cohn, 2001, p. 112). The gifted boy's enthusiasm, verbal skills, and wit may be met with resistance and avoidance by his non-gifted peers.

Gifted girls are more similar to gifted boys than to average girls in their interests, attitudes, and aspirations (Kerr, 1994). Their verbal, perceptual, and cognitive abilities, as well as, their social and emotional issues are very similar to gifted boys. Giftedness is evident at an earlier age in girls than in boys (Kerr & Nicpon, 2003). Gifted girls are likely to speak, read, and write earlier than gifted boys. According to researchers Barbara A. Kerr and Megan F. Nicpon, (2003), gifted girls outperform gifted boys in classroom achievement, maintain higher grades, and are less likely to underachieve. Gifted girls are more able to adapt to the social settings of their non-gifted peers than gifted boys, making them more successful in the school environment.

Intervention Strategies for Reversing Underrepresentation in Gifted Programs

Many researchers suggest that if educators looked at multiple criteria for gifted program eligibility, more minority students would be identified. In 1994, the U.S. Department of Education proposed a new definition of gifted and talented students based on new research on cognition and assessment. The report, National Excellence: A Case for Developing America's Talent (1994), "reframed and broadened much of the earlier thinking of the field, incorporating many of the talent development ideals promoted by Renzulli and colleagues" (Baker, 2001, p. 232). The new definition states that gifted students are:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youths from all cultural groups, across all economic strata and in all areas of human endeavor. (U.S. Department of Education, 1994, p. 2)

This definition of gifted presents a new concept for students who are gifted and talented. It "radically departs from previous definitions by broadening the understanding of talents, reducing focus on the IQ, and focusing on certain environmental and personality areas, as well, as on specific talents" (Heward, 1996, p. 534). The report found that states that used IQ score cutoffs to identify gifted and talented students are more likely to have larger disparities among racial and ethnic groups (U.S. Department of Education, 1994). Before the implementation of Plan B, the state of Florida included an IQ cutoff of two standard deviations above the mean for all students in the gifted program. Although the state identification process included the characteristics checklist, statement of nonacademic performance, and need for a special program, if a student's IQ score was below the predetermined state cut-off score of two standard deviations or more above the mean on an individually administered standardized test of intelligence (considering the standard error of measurement), then the student would be refused admission to the gifted program. According to Sally M. Reis (1989), this practice is flawed. The multiple criteria are ignored in favor of a single indicator, an IQ test. "This practice often eliminates students who may not perform well on standardized IQ tests" (Reis, 1989, p. 404). As previously mentioned, low SES, bilingual, LEP, and minority children are often excluded from gifted programs because of this tendency to rely solely on the results of an

IQ test, which many consider to be a culturally biased test (Baldwin, 1996; Davis & Rimm, 2004; Frasier et al., 1995; Helms, 1992).

In 1997, the National Association for Gifted Children "published a position statement urging educators to use more than one test to make educational and placement decisions about gifted students, and to seek equity in their identification and assessment instruments, policies, and procedures" (Ford et al., 2002, p. 53). Researcher Virginia Gonzalez (1996) found that "there is a need to administer verbal and nonverbal tasks to bilingual minority children using their first and second language and different theoretical and assessment models need to be developed for language-minority children resulting in new alternative measures" (p. 49). Other experts "advocated multifaceted approaches including peer nominations, student and parent interviews, and community nominations" (Clasen et al., 1994, p. 28). To help increase the number of underrepresented students in gifted programs, student behavior scales and checklists should be used accompanied with a broad-based nomination system. According to Cohen (1990), "methods such as interviews, self-reports, autobiographies, and case histories can also be used to identify gifted and talented minority language students" (p. 2). These qualitative measures can be an excellent source in identification of gifted students, provided that the teacher is culturally competent and can recognize giftedness in culturally diverse children.

The broadened definition of gifted and need for services, as described in the National Excellence: A Case for Developing America's Talent (1994) report and the recent national focus on correcting the underrepresentation of culturally and linguistically diverse students in gifted programs, has prompted many states to reevaluate their definitions and criteria for eligibility for gifted educational programs. According to

Florida's former program director for gifted, for the past several years the state has attempted to revise the gifted rule to include a unified eligibility criteria that accurately identifies students who are gifted from all populations (I. Palazesi, personal communication, July 18, 2002). The proposed revisions include a more specific definition of gifted, clarified procedures for student evaluation, requirements for screening, determination of eligibility, and instructional services (Notice of Development of Proposed Rule, 1998, June).

In January 2001 the state gifted rule concepts were presented at the ESE Administrators' Management Meeting (AMM) and the Florida Association for the Gifted (FLAG) board meeting (I. Palazesi, personal communication, July 18, 2002). The recommendations and comments developed from the focus groups provided the preliminary proposed rule for gifted. Under the new rule, gifted is defined as students who "demonstrate superior cognitive abilities and have a need for gifted services" (Preliminary Text of Proposed Rule 2002, February, p. 381). The criteria for eligibility for gifted services include: measures of cognitive ability, academic achievement, intellectual ability, creative thinking skills, and critical thinking skills. By including data from a variety of sources, the state hopes to better identify gifted students from a variety of backgrounds (Preliminary Text of Proposed Rule 2002, February). The new proposed rule for gifted in Florida has not been finalized or approved, but efforts are being made to develop a definition and eligibility criteria that would be inclusive of students from all subgroups.

Another possible remedy to underrepresentation cited in the literature is the use of non-verbal tests to identify gifted students. South Carolina piloted Project STAR, as a

series of performance task assessments used to identify minority and low SES elementary gifted students. The nonverbal prototypes included: Arithmetic Problem Solving, Number Concepts, Logic, Proportional Reasoning, Patterns, Number Theory, Spatial Reasoning/Visualization, Spatial Patterning, Geometry, and Transformations. The verbal prototypes included: Verbal Problem Solving, Persuasive Writing, Analogies, Verbal Relationships, Letter Puzzles, and Verbal Reasoning. Using these performance assessment measures, Project Star identified an additional 12% of African American students and 14% low-income children during the field test (VanTassel-Baska, Johnson, & Avery, 2002).

Other research states, "the most promising instruments for assessing the strengths of Black students are such nonverbal tests of intelligence as the Naglieri Nonverbal Abilities Test and Raven's Matrix Analogies Tests, which are considered less culturally loaded than traditional tests" (Ford et al., 2002, p. 57). The Naglieri Nonverbal Ability Test (NNAT) is comprised of "progressive matrix items that utilize shapes and geometric designs interrelated through spatial and logical organization" (Naglieri & Ford, 2003, p. 157). Researchers (Naglieri & Ford, 2003) have found that similar percentages of White, Hispanic, and Black children score within the gifted range in the NNAT, therefore demonstrating that the test is not culturally or ethnically biased or is less so than other tests, where differences in scores among minorities and Whites are more pronounced.

Awareness and advocacy programs might also help identify more minority students for gifted programs. According to researchers Scott et al. (1992), it

> might be possible to increase the percentage of children identified from minority groups if a community awareness program were instituted that alerted parents to the characteristics that indicate giftedness, particularly those reflecting skills,

> attitudes, and motivations. Parent referrals are critical because many gifted minority children may not be performing in school at an academic level that would alert teachers to their superior abilities. (p. 131)

In order to increase the number of African American students in gifted programs, "teachers and administrators must make sure that African American families know that the school district offers gifted education services, that they understand referral and screening measures and procedures, and that they know how the placement decisions are made" (Ford et al., 2002, p. 57). In Pulaski County, Arkansas, one school district implemented an advocacy program titled Gifted Program Advocacy Model (G-PAM). The G-PAM had "four phases of advocacy: needs assessment, development of an advocacy plan, action contact, and follow-up and evaluation" (Grantham, 2003, p. 47). After implementing the G-PAM program, the gifted program enrollment for minority students increased by 13%. Efforts like these demonstrate the positive impact that an awareness and advocacy program can have on a community.

Finally, once minority students have been admitted in a program for the gifted, educators need to work at providing these students with appropriate curriculum strategies and innovative instruction that will facilitate their success. Project START (Support To Affirm Rising Talent), a collaboration project to identify and serve low-income and/or minority gifted students, found that interventions such as "multicultural emphases, language immersion, use of manipulatives, participation in mentorships, and a family outreach program" all promoted the success of students (Tomlinson et al., 1997, p. 5). Strategies for providing equal educational opportunity to gifted minority students include:

> (1) early identification and selection, (2) careful programming to build upon minorities' intellectual strengths and appeal to their learning styles, (3) intelligent and caring teaching, (4) training of educators and parents in anticipation of both

> unrealistic notions of giftedness and 'limiting expectations', and (5) providing parental support services and facilitating their contacts with school personnel. (Bernal, 1980, p. 19)

Additionally, "programming for bright, language-minority students must be linguistically and culturally inclusive, building on the assets a child brings to school" (Barkan & Bernal, 1991, p. 146).

> To attain the goal of equitable representation of GT (gifted and talented) students in a politically viable way, districts must have (1) minority teachers represented in their cadres of GT teachers; (2) multiculturally-trained GT teachers working a clearly differentiated multicultural curriculum, preferably one that capitalizes on ethnic/linguistic diversity, and (3) evaluation data to support the work of these dedicated professionals. (Bernal, 2002, p. 88)

This multicultural focus will help assure that minority students thrive in gifted programs.

Currently, Miami-Dade County Public School's (M-DCPS) Division of Advanced Academic Programs has annual workshops for teacher and parents on the characteristics of gifted students, the needs of gifted learners, and program options for advanced learners. These workshops help increase awareness about gifted education and refer specifically to the identification of underrepresented groups. Parents, administrators, and teachers who attend these meetings are given resources and information on developing and supporting gifted children, preparing students for cognitive ability tests, and on the process of eligibility.

Analysis of the Teaching Enrichment Activities to Minorities (TEAM) Program

Program Design

Miami-Dade County Public Schools (M-DCPS) developed and piloted the Teaching Enrichment Activities to Minorities (TEAM) program in 1984. This program

was designed to provide instruction in higher-order thinking skills to students in a self-contained elementary school classroom setting. "The program is aimed at improving the learning and thinking skills of minority children and assisting them in becoming more successful in school" (TEAM Administrator's Resource Guide, 2002, p. 13). The goal of the TEAM program is to develop student's thinking skills, link critical thinking skills to all subject areas, and prepare students for possible placement into the gifted program.

Student Participation

During the 1984-1985 school year, four predominantly minority populated elementary schools piloted a TEAM class. Currently, the TEAM program is implemented in 100 predominantly minority populated schools with large numbers of students from low socio-economic backgrounds and limited English proficient students. Schools are selected to implement the TEAM program by the Regional Center Assistant Superintendents and the Administrative Directors for Curriculum at the Regional Centers. The criteria for selection for the TEAM program includes a student's leadership, motivation, creativity, and an eagerness to learn as described in the TEAM Program Identification Checklist in the TEAM Administrator's Resource Guide (2002). Students who participate in the TEAM program are not required to have a particular achievement test score or grade point average. Table 2.1 shows the ethnic breakdown of students in the TEAM program and the Miami-Dade County Public Schools district enrollment for students in kindergarten through fifth grade based on the 2003-2004 Summary by Program within School Report from M-DCPS Office of Informational Technology Services and the M-DCPS District and School Profiles: 2003-2004 report (2004).

The number and percentage of students from low socio-economic status (SES) backgrounds as measured by their eligibility for free and reduced lunch programs and limited English proficient students enrolled in Miami-Dade County Public Schools and in the TEAM program according to the 2003-2004 Summary by Program within School Report from M-DCPS Office of Informational Technology Services and the M-DCPS District and School Profiles: 2003-2004 report (2004) is reported in Table 2.2. The number of students on free/reduced lunch and the number of LEP students represent duplicated counts for the number of students by ethnicity.

Program Implementation

The TEAM program is designed to be implemented in one homeroom classroom in grades two through four, although some school site administrators and teachers have adapted the program to implement with first and fifth grade students. The TEAM program is an intervention strategy designed to give students an educational environment conducive to the development of the skills necessary for a successful academic experience (TEAM Administrator's Resource Guide, 2002). Additionally, children who are eligible for the gifted program or the Academic Excellence Program do not participate in the TEAM program, since these students are already receiving services for advanced learners.

Grouping of Students in TEAM

The grouping in a TEAM class provides both academic and social benefits to the students involved. Although the teacher to student ratio averages thirty students per teacher, similar to the regular classroom, the classroom environment stimulates interaction with other students. TEAM grouping patterns allow for increased student

Table 2.1

2003-2004 Enrollment by Ethnicity

		Black	Hispanic	White	Other	Total
District (K-5)	n	37,043	75,724	12,850	3,402	129,019
	%	28.7	58.7	9.9	2.6	100
TEAM	n	2,212	3,291	423	167	6,093
	%	36.3	54.0	6.9	2.7	100

Table 2.2

2003-2004 Enrollment by SES and LEP

		Free/Reduced Lunch	Limited English Proficient
District (K-5)	n	92,119	30,319
	%	71.4	23.5
TEAM	n	4,996	2,725
	%	82.0	44.7

participation and for a greater emphasis on critical thinking, creative thinking, and vocabulary enrichment. The TEAM class grouping encourages the development of students' self-esteem because the expectation for achievement is higher.

Curriculum and Instruction

The TEAM teacher is responsible for teaching and linking the curriculum content to the development of thinking skills. "Emphasis is placed upon the understanding and effective use of four analytical skills: similarities and differences, sequencing, classification, and analogies" (TEAM Administrator's Resource Guide, 2002, p. 1). These skills are practiced daily through the use of the *Building Thinking Skills* books (Parks & Black, 1997), enrichment activities, and questioning strategies.

The *Building Thinking Skills* books provide highly effective verbal and nonverbal reasoning activities to improve students' vocabulary, reading, writing, mathematics, logic, and figural-spatial skills as well as their visual and auditory processing (Parks & Black, 1997). The activities are sequenced developmentally and are designed to be delivered as a series of separate lessons within the general curriculum. Each skill is presented first in the concrete figural-spatial form and then in the abstract verbal form (Parks & Black, 1997). The lessons broadly follow Piaget's cognitive developmental theory (1972) by introducing concepts and skills through the use of manipulatives and paper and pencil pre-operational activities and then transitioning students to activities involving abstract thought, such as verbal reasoning and discussion. Students learn to analyze relationships between objects, between words, and between objects and words. Through the lessons in the *Building Thinking Skills* books (1997), students learn to observe, recognize, and describe characteristics, distinguish similarities and differences, and identify and complete sequences, classifications, and analogies. These processes help students develop superior thinking and communication skills that lead to deeper content learning in all subjects (Parks & Black, 1997).

The teacher's guide that accompanies the *Building Thinking Skills* student books (1997) includes the overall program objectives along with specific objectives and answers for each activity. The teacher's edition also provides lesson plan activities and ideas to integrate the skills in the *Building Thinking Skills* book with all subject areas. An important part of the TEAM program is encouraging students to discuss their thinking as they work through concepts. The teacher's guide of the *Building Thinking Skills* book also includes focus questions to support student discussion and to reinforce each of the thinking skills. This skill set provides a solid foundation for academic excellence and success in all subject areas.

Classroom Environment

The TEAM classroom should be an active learning environment. The teacher's role is one of an instructor as well as a facilitator of independent or small group inquiry. Resource libraries and activity centers are developed within the TEAM classroom. These centers are organized to encourage independent and small group activities with experiments, math manipulatives, creative writing, expository writing, and open-ended research.

Professional Development

The training for TEAM teachers includes a three day Summer Institute and a one day follow-up workshop during the school year. During the three days of the initial training, teachers discuss how to implement a classroom environment focused on thinking skills and how to integrate the Building Thinking Skills books within their daily instruction. Teachers learn how to set up learning centers in their classrooms, how to differentiate curriculum to meet the needs of students, and how to incorporate critical

thinking and creative thinking in their teaching. Additionally, teachers are instructed in strategies for identifying gifted students, how to recognize giftedness in diverse students, and the process for referral and criteria for eligibility into the gifted program.

Teachers receive class sets of supplementary material for their TEAM classroom including the Building Thinking Skills books (Parks & Black, 1997) for each student and a teacher's guide, manipulatives for mathematics instruction, reading resources, and several books on a variety of topics including curriculum differentiation, assessment, and thinking skills instruction. During the follow-up workshop teachers share activities that they have implemented with the TEAM classes, develop lessons, and provide feedback to one another. The opportunity for follow-up and classroom visits conducted by district staff from the Division of Advanced Academic Programs creates a support network for TEAM teachers and ensures fidelity to the program's goals.

Summary

In summary, there are multiple studies and research on the causes of underrepresentation in gifted programs, the characteristics of culturally and linguistically diverse gifted students, and cross-cultural characteristics of gifted students. Additionally, there is research to support that intervention strategies can be used to address concerns of disproportionate participation of culturally and linguistically diverse students in gifted programs. In 2003-2004 100 out of the 207 elementary schools in Miami-Dade County Public School system implemented the TEAM program as an intervention strategy to prepare minority students for possible referral and eligibility into the gifted program. This study seeks to analyze the effectiveness of the TEAM program in identifying

giftedness among underrepresented groups and in preparing students for entrance into the gifted program.

CHAPTER III

METHODS

In conducting this research study, the following sample, data collection, design, procedures, and analysis were utilized.

Sample

A systematic sampling strategy was utilized to select three TEAM schools from each of the six regions in Miami-Dade County Public Schools (M-DCPS) for the sample, for a total of 18 schools. Systematic sampling is used when a list of the members of the population is readily available (Hinkle, Wiersma, & Jurs, 1998). Through systematic sampling, every third school from the list of 2003-2004 TEAM schools by region was selected.

Miami-Dade County Public School district is divided into six regions, or administrative units, based on geographic boundaries, each with an Assistant Superintendent and administrative staff to support the schools in the area. Region Centers I and II are in the northern area of the county, Region Centers III and IV are in the central area of the county, and Region Centers V and VI are in the southern area of the county. Selecting an equal number of schools from each Region Center was done in order to reflect the diverse population of students in Miami-Dade County from each of the six geographic areas.

The TEAM schools selected from Region Center I are: James H. Bright Elementary School, Carol City Elementary School, and Rainbow Park Elementary School. The TEAM schools selected from Region Center II are: Hibiscus Elementary School, Norland Elementary School, and Treasure Island Elementary School. The TEAM

schools selected from Region Center III are: Charles R. Drew Elementary School, Hialeah Elementary School, and E. W. F. Stirrup Elementary School. The TEAM schools selected from Region Center IV are: Coconut Grove Elementary School, Fairlawn Elementary School, and Kensington Park Elementary School. The TEAM schools selected from Region Center V are: Dante B. Fascell Elementary School, Dr. Carlos J. Finlay Elementary School, and Wesley Matthews Elementary School. The TEAM schools selected from Region Center VI are: Jack D. Gordon Elementary School, Kendale Lakes Elementary School, and Winston Park Elementary School. These schools represent a sample of 901 students from 18 schools who participated in the TEAM program in 2003-2004. This sample will be referred to as the TEAM Sample. The schools and students selected for the TEAM Sample are representative of the population of students from the 100 schools that implemented the TEAM program in 2003-2004.

Then, for the purpose of making necessary comparisons, a matching sample was created from 18 public schools in Miami-Dade County that did not implement the TEAM program in 2003-2004. Each of the schools in the TEAM Sample has a matching sample school from the same region to ensure that the students from the Non-TEAM Sample are from schools with similar demographics (ie., ethnicity, LEP level, and free/reduced lunch status). The non-TEAM schools selected from Region Center I are: Amelia Earhart Elementary School, North County Elementary School, and Golden Glades Elementary School. The non-TEAM schools selected from Region Center II are: Gratigny Elementary School, Norwood Elementary School, and Fienberg/Fisher Elementary School. The non-TEAM schools selected from Region Center III are: Liberty City Elementary School, Coral Park Elementary School, and Rockway Elementary School.

The non-TEAM schools selected from Region Center IV are: Miami Shores Elementary School, Auburndale Elementary School, and Silver Bluff Elementary School. The non-TEAM schools selected from Region Center V are: Tropical Elementary School, Flagami Elementary School, and Royal Palm Elementary School. The non-TEAM schools selected from Region Center VI are: Dr. Gilbert L. Porter Elementary School, Claude Pepper Elementary School, and Christina M. Eve Elementary School. The percentage of each school's student membership in terms of ethnicity, limited English proficiency, and free/reduced lunch was gathered from Miami-Dade County Public Schools District and School Profiles: 2003-2004 report (2004). Appendix A summarizes the demographics of the TEAM Sample and the Matching Sample schools.

A match of a student was created for each student in the TEAM Sample using the M-DCPS Integrated Student Information System (ISIS) student database system. A discussion of the rationale for matched studies can be found in Kelsey, Thompson, and Evans (1986) and Rothman and Greenland (1998). In a matched study design, subjects are matched on the basis of variables believed to be associated with the outcome (Hosmer & Lemeshow, 2000). In this study, the students in the TEAM Sample were matched on the basis of school, grade level, gender, and ethnicity. The Matching Sample created a match for 806 of the 901 students in the TEAM sample.

"The most frequently used match design is matched to a single control, thus there are two subjects in each stratum" (Hosmer & Lemeshow, 2000, p. 226). Thus, the 95 students of which a match could not be found were dropped from the sample, leaving 806 students in the TEAM Sample and 806 corresponding matches in the Matching Sample, for a total sample of 1612 students.

Data Collection

The data collected consists of information that represents variables to be studied. Student enrollment data for the TEAM program was gathered from the Summary by Program within School Report from M-DCPS Office of Informational Technology Services. This report includes student demographic information such as grade level, gender, ethnicity, ESOL level, etc. The 2004 SAT-9 and FCAT results for TEAM students in reading and mathematics were available from M-DCPS' Division of Data Quality Management 2004 FCAT Results for TEAM Students Report. This report compiles by school, the grade level, gender, ethnicity, free/reduced lunch status, limited English proficiency status, reading scores, and math scores for every student in the TEAM program. Information on the TEAM students that were referred for the gifted program in 2003-2004, as well as the TEAM students that met eligibility for the gifted programs was available from M-DCPS Division of Advanced Academic Programs Teaching Enrichment Activities to Minorities Gifted Program Referral Report. Finally, M-DCPS ISIS system and assistance from the M-DCPS Office of Data Quality Management was used to create the Matching Sample discussed previously.

Design

A logistical regression was used to analyze the relationships of multiple independent variables (i.e., ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, mathematics achievement, and participation in the TEAM program) on the dependent variables (i.e., referral for gifted program and eligibility into gifted program). Logistical regression is used when the dependent variables are binary to find the relationships between independent variables

and the likelihood that an event will occur given a set of conditions (Sweet & Grace-Martin, 2003).

Logistic regression is a mathematical modeling approach that can be used to describe the relationship of several predictor variables to a dichotomous dependent variable (Kleibaum, Kupper, Muller, & Nizam, 1998). As in any regression model, the regression coefficients in the logistic model play an important role in providing information about the relationships of the predictors in the model to the dependent variable. "For the logistic model, quantification of these relationships involves a parameter called the odds ratio" (Kleibaum et al., 1998, p. 658). The odds ratio defines the odds as a ratio of the probability that some event (i.e., referred for the gifted program or eligible for the gifted program) will occur divided by the probability that the same event will not occur.

Logistic regression is related to discriminant function analysis and multiple regression analysis with dichotomous dependent variables; however, logistic regression is more flexible than other techniques (Tabachnick & Fidell, 2001). "Unlike discriminant function analysis, logistic regression has no assumptions about the distributions of the predictor variables; in logistic regression, the predictors do not have to be normally distributed, linearly related, or of equal variance within each group" (p. 517).

Procedures

The study was conducted during the 2004-2005 school year using database and archival data from the 2003-2004 school year. A formal request to conduct the study was submitted to Florida International University's Division of Sponsored Research and Training Institutional Review Board in March 2005 and was approved in April 2005 (see

Appendix B). Additionally, a formal request to conduct the study was submitted to the Miami-Dade County Public Schools' Office of Program Evaluation Research Review Committee in March 2005 and was approved in May 2005 (see Appendix C). During the months of June and July of 2005, the researcher accessed and compiled the data that would be utilized in the study. The TEAM Sample was identified as indicated above and included all of the TEAM students in the 18 systematically selected schools. The *Summary by Program within School Report and the 2004 FCAT Results for TEAM Students Report* were used to compile the demographic data for the TEAM Sample, including the school, grade level, gender, ethnicity, free/reduced lunch status, limited English proficiency status, reading scores, and math scores.

The *Teaching Enrichment Activities to Minorities Gifted Program Referral Report* was used to determine which students in the TEAM Sample had been referred for gifted and which students were eligible for the gifted program. The information on referral and eligibility for gifted for the TEAM Sample was also verified with M-DCPS' ISIS (Integrated Student Information System) student database system. The PF16 screen in ISIS documents referrals of students for ESE services. Gifted referrals are noted with a G in the database. The eligibility determination is documented on the PF17 screen, so the information provided by schools in the *Teaching Enrichment Activities to Minorities Gifted Program Referral Report* could be easily checked and verified in ISIS.

In order to create the Matching Sample, 18 public schools in Miami-Dade County that did not implement the TEAM program in 2003-2004 needed to be identified. The first step was to identify all of the schools by region that did not implement the TEAM program in 2003-2004. Using M-DCPS' Division of Advanced Academic Programs List

of 2003-2004 TEAM Schools and a list of M-DCPS' Elementary Schools, 117 schools were identified that did not implement the TEAM program in 2003-2004. The M-DCPS District and School Profiles: 2003-2004 report (2004) was used to determine the student membership for each of the TEAM Sample schools in terms of ethnicity, percent of limited English proficient students, and percent of free/reduced lunch students. The Matching Sample schools were selected using the M-DCPS District and School Profiles: 2003-2004.

Each of the schools in the TEAM Sample was assigned a matching sample school from the same region to ensure that the students from the Non-TEAM Sample are from schools with similar demographics. The schools' student ethnic distribution, percent of English proficient students, and percent of free/reduced lunch students were matched to that of the TEAM Sample school as much as possible (see Appendix A). Schools in Region Centers III and IV were the most difficult to match because the majority of elementary schools in these two region implement the TEAM program, so finding a non-TEAM School as a match was more challenging. Once the Matching Sample schools were identified, a match for each individual student in the TEAM Sample needed to be identified.

Archival data from the 2003-2004 school year from the ISIS database system was used to create a match for the 901 students in the TEAM Sample. The students in the TEAM Sample were matched on the basis of school, grade level, gender, and ethnicity. The Matching Sample created a match for 806 of the 901 students in the TEAM sample. As mentioned previously, the 95 students for which a match could not be found were dropped from the sample, leaving 806 students in the TEAM Sample and 806

corresponding matches in the Matching Sample. The information on referral and eligibility for gifted for the Matching Sample was complied using M-DCPS' ISIS student database system.

During the months of July and August of 2005, the data for all 1612 subjects was entered and coded in the computer using the Statistical Package for the Social Sciences (SPSS) program. In order to protect the identity of the subjects in the study, each student was given a new identification number starting with 1 and ending with 1612 before any demographic data was entered in SPSS. The schools were coded using numbers 1 through 18 in order to be able to identify the school and region for a particular subject. Students in the TEAM Sample were coded with a T and students in the Matching Sample were coded with a C. For grade level, second grade was coded with a 2, third grade with a 3, and fourth grade with a 4. No other grade levels were part of the sample, since the TEAM program was only implemented in second, third, or fourth grade in the TEAM Sample schools.

The ethnicity of students was coded H for Hispanic, B for Black/African American, W for White, non-Hispanic, and O for Other. The final 1612 subjects only included Black, Hispanic, and White students because no matches were found for the students identified as "Other" in the TEAM Sample. The reading scale score and the mathematics scale score from the 2004 SAT-9 (Scholastic Achievement Test-Ninth Edition) for second grade students and the 2004 FCAT-NRT (Florida Comprehensive Assessment Test-Norm Referenced Test) for third and fourth grade students were used as measures of reading and mathematics academic achievement. The scale scores provide a more precise measure of the student's performance on the standardized achievement

tests, rather than the norm-referenced percentile, stanine, or FCAT SSS (Sunshine State Standard) level that have been compared to the performance of all students tested.

Students eligible for free/reduced lunch were coded with a 1 and students who did not receive free/reduced lunch in 2003-2004 were coded with a 0. Similarly, students identified as limited English proficient (ESOL Level 1-4 or 5 within two years of exiting ESOL) were coded with a 1 and students who were not limited English proficient were coded with a 0. The gender of students was coded F for female and M for male. Additionally, for the dependent variables, students who were referred for gifted were coded with a 1 and students who were not referred were coded with a 0. Finally, students who were eligible for gifted were coded with a 1 and students who were not eligible were coded with a 0. All students who were identified as eligible were also referred, because as stated previously, in order for a student to be considered for placement in a gifted program a referral to document the need for services must be completed.

Once all of the data for each of the variables was inputted into SPSS the logistic regression analysis and descriptive statistics were run. Since the subject information was obtained from database and archival data, the use of instruments such as surveys, tests, questionnaires, etc. was not applicable. The subjects involved in the sample had no direct risk or benefits associated with the study.

Analysis

Logistic regression analysis is the most popular regression technique for modeling dichotomous or binary variables (Kleibaum et al., 1998). In this study, both the dependent variable of referral for gifted and eligibility for gifted were dichotomous, where the result was either 1 for referred or eligible or 0 for not referred or not eligible.

The mathematical modeling approach used with logistic regression describes the relationship of several predictor variables, in this case gender, grade level, ethnicity, free or reduced lunch status, limited English proficiency (LEP), reading achievement, mathematics achievement, and participation in TEAM to the dichotomous dependent variables.

The analysis involves examining the hypothesized relationship by examining the logistical regression coefficient to determine the direction and strength of the relationship between the independent and dependent variables. The goal of the logistic regression analysis is to correctly predict the category of the outcome for individual cases. The first step is to use a test of significance to establish that there is a relationship between the outcome and the set of predictors (Tabachnick & Fidell, 2001). The tests of significance in logistic regression take into account the size of the coefficient relative to its standard of error. "The significance of the coefficient, the likelihood that the coefficient in the sample could have occurred by chance alone when the population parameter equals 0, is then interpreted as usual" (Pampel, 2000, p. 30). The test of significance, therefore, involves formulation and testing of a statistical hypothesis to determine whether the independent variables in the study are significantly related to the outcome or dependent variable.

If a relationship is found, using a level of significance of 0.05, the model is then simplified by eliminating the non-significant predictors while still maintaining the significant predictors. "Once a reduced set of predictors is found, the equation can be used to predict outcomes for new cases on a probabilistic basis" (Tabachnick & Fidell, 2001, p. 519). Using the coefficients with less than a 0.05 level of significance, the next

step is to gauge the strength of the relationship between the independent and dependent variables with an odds ratio. The odds ratio indicates how many times higher the odds of occurrence are for each one-unit increase in the independent variable holding all independent variables constant (Sweet & Grace-Martin, 2003).

Two analyses were conducted using a logistical regression design with the Statistical Package for the Social Sciences (SPSS) program (2001). The first analysis examines the program effect on the first dependent variable, referral for the gifted program. This analysis determined if participation in the TEAM program had an effect on the rate of referral for gifted services. The TEAM Sample and Matching Sample were compared in terms of rate of referral. This analysis also examined how each independent variable (i.e., ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) influenced the probability of referral for the gifted program.

The second analysis examined the program effect on the second dependent variable, eligibility into the gifted program. This analysis determined if participation in the TEAM program had any effect on the rate of eligibility for gifted services. The TEAM Sample and Matching Sample were compared in terms of rate of eligibility. This analysis also examined how each independent variable (i.e., ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) influenced the probability of eligibility into the gifted program.

Interactions among the predictor variables were added to the logistic regression analysis model. In this study, interactions among the predictor variables of participation

in TEAM with ethnicity, LEP, and free/reduced lunch status were included in the analysis. The interaction terms determine if an interaction between two relevant variables would produce a significant odds ratio for the likelihood of being referred for gifted or the likelihood of being eligible for gifted.

Summary

In summary, a systematic sampling strategy was utilized to select three TEAM schools from each of the six regions in Miami-Dade County Public Schools (M-DCPS) for the sample, for a total of 18 schools. A matching sample was created from 18 public schools in Miami-Dade County that did not implement the TEAM program in 2003-2004. The students in the TEAM Sample were matched on the basis of school, grade level, gender, and ethnicity. The total sample for the study was 1612 students, 806 from the TEAM Sample and 806 from the Matching Sample. A logistical regression was used to analyze the relationships of multiple independent variables (i.e., ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, mathematics achievement, and participation in the TEAM program) on the dependent variables (i.e., referral for gifted program and eligibility into gifted program). The results of the statistical procedures described here are discussed in the next chapter.

CHAPTER IV

RESULTS OF THE STUDY

The purposes of the statistical analyses performed during this study were to: (a) determine the effectiveness of the TEAM program in increasing the number of students referred for gifted programs; (b) determine the effectiveness of the TEAM program in increasing the number of students eligible for gifted programs; (c) determine if there are differences between the TEAM Sample and the Matching Sample in the number of referrals for gifted and the number of students eligible for gifted are affected by ethnicity, limited English proficiency status, gender, free/reduced lunch status, grade level, reading achievement, or mathematics achievement.

Report of Findings

Descriptive Statistics for Referral for Gifted

Descriptive statistics obtained for the number of referrals for gifted for the TEAM and Matching Samples indicate that overall, 256 out of the 806 students in the TEAM Sample were referred for gifted compared with 99 out of the 806 students in the Matching Sample. The frequency distribution for the demographic characteristics indicated that 30.8% of females and 32.9% of males in the TEAM Sample were referred for gifted compared with 13.3% of females and 11.0% of males in the Matching Sample (see Table 4.1). The results by grade level indicate that 37.8% of second graders, 31.7% of third graders, and 14.5% of fourth graders in the TEAM Sample were referred for gifted compared with 13.5%, 11.2%, and 10.9% respectively from those not in the TEAM program (see Table 4.1).

Differences between the subjects referred for gifted from the TEAM Sample and the Matching Sample are also noted in the descriptive statistics and frequency distribution by ethnicity (see Table 4.1). The percent of Black students in the TEAM Sample referred for gifted was 22.6%, while Black students in the Matching Sample referred for gifted was only 7.5%. Similarly, the percent of Hispanic students in the TEAM Sample referred for gifted was 37.2%, while Hispanic students in the Matching Sample referred for gifted was only 14.6%. Finally, the percent of White students in the TEAM Sample referred for gifted was 35.2%, while White students in the Matching Sample referred for gifted was 18.5%.

The descriptive statistics of students from low socio-economic backgrounds as measured by eligibility for free/reduced lunch indicates that 27.0% of students in the TEAM Sample were referred for gifted compared with 8.5% of students in the Matching Sample. Similarly, 42.8% of students not on free/reduced lunch in the TEAM Sample were referred for gifted compared with 23.3% of students in the Matching Sample. The percentage of students referred for gifted was higher in both groups for the students who were not identified as receiving free or reduced lunch. Finally, 35.3% of LEP and 28.7% of non-LEP in the TEAM Sample were referred for gifted, compared with only 4.5% of LEP and 14.1% of non-LEP students in the Matching Sample. The percentage of TEAM students referred for gifted was higher for students identified as limited English proficient (see Table 4.1).

Descriptive Statistics for Gifted Eligibility

Descriptive statistics obtained for the number of students eligible for gifted for the TEAM and Matching Samples indicate that overall, 98 out of the 806 students in the

Table 4.1

Frequency Distribution by Selected Demographic Characteristics for Referral for Gifted

Variable	Total		TEAM		Referred		Matching		Referred	
	N	%	*n*	%	*n*	%	*n*	%	*n*	%
Gender										
Female	870	54.0	435	50	134	30.8	435	50	58	13.3
Male	742	46.0	371	50	122	32.9	371	50	41	11.0
Grade level										
2nd grade	800	49.6	400	50	151	37.8	400	50	54	13.5
3rd grade	536	33.3	268	50	85	31.7	268	50	30	11.2
4th grade	276	17.1	138	50	20	14.5	138	50	15	10.9
Ethnicity										
Black	584	36.2	292	50	66	22.6	292	50	22	7.5
Hispanic	920	57.1	460	50	171	37.2	460	50	67	14.6
White	108	6.7	54	50	19	35.2	54	50	10	18.5
SES & LEP										
Not F/R L	449	27.9	243	54	104	42.8	206	46	48	23.3
F/R L	1163	72.1	563	48	152	27.0	600	52	51	8.5
Not LEP	1086	67.4	435	40	125	28.7	651	60	92	14.1
LEP	526	32.6	371	71	131	35.3	155	29	7	4.5

TEAM Sample were eligible for gifted compared with 82 out of the 806 students in the Matching Sample. In the TEAM Sample, 12.0% of females and 12.4% of males were eligible for gifted, while in the Matching Sample, 12.0% of females and 8.1% of males were eligible for gifted (see Table 4.2). With regard to grade level, 13.3% of second graders, 14.9% of third graders, and 3.6% of fourth graders in the TEAM Sample were eligible for gifted, compared with 11.0%, 9.0% and 10.1% respectively in the Matching Sample. The percentage of second and third grade students eligible for gifted was higher with the TEAM Sample, yet the percentage of fourth grade students eligible was higher with the Matching Sample. The percentage of students eligible for gifted was higher in all ethnic categories for the students in the TEAM Sample, with 7.2% of Blacks, 15.0% of Hispanics, and 14.8% of Whites compared with 6.8%, 12.0%, and 13.0% respectively of the students in the Matching Sample.

Finally, students in the TEAM Sample from low socio-economic families as measured by the free/reduced lunch status and students who were limited English proficient had higher percent eligibility for the gifted program than students in the Matching Sample; 11.9% and 15.1% compared with 7.8% and 3.2% respectively. Students in the TEAM Sample who were not on free/reduced lunch and not LEP had lower percent eligibility for the gifted program than students in the Matching Sample; 12.8% and 9.7% compared with 17.0% and 11.8% respectively (see Table 4.2).

Logistic Regression for Referral for Gifted

The first research question of this study was: What is the effectiveness of the TEAM program in increasing the number of underrepresented students referred for the gifted program?

Table 4.2

Frequency Distribution by Selected Demographic Characteristics for Gifted Eligibility

Variable	Total		TEAM		Referred		Matching		Referred	
	N	%	*n*	%	*n*	%	*n*	%	*n*	%
Gender										
Female	870	54.0	435	50	52	12.0	435	50	52	12.0
Male	742	46.0	371	50	46	12.4	371	50	30	8.1
Grade level										
2nd grade	800	49.6	400	50	53	13.3	400	50	44	11.0
3rd grade	536	33.3	268	50	40	14.9	268	50	24	9.0
4th grade	276	17.1	138	50	5	3.6	138	50	14	10.1
Ethnicity										
Black	584	36.2	292	50	21	7.2	292	50	20	6.8
Hispanic	920	57.1	460	50	69	15.0	460	50	55	12.0
White	108	6.7	54	50	8	14.8	54	50	7	13.0
SES & LEP										
Not F/R L	449	27.9	243	54	31	12.8	206	46	35	17.0
F/R L	1163	72.1	563	48	67	11.9	600	52	47	7.8
Not LEP	1086	67.4	435	40	42	9.7	651	60	77	11.8
LEP	526	32.6	371	71	56	15.1	155	29	5	3.2

Additional subsidiary questions included the following:

1. Are there differences with regard to ethnicity?
2. Are there differences with regard to limited English proficiency?
3. Are there differences with regard to gender?
4. Are there differences with regard to free/reduced lunch status?
5. Are there differences with regard to grade level?
6. Are there differences with regard to reading achievement?
7. Are there differences in with regard to mathematics achievement?

The first analysis using the logistic regression method examined how each independent variable (i.e., participation in TEAM, ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) was related to the log-odds of referral for the gifted program. Table 4.3 includes the significance of the individual regression coefficients in the logistic regression model. The first column shows the categorical variables that are included in the model which compare the independent variables in each category to the dependent variable. The second column, *B*, is the maximum likelihood estimate of the slope parameter and the third column, *S.E.* is its standard error. The fourth column is the *Wald* statistic, which assesses the significance of the coefficients; and the fifth column, *df*, is the degrees of freedom. "The *Wald* test is obtained by comparing the maximum likelihood estimate of the slope parameter, *B,* to an estimate of its standard error" (Hosmer & Lemeshow, 2000, p. 16). Finally, the information reported in the sixth column of Table 4.3, which includes the level of significance (*p*) for the individual coefficients, is used to assess the significance of the coefficients (Hosmer & Lemeshow,

2000). Using a level of significance of $p < 0.05$, the first analysis found the variables of grade level, TEAM participation, reading achievement, and mathematics achievement to be significant, while gender, ethnicity, free/reduced lunch status, and LEP status were not significant (see Table 4.3).

The next step involved adding the interaction of TEAM participation with ethnicity, LEP, and free/reduced lunch status to the analysis to determine if interaction between these variables influenced the probability of referral for the gifted program. Using a level of 0.05, none of the interactions were found to be significant (see Table 4.4). The omnibus test of significance for the overall model found the model to be significant, $p = 0.000$ (see Table 4.5).

In order to obtain the best fitting model, while minimizing the number of parameters, the next step is to fit a reduced model containing only those variables thought to be significant, and compare it to the full model containing all the variables (Hosmer & Lemeshow, 2000). The variables found to be significant in step one (grade level, TEAM participation, reading achievement, and mathematics achievement) were used in the reduced model (see Table 4.6). The difference between the two models is the exclusion of the variables of gender, ethnicity, free/reduced lunch status, and LEP status and the interaction variables from the full model.

According to Hosmer & Lemeshow (2000) the likelihood ratio test comparing the two models will have a distribution that is chi-square with degrees of freedom under the hypothesis that the coefficients for the variables excluded are equal to zero. The values of the test statistic comparing the two models is 676.604 (see Table 4.5) and 668.421 (see Table 4.7). The difference in chi-squares between the two models (676.604 - 668.421 =

Table 4.3

Significance of Variables in the Equation for Referral for Gifted (Step 1)

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Grade level			163.466	2	.000*
Grade (1) *(2nd compared to 4th)*	3.512	.297	139.470	1	.000*
Grade (2) *(3rd compared to 4th)*	1.244	.259	23.010	1	.000*
Gender (1)	.229	.160	2.050	1	.152
Ethnicity			4.325	2	.115
Ethnicity (1) *(H compared to W)*	.077	.303	.065	1	.799
Ethnicity (2) *(B compared to W)*	.510	.336	2.305	1	.129
Free/Red. Lunch	-.272	.174	2.447	1	.118
LEP	.088	.209	.176	1	.675
TEAM	.828	.192	18.621	1	.000*
Reading	.036	.003	114.491	1	.000*
Math	.029	.003	83.198	1	.000*
Constant	-46.043	2.760	278.202	1	.000*

*$p < .05$

Table 4.4

Significance of Interaction Variables in the Equation

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Ethnic × TEAM			.806	2	.668
Ethnic (1) × TEAM	-.022	.620	.001	1	.971
Ethnic (2) × TEAM	.378	.695	.296	1	.587
LEP × TEAM	.080	.571	.020	1	.889
F/R Lun. × TEAM	-.188	.370	.257	1	.612

*$p < .05$

Table 4.5

Omnibus Test of Model Coefficients for Referral for Gifted (Step 1)

Test	*Chi-square*	*df*	*p*
Model	676.604	10	.000*

*$p < .05$

Table 4.6

Significance of Variables in the Equation for Referral for Gifted (Step 2)

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Grade level			168.504	2	.000*
Grade (1) *(2nd compared to 4th)*	3.376	.281	144.437	1	.000*
Grade (2) *(3rd compared to 4th)*	1.174	.252	21.688	1	.000*
TEAM Participation	.848	.170	24.840	1	.000*
Reading Achieve.	.036	.003	118.057	1	.000*
Math Achievement	.028	.003	80.121	1	.000*
Constant	-44.935	2.610	296.368	1	.000*

*$p < .05$

Table 4.7

Omnibus Test of Model Coefficients for Referral for Gifted (Step 2)

Test	*Chi-square*	*df*	*p*
Model	668.421	5	.000*

*$p < .05$

Table 4.8

Results of Logistic Regression for Referral for Gifted

Variable	*Exp(B)*	95.0% *C.I.* for *Exp(B)* Lower	Upper
Grade level			
Grade (1) *(2nd compared to 4th)*	29.246	16.865	50.717
Grade (2) *(3rd compared to 4th)*	3.234	1.973	5.299
TEAM Participation	2.334	1.673	3.258
Reading Achievement	1.037	1.030	1.044
Math Achievement	1.029	1.022	1.035

8.183) is divided by the differences in degrees of freedom (10 – 5 = 5). The result is 1.637, significantly exceeding 0.05, therefore we conclude that the reduced model is as good as that of the full model (Hosmer & Lemeshow, 2000).

Table 4.6 demonstrates that the variables of grade level, participation in the TEAM program, reading achievement, and mathematics achievement were all significant variables in determining if a student was referred for the gifted program. The strength of the relationship between the independent variables (grade level, participation in the TEAM program, reading achievement, and mathematics achievement) and the dependent variable (referral for gifted) is reported by means of an odds ratio (*ExpB* in Table 4.8). The odds ratio indicates how many times higher the odds of occurrence are for each one-

unit increase in the independent variable holding all independent variables constant (Sweet & Grace-Martin, 2003). The confidence interval for the odds ratio is also reported in Table 4.8. The confidence interval is the range of values within which one can be sure that the true value for the population parameter lies (Hinkle et al., 1998). Since the level of significance used in the logistic regression analysis was $p = .05$, then the corresponding level of confidence for constructing the confidence interval is 1 - .05 = .95. Therefore, a confidence interval of 95 percent was used in the analysis. According to Hosmer & Lemeshow (2000), the confidence interval estimators for the slope and intercept of a logistic regression are based on their respective *Wald* tests. The confidence interval is then reported with a lower limit and an upper limit (see Table 4.8).

The results of the logistic regression analysis for the first dependent variable, referral for gifted, indicate that students in the TEAM Sample were 2.334 times more likely to be referred for the gifted program than students in the Matching Sample when all other predictors are held constant (see Table 4.8). This supports the first research question that the TEAM program is effective in increasing the number of students referred for gifted. The confidence interval for the TEAM participation variable was 1.673 for the lower limit and 3.258 for the upper limit. It can be stated with 95% confidence that students in the TEAM Sample are between 1.673 to 3.258 times more likely to be referred for the gifted program than the students in the Matching Sample. Additionally, the results for grade level indicate that students in the second grade are 29.246 times more likely to be referred for the gifted program and students in the third grade are 3.234 times more likely than students in grades four when all other variables

are equal. The confidence interval for second grade is 16.865 to 50.717 and the confidence interval for third grade is 1.673 to 3.258 (see Table 4.8).

The reading achievement results indicate that students with higher reading scale scores are 1.037 times more likely to be referred for gifted. An increase of 1 scale score point in reading achievement corresponds to the 1.037 times greater likelihood that a student with high reading achievement will be referred for gifted. The range in reading scale scores was from 465 to 741, yet the odds ratio is only slightly higher than one.

Similarly, the mathematics achievement results indicate that students with higher mathematics scale scores are 1.029 times more likely to be referred for gifted. While the ratio is again only slightly higher than 1, the range of mathematics scale scores was from 497 to 759. This demonstrates a positive relationship between high mathematics scores and referral for gifted (see Table 4.8). These results support the subsidiary questions regarding grade level, reading achievement, and mathematics achievement.

Logistic Regression for Gifted Eligibility

The second research question of this study was: What is the effectiveness of the TEAM program in increasing the number of underrepresented students eligible for the gifted program?

Additional subsidiary questions include the following:

1. Are there differences with regard to ethnicity?
2. Are there differences with regard to limited English proficiency?
3. Are there differences with regard to gender?
4. Are there differences with regard to free/reduced lunch status?
5. Are there differences with regard to grade level?

6. Are there differences with regard to reading achievement?

7. Are there differences in with regard to mathematics achievement?

The second analysis using logistic regression method examined how each independent variable (i.e., participation in TEAM, ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) influenced the probability of gifted eligibility. Table 4.8 includes the significance of the variables in the logistic regression model. Using a level of significance of $p < 0.05$, the second analysis found the variables of grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement to be significant, while TEAM participation, ethnicity, and LEP status were not significant (see Table 4.9).

The next step involved adding the interaction of TEAM participation with ethnicity, LEP, and free/reduced lunch status to the analysis to determine if interaction between these variables influenced the probability of eligibility for the gifted program. Using a level of 0.05, none of the interactions were found to be significant (see Table 4.10). The omnibus test of significance for the overall model found the model to be significant, $p = 0.000$ (see Table 4.11).

The model was then simplified by eliminating the non-significant predictors while still maintaining the significant predictors. The variables found to be significant in step one (grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement) were used in the reduced model (see Table 4.12). The difference between the two models is the exclusion of the variables of TEAM participation, ethnicity, and LEP status, as well as the interaction variables from the full model. The value of the test

Table 4.9

Significance of Variables in the Equation for Gifted Eligibility (Step 1)

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Grade level			87.320	2	.000*
Grade (1) *(2nd compared to 4th)*	2.976	.349	72.879	1	.000*
Grade (2) *(3rd compared to 4th)*	1.157	.318	13.244	1	.000*
Gender (1)	.396	.196	4.101	1	.043*
Ethnicity			.672	2	.715
Ethnicity (1) *(H compared to W)*	-.030	.364	.007	1	.935
Ethnicity (2) *(B compared to W)*	.187	.410	.208	1	.648
Free/Red. Lunch	.446	.214	4.365	1	.037*
LEP	.173	.258	.447	1	.504
TEAM	-.272	.174	2.447	1	.118
Reading	.034	.004	79.811	1	.000*
Math	.028	.004	61.884	1	.000*
Constant	-44.132	3.051	209.169	1	.000*

*$p < .05$

statistic comparing the two models is 384.551 (see Table 4.11) and 383.105 (see Table 4.13). The difference in chi-squares between the two models (382.713 – 381.925 = 0.788) is divided by the differences in degrees of freedom (10 – 6 = 4). The result is 0.197, exceeds 0.05, therefore we conclude that the reduced model is as good as that of the full model (Hosmer & Lemeshow, 2000).

Table 4.12 demonstrates that the variables of grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement were all significant variables in determining if a student was eligible for the gifted program. The strength of the relationship between the independent variables (grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement) and the dependent variable (eligible for gifted) is then reported with an odds ratio (*ExpB* in Table 4.14).

The results of the logistic regression analysis for the second dependent variable, eligible for gifted, indicate that female students were 1.486 times more likely to be eligible for the gifted program than male students (see Table 4.14). The confidence interval for the gender variable was 1.014 for the lower limit and 2.179 for the upper limit. The results of the logistic regression analysis for students on free/reduced lunch indicate that students who are on free/reduced lunch are 1.630 times more likely to be eligible for gifted.

Additionally, the results for grade level indicate that students in the second grade are 18.597 times more likely to be eligible for the gifted program and students in the third grade are 3.069 times more likely to be eligible for gifted than students in grades four (see Table 4.14). The reading achievement results indicate that students with higher reading scale scores are 1.034 times more likely to be eligible for gifted. Similarly, the

mathematics achievement results indicate that students with higher mathematics scale scores are 1.028 times more likely to be referred for gifted. These results support the subsidiary questions that there are differences regarding grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement.

Table 4.10

Significance of Interaction Variables in the Equation

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Ethnic × TEAM			.394	2	.821
Ethnic (1) × TEAM	-.427	.732	.341	1	.559
Ethnic (2) × TEAM	.252	.817	.095	1	.758
LEP × TEAM	.380	.663	.329	1	.556
F/R Lun. × TEAM	.427	.426	1.005	1	.316

*$p < .05$

Table 4.11

Omnibus Test of Model Coefficients for Gifted Eligibility (Step 1)

Test	*Chi-square*	*df*	*p*
Model	382.713	10	.000*

*$p < .05$

Table 4.12

Significance of Variables in the Equation for Gifted Eligibility (Step 2)

Variable	*B*	*S.E.*	*Wald*	*df*	*p*
Grade level			88.714	2	.000*
Grade (1) *(2nd compared to 4th)*	2.923	.339	74.374	1	.000*
Grade (2) *(3rd compared to 4th)*	1.121	.313	12.872	1	.000*
Gender (1)	.396	.195	4.120	1	.042*
Free/Red. Lunch	.489	.206	5.600	1	.018*
Reading Achieve.	.034	.004	79.385	1	.000*
Math Achieve.	.028	.004	61.866	1	.000*
Constant	-43.717	2.985	214.556	1	.000*

*$p < .05$

Table 4.13

Omnibus Test of Model Coefficients for Gifted Eligibility (Step 2)

Test	*Chi-square*	*df*	*p*
Model	381.925	6	.000*

*$p < .05$

Table 4.14

Results of Logistic Regression for Gifted Eligibility

Variable	*Exp(B)*	95.0% *C.I.* for *Exp(B)* Lower	Upper
Grade level			
Grade (1) *(2nd compared to 4th)*	18.597	9.571	36.136
Grade (2) *(3rd compared to 4th)*	3.069	1.663	5.663
Gender	1.486	1.014	2.179
Free/Red. Lunch	1.630	1.088	2.443
Reading Achievement	1.034	1.027	1.042
Math Achievement	1.028	1.021	1.036

Summary

In summary, the individual relationships between the criterion variables and each independent variable were tested using a logistic regression model. The variables of grade level, participation in the TEAM program, reading achievement, and mathematics achievement were all significant variables in determining if a student was referred for the gifted program. The variables of grade level, gender, free/reduced lunch, reading achievement, and mathematics achievement were all significant variables in determining if a student was eligible for the gifted program. The interaction of TEAM participation

with ethnicity, LEP, and free/reduced lunch status variables were not significant in influencing the probability of referral or eligibility for the gifted program. The following and last chapter discusses the findings reported here and relates them to the findings from the review of the literature. Chapter five also provides some conclusions and recommendations.

CHAPTER V

SUMMARY, DISCUSSIONS, AND RECOMMENDATIONS

This chapter describes the purposes, procedures, and statistical results of this research study. The findings and conclusions will be discussed, as well as, recommendations for action and future research.

Summary of Study

This study examined the effectiveness of the TEAM (Teaching Enrichment Activities to Minorities) program in preparing and identifying underrepresented students for entrance into the gifted program. The underrepresentation of culturally and linguistically diverse students in programs for the gifted has been of growing concern for many years. Miami-Dade County Public Schools developed the TEAM program in 1984 as an intervention program aimed at developing student's thinking skills and critical thinking skills in all subject areas and prepare students for possible placement into the gifted program. The goal of the TEAM program is to develop strategies and approaches capable of revealing hidden talents and abilities in individuals across ethnic, racial, and cultural lines.

Literature reviews were conducted to identify the causes of underrepresentation in gifted programs, the characteristics of culturally and linguistically diverse gifted students, cross-cultural characteristics of gifted students, the research on intervention strategies for reversing underrepresentation in gifted programs, and an analysis of the Teaching Enrichment Activities to Minorities (TEAM) program. The main thrust of studies to date (Barkan & Bernal, 1991, Clasen et al., 1994, Cohen, 1990, Ford et al., 2002, Naglieri, & Ford, 2003and Scott et al., 1992) on underrepresented students in gifted programs focus

on the causes of underrepresentation. Definition and identification procedures for gifted programs, including an overreliance on standardized test scores for eligibility, are the most frequently cited causes of underrepresentation of culturally, linguistically, and ethnically diverse students in gifted programs. Additionally, several studies have been conducted on the characteristics of gifted students and their unique learning styles (Ewing & Young, 1993, Ford et al., 2002, Gonzalez, 1996, and Tomlinson et al., 1997). Recent studies have focused on advocacy programs and programs for servicing minority students already identified for gifted programs (Bernal, 2002, Briggs & Reis, 2004, Grantham, 2003, O'Tuel, 1994, Tomlinson et al., 1997, and VanTassel-Baska et al., 2002). Yet, few studies investigate intervention strategies aimed at increasing the number of underrepresented students in gifted programs.

This study used a logistical regression design to analyze the relationships of multiple independent variables, including: ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, mathematics achievement, and participation in the TEAM program on the dependent variables of referral for the gifted program and eligibility into the gifted program. Logistical regression was used as the statistical model because the dependent variables were binary. The analysis produced odds ratio results for the relationships between the independent variables and the likelihood that the dependent variables would occur.

The research study was conducted during the 2004-2005 school year utilizing database and archival data from the 2003-2004 school year. A systematic sampling strategy was utilized to select three TEAM schools from each of the six regions in M-DCPS for the sample, for a total of 18 schools. All of the students that participated in the

TEAM program in 2003-2004 in the 18 schools selected were identified as the TEAM Sample students. Then, for the purpose of making necessary comparisons, a matching sample was created from 18 public schools in Miami-Dade County that did not implement the TEAM program in 2003-2004. In this study, the students in the TEAM Sample were matched on the basis of school, grade level, gender, and ethnicity. The Matching Sample created a match for 806 of the 901 students in the TEAM sample, for a total of 1612 subjects for the study.

Data analyses were conducted using a logistical regression design with the Statistical Package for the Social Sciences (SPSS) program (2001). The first analysis using logistic regression design examined how each independent variable (i.e., participation in TEAM, ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) influenced the probability of referral for the gifted program. The variables of grade level, participation in the TEAM program, reading achievement, and mathematics achievement were all significant variables in determining if a student was referred for the gifted program.

The second analysis using logistic regression design examined how each independent variable (i.e., participation in TEAM, ethnicity, limited English proficiency, gender, free/reduced lunch status, grade level, reading achievement, and mathematics achievement) influenced the probability of gifted eligibility. The variables of grade level, gender, free/reduced lunch status, reading achievement, and mathematics achievement were all significant variables in determining if a student was eligible for the gifted program.

Discussion

The first research hypothesis tested confirmed that the TEAM program was effective in increasing the number of underrepresented students referred for the gifted program. The descriptive statistics obtained for the number of referrals for gifted for the TEAM and Matching Samples indicate that overall, 256 out of the 806 students in the TEAM Sample were referred for gifted compared with 99 out of the 806 students in the Matching Sample. This is a difference of 19.5% between the two groups. The results of the logistic regression analysis for referral for gifted, indicated that students in the TEAM Sample were 2.334 times more likely to be referred for the gifted program than students in the Matching Sample.

This result may be due to the fact that the curriculum in the TEAM classroom includes greater focus on critical thinking, creative thinking, and vocabulary enrichment through the use of the Building Thinking Skills books (Parks & Black, 1997), learning centers, and use of manipulatives. Previous research supports the notion that interventions such as appropriate curriculum strategies and innovative instruction facilitate the success of potentially gifted students from low-income and/or minority backgrounds (Tomlinson et al., 1997). Additionally, teachers in the TEAM program are trained in strategies for identifying gifted students, recognizing giftedness in diverse students, and the referral and eligibility criteria for gifted. According to Ford, Harris, Tyson, and Trotman (2002), teachers are more likely to refer students for gifted if they understand the gifted referral and screening measures and they understand how placement decisions are made.

The first subsidiary research question tested confirmed that there are no differences in referrals for gifted with regard to ethnicity. While the descriptive statistics and frequency distribution indicated that there were differences in the number of students referred for the gifted program by ethnicity, the logistic regression model did not find the ethnicity variable to be significant. The percent of Black students in the TEAM Sample referred for gifted was 22.6%, while Black students in the Matching Sample referred for gifted was only 7.5%. Similarly, the percent of Hispanic students in the TEAM Sample referred for gifted was 37.2%, while Hispanic students in the Matching Sample referred for gifted was only 14.6%. The differences in the number and rate of referral for students in the TEAM Sample could be a result of the TEAM teachers' cultural awareness and understanding of gifted characteristics in students from diverse backgrounds.

The second subsidiary research question tested confirmed that there are no significant differences in referrals for gifted with regard to students who are limited English proficient (LEP). While the descriptive statistics and frequency distribution indicated that there were differences in the number of students referred for the gifted program who were LEP, the logistic regression model did not find the LEP variable to be significant. The descriptive statistics indicate that 35.3% of LEP and 28.7% of non-LEP in the TEAM Sample were referred for gifted, compared with only 4.5% of LEP and 14.1% of non-LEP students in the Matching Sample. It is interesting to note that the percentage of TEAM students referred for gifted was higher for students identified as limited English proficient. This could be a result of TEAM teachers being familiar with the Plan B eligibility procedures, which allow for additional consideration of students who are LEP or from low socio-economic backgrounds for gifted (Miami-Dade County

Public Schools District Plan to Increase Access of Underrepresented Students to Gifted Programs: Plan B, 2003) beyond the IQ cutoff.

The third subsidiary research question tested confirmed that there are no differences in referrals for gifted with regard to gender. The logistic regression analysis did not find the variable of gender to significantly influence the likelihood that a student would be referred for gifted. This demonstrates that there is little or no gender bias on the part of teachers, parents, and administrators that referred the students for the gifted program.

The fourth subsidiary research question tested confirmed that there are no differences in referrals for gifted with regard to free/reduced lunch. The logistic regression analysis did not find the variable of free/reduced lunch to significantly influence the likelihood that a student would be referred for gifted. The percentage of students referred for gifted was higher in both groups for the students who were not identified as receiving free or reduced lunch. This result would be supported by previous research (Naglieri and Ford, 2003) which state that children from low socio-economic families often lack the necessary basic skills foundation and general education skills that are needed to further develop their talents and gifted potential. Researchers Briggs & Reis (2004) found that students from low socioeconomic status (SES) homes may not demonstrate the same academic skills as their higher SES peers. These gaps in academic skills may lead to fewer referrals for gifted from teachers and administrators.

The fifth subsidiary research question tested confirmed that there were significant differences in referrals for gifted with regard to grade level. The results of the logistic regression analysis for grade level indicate that students in the second grade are 29.246

times more likely to be referred for the gifted program and students in the third grade are 3.234 times more likely to be referred for gifted than students in grades four. The higher percentage of second graders referred for gifted is expected since, as previous research indicates, early precocity is more easily identified at an early age when the differences in abilities in verbal, conceptual, and mathematical skills are most evident between gifted and non-gifted children (Davis & Rimm, 2004).

The last two subsidiary research questions tested confirmed that there were significant differences in referrals for gifted with regard to reading achievement and mathematics achievement. The reading achievement results indicate that students with higher reading scale scores are 1.037 times more likely to be referred for gifted. Similarly, the mathematics achievement results indicate that students with higher mathematics scale scores are 1.029 times more likely to be referred for gifted. This result would be supported by research by Davis and Rimm (2004) in that achievement test data is often used to screen and place students into gifted programs. Students who do well on achievement tests in reading comprehension and mathematics problem solving are often referred by teachers and administrators for the gifted program.

The second research hypothesis tested indicated that the TEAM program was not effective in increasing the number of underrepresented students eligible for the gifted program. While, the descriptive statistics obtained for the number of students eligible for gifted for the TEAM and Matching Samples indicate that overall, 98 out of the 806 students in the TEAM Sample were eligible for gifted compared with 82 out of the 806 students in the Matching Sample, the results of the logistic regression analysis for

eligibility for gifted indicated that participation in TEAM was not significant in determining whether a student was eligible for the gifted program.

This result may be due to the fact that, while the TEAM program provides for additional resources, teacher awareness and preparation, as well as curriculum and instruction focusing on critical thinking skills and analytical skills, in order for students to be eligible for gifted services, they must meet the eligibility criteria set by the Florida Department of Education. The Florida rule (6A-6.3019, FAC) defines the criteria for eligibility to include an intelligence quotient of two standard deviations or more above the mean on an individually administered standardized test of intelligence, a majority of characteristics of gifted children according to a standard scale or checklist, and a need for a special program (Special Programs, 2005). Miami-Dade County Public Schools' District Plan to Increase Access of Underrepresented Students to Gifted Programs: Plan B (2003) states that if a student is limited English proficient or from a low socio-economic status family then they can qualify for the gifted program with a documented need and a majority of gifted characteristics and a minimum score of 98th percentile on an achievement test or using a matrix, which quantifies teacher recommendation, achievement scores, creativity, and intellectual development. Both eligibility criteria (Plan A and B) include IQ or achievement test data.

As previously mentioned, disadvantaged, bilingual, LEP, and minority children are often excluded from gifted programs because of the tendency to rely solely on the results of IQ and achievement tests, which many consider to be a culturally biased test (Baldwin, 1996; Davis & Rimm, 2004; Frasier et al., 1995; Helms, 1992). Studies have consistently found that "African Americans score on average 15 points lower than whites,

and Hispanics score somewhere between these two groups on IQ tests" (Prifitera, et al., 2005, p. 21).

Results from the analysis of the first subsidiary question indicate that there are no differences in eligibility for gifted with regard to ethnicity. While the descriptive statistics and frequency distribution indicated that there were differences in the number of students eligible for the gifted program by ethnicity, the logistic regression model did not find the ethnicity variable to be significant. The differences in the number of students eligible for gifted from the TEAM Sample is expected to be larger, since significantly more students were referred from the TEAM Sample. Previous research on gifted referrals shows that referrals tend to rest heavily on expectations and perceptions of students (Ford, 2003). As described earlier, through professional development and district support, TEAM teachers are familiar with the characteristics of gifted students and trained to identify giftedness in children from culturally and linguistically diverse backgrounds.

The second subsidiary research question tested confirmed that there are no significant differences in eligibility for gifted with regard to students who are limited English proficient (LEP). While the descriptive statistics and frequency distribution indicated that there were differences in the number of students eligible for the gifted program who were LEP, the logistic regression model did not find the LEP variable to be significant. The descriptive statistics indicate that 15.1% of LEP in the TEAM Sample were eligible for gifted, compared with only 3.2% of LEP in the Matching Sample. As with the referrals for gifted for LEP students, this could be a result of TEAM teachers being familiar with the Plan B eligibility procedures, which allow for additional consideration of students who are LEP or from low socio-economic backgrounds for

gifted (Miami-Dade County Public Schools District Plan to Increase Access of Underrepresented Students to Gifted Programs: Plan B, 2003) beyond the IQ cutoff.

The third subsidiary research question tested confirmed that there were differences in eligibility for gifted with regard to gender. The results of the logistic regression analysis indicate that female students were 1.486 times more likely to be eligible for the gifted program than male students. The frequency distribution for the demographic characteristics indicated that 12.0% of females and 12.4% of males in the TEAM Sample were eligible for gifted compared with 12.0% of females and 8.1% of males in the Matching Sample. This result is supported by previous research which stated that giftedness is evident at an earlier age in girls than in boys (Kerr & Nicpon, 2003). Gifted girls are likely to speak, read, and write earlier than gifted boys, thereby performing better on eligibility tests for gifted.

The fourth subsidiary research question tested confirmed that there was a significant difference in the likelihood that a student is eligible for gifted with regard to free/reduced lunch. The results of the logistic regression analysis for students on free/reduced lunch indicate that students who are on free/reduced lunch are 1.630 times more likely to be eligible for gifted. The descriptive statistics of students on free/reduced lunch indicates that 11.9% of students in the TEAM Sample were eligible for gifted compared with 7.8% of students in the Matching Sample. While, previous research (Naglieri and Ford, 2003) state that children from low socio-economic families often lack the necessary basic skills foundation and general education skills that are needed to further develop their talents and gifted potential, these results indicate that if students are referred and given the opportunity to be considered for the gifted program, students on

free/reduced lunch will meet eligibility for the program. Additionally, this could be a result of TEAM teachers being familiar with the Plan B eligibility procedures, which allow for additional consideration of students who are from low socio-economic backgrounds for gifted (Miami-Dade County Public Schools District Plan to Increase Access of Underrepresented Students to Gifted Programs: Plan B, 2003).

The fifth subsidiary research question tested confirmed that there were significant differences in eligible for gifted with regard to grade level. The results of the logistic regression analysis for grade level indicate that students in the second grade are 18.597 times more likely to be eligible for the gifted program and students in the third grade are 3.069 times more likely to be referred for gifted than students in grades four. The higher percentage of second graders eligible for gifted is expected, as previous research indicates, and the logistic regression analysis for referral for gifted by grade level shows that early precocity is more easily identified at an early age (Davis & Rimm, 2004). Studies have shown (Davis & Rimm, 2004) that young gifted children begin to speak, read, and comprehend complex and abstract concepts earlier than most children, thereby facilitating the early identification of gifted students.

The last two subsidiary research questions tested confirmed that there were significant differences in eligibility for gifted with regard to reading achievement and mathematics achievement. The reading achievement results indicate that students with higher reading scale scores are 1.034 times more likely to be eligible for gifted. Similarly, the mathematics achievement results indicate that students with higher mathematics scale scores are 1.028 times more likely to be referred for gifted. This result would be supported by current national definitions of giftedness which state that gifted children

display evidence of high performance or potential in areas such as intellectual, creative, artistic, or leadership, or in specific academic fields (U.S. Department of Education, 1994).

Recommendations

The first recommendation based on the results of this study is to expand the use of the Teaching Enrichment Activities to Minorities (TEAM) program in Miami-Dade County Public Schools to kindergarten and first grade. The TEAM program focuses on developing student's thinking skills and critical thinking skills in all subject areas. TEAM classrooms incorporate the use of the Building Thinking Skills series, learning centers, manipulatives, and additional resources to enrich the curriculum and instruction of the students in the program. This study demonstrates that participation in the TEAM program increases the likelihood that a student is referred for the gifted program. Therefore, the program achieves its stated goal of revealing hidden talents and abilities in individuals across ethnic, racial, and cultural lines.

Since early identification of students, measured by grade level, proved to be the most powerful variable in determining the likelihood of referral and eligibility for gifted, expanding the TEAM program to kindergarten and first grade should be considered. This would allow for students to be exposed to a differentiated curriculum focusing on enrichment, critical thinking, and analytical skills at an earlier age.

Another recommendation based on the results of this study, as well as others in the literature, is for the State of Florida to discontinue the sole use of an IQ cutoff for gifted eligibility, as many other states have done. Based on the scope of the study, the TEAM program is effective in increasing the number of students referred for the gifted

program, but there remain barriers to entrance into the gifted program. The most important element to consider for entrance into the gifted program is the use of a single IQ cutoff. Research supports the use of more than one test to make educational decisions about gifted students (Ford, Harris et al., 2002). Additionally, the State of Florida and Miami-Dade County Public Schools need to evaluate their screening, identification and assessment instruments, policies, and procedures to assure access and equity for all students in the gifted program. The use of a broadened definition of gifted, as well as multiple quantitative and qualitative measures of superior cognitive abilities to determine eligibility and placement into the program would more accurately identify students who are gifted from all populations.

Further studies could be done measuring other variables related to the TEAM program. For example, the academic achievement of students before participating in the TEAM program and their learning gains after one, two, or three years in the program could be measured. The individual ESOL levels of TEAM students and their relationship to referral and eligibility for gifted could be analyzed. Additionally, a case study or longitudinal study could be done measuring the success of students at the secondary level who participated in the TEAM program in elementary school. The TEAM students' participation in honors, Advanced Placement, dual enrollment, and other advanced academic programs, as well as their academic achievement could be measured.

Summary

In summary, the findings and conclusions of this study were discussed. Previous research supports the findings of the research questions and subsidiary questions. Recommendations based on the results of this study include the expansion of the TEAM

program in Miami-Dade County Public Schools to include additional grade levels and schools. Additionally, adopting a broadened definition of giftedness and reviewing the screening and placement policies for potentially gifted students is recommended. Finally, further studies are recommended to evaluate the academic achievement and long term effects on students who participated in the TEAM program. Adopting multicultural and broader definitions of giftedness and constructing better tools and programs, such as TEAM, for assessing and identifying potential gifted students, represent small steps towards creating equitable education for all students.

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APPENDICES
Appendix A

Demographics of TEAM Sample and Matching Sample Schools

Region Center	TEAM school	Demographics	Non-TEAM school	Demographics
1	James H. Bright Elementary School	White 1% Black 5% Hispanic 93% Other 1% LEP 49% F/R Lunch 95%	Amelia Earhart Elementary	White 3% Black 6% Hispanic 90% Other 1% LEP 45% F/R Lunch 82%
1	Carol City Elementary School	White 1% Black 78% Hispanic 20% Other 1% LEP 6% F/R Lunch 95%	North County Elementary School	White 1% Black 94% Hispanic 5% Other 0% LEP 2% F/R Lunch 94%
1	Rainbow Park Elementary School	White 1% Black 81% Hispanic 17% Other 1% LEP 3% F/R Lunch 92 %	Golden Glades Elementary School	White 0% Black 96% Hispanic 3% Other 1% LEP 1% F/R Lunch 94%
2	Hibiscus Elementary School	White 1% Black 91% Hispanic 7% Other 1% LEP 9% F/R Lunch 84%	Gratigny Elementary School	White 1% Black 82% Hispanic 15% Other 1% LEP 21% F/R Lunch 91%
2	Norland Elementary School	White 1% Black 91% Hispanic 6% Other 1% LEP 9% F/R Lunch 81%	Norwood Elementary School	White 3% Black 90% Hispanic 5% Other 2% LEP 5% F/R Lunch 84%

2	Treasure Island Elementary School	White 11% Black 8% Hispanic 79% Other 2% LEP 45% F/R Lunch 84%	Fienberg/Fisher Elementary School	White 10% Black 6% Hispanic 81% Other 2% LEP 35% F/R Lunch 86%
3	Charles R. Drew Elementary School	White 0% Black 95% Hispanic 4% Other 1% LEP 1% F/R Lunch 95%	Liberty City Elementary School	White 0% Black 94% Hispanic 6% Other 0% LEP 1% F/R Lunch 95%
3	Hialeah Elementary School	White 7% Black 9% Hispanic 83% Other 1% LEP 40% F/R Lunch 88%	Coral Park Elementary School	White 5% Black 1% Hispanic 92% Other 2% LEP 30% F/R Lunch 59%
3	E. W. F. Stirrup Elementary School	White 3% Black 2% Hispanic 93% Other 2% LEP 52% F/R Lunch 77%	Rockway Elementary School	White 8% Black 1% Hispanic 89% Other 1% LEP 25% F/R Lunch 61%
4	Coconut Grove Elementary School	White 21% Black 35% Hispanic 36% Other 8% LEP 6% F/R Lunch 58%	Miami Shores Elementary School	White 16% Black 58% Hispanic 23% Other 4% LEP 13% F/R Lunch 69%
4	Fairlawn Elementary School	White 2% Black 0% Hispanic 97% Other 1% LEP 42% F/R Lunch 80%	Auburndale Elementary School	White 10% Black 3% Hispanic 87% Other 1% LEP 40% F/R Lunch 86%
4	Kensington Park Elementary School	White 3% Black 2% Hispanic 95% Other 0% LEP 43% F/R Lunch 85%	Silver Bluff Elementary School	White 5% Black 1% Hispanic 93% Other 1% LEP 33% F/R Lunch 85%

5	Dante B. Fascell Elementary School	White 8% Black 4% Hispanic 84% Other 4% LEP 36% F/R Lunch 63%	Tropical Elementary School	White 8% Black 3% Hispanic 86% Other 3% LEP 36% F/R Lunch 73%
5	Dr. Carlos J. Finlay Elementary School	White 3% Black 0% Hispanic 96% Other 1% LEP 40% F/R Lunch 81%	Flagami Elementary School	White 7% Black 1% Hispanic 91% Other 1% LEP 46% F/R Lunch 81%
5	Wesley Matthews Elementary School	White 5% Black 0% Hispanic 94% Other 1% LEP 29% F/R Lunch 63%	Royal Palm Elementary School	White 8% Black 1% Hispanic 89% Other 2% LEP 26% F/R Lunch 63%
6	Jack D. Gordon Elementary School	White 22% Black 8% Hispanic 65% Other 5% LEP 17% F/R Lunch 36%	Dr. Gilbert L. Porter Elementary School	White 15% Black 6% Hispanic 73% Other 6% LEP 16% F/R Lunch 41%
6	Kendale Lakes Elementary School	White 18% Black 5% Hispanic 73% Other 4% LEP 21% F/R Lunch 54%	Claude Pepper Elementary School	White 11% Black 5% Hispanic 77% Other 7% LEP 23% F/R Lunch 49%
6	Winston Park Elementary School	White 9% Black 1% Hispanic 84% Other 5% LEP 21% F/R Lunch 50%	Christina M. Eve Elementary School	White 11% Black 3% Hispanic 78% Other 8% LEP 27% F/R Lunch 39%

Appendix B

Approval from Florida International University's Division of Sponsored Research and Training Institutional Review Board

Division of Sponsored Research & Training
Office of Research Compliance, MARC 430

MEMORANDUM

To:	Lisette Camps
CC:	Dr. Judith Slater
	File
From:	Chris Grayson, CIM, Institutional Review Board Coordinator
Date:	April 12, 2005
Proposal Title:	Effectiveness of the Teaching Enrichment Activities to Minorities (TEAM) Program to Increasing Underrepresented Students in Gifted Programs.
	Approval # 040505-01

The Institutional Review Board of Florida International University has approved your study for the use of human subjects. Your IRB approval date is **April 5, 2005** and this approval will expire on **April 5, 2006**. As a requirement of IRB approval you are required to:

1) Provide immediate written notification to the IRB of:
   - Any additions to, or changes in the procedures involving human subjects,
   - Every serious or unusual or unanticipated adverse event as well as problems with the rights or welfare of the human subjects. Confirmation of receipt of serious AE reports must be made with the IRB office.
2) Utilize copies of the date stamped consent document(s) for the recruitment of subjects and receive annual renewal of consent documents.
3) **Receive annual review and re-approval.**

Special Conditions: N/A

Please note your approval number is indicated above. For further information, you may contact the IRB Coordinator by email at irbiacuc@fiu.edu or visit the DSRT – Human Subjects website at www.dsrt.fiu.edu.

Appendix C

Approval from Miami-Dade County Public Schools' Office of Program Evaluation

Research Review Committee

May 18, 2005

Lisette T. Camps
11503 SW 61 Terrace
Miami, FL 33173

Dear Ms. Camps:

I am pleased to inform you that the Research Review Committee of the Miami-Dade County Public Schools (MDCPS) has approved your request to conduct the study, "Effectiveness of the Teaching Enrichment Activities to Minorities (TEAM) Program at Increasing Underrepresented Students in Gifted Programs." The approval is granted with the following conditions:

1. The anonymity and confidentiality of all subjects must be assured.

2. The study is based on anonymous student records, so parent permission forms are not required.

3. The study will involve approximately 2000 MDCPS students.

It should be emphasized that the approval of the Research Review Committee does not constitute an endorsement of the study. It is simply a permission to request the voluntary cooperation in the study of individuals associated with the MDCPS. It is your responsibility to ensure that appropriate procedures are followed in requesting an individual's cooperation, and that all aspects of the study are conducted in a professional manner. With regard to the latter, make certain that all documents and instruments distributed within the MDCPS as a part of the study are carefully edited.

The approval number for your study is 1176. This number should be used in all communications to clearly identify the study as approved by the Research Review Committee. The approval expires on June 30, 2006. During the approval period, the study must adhere to the design, procedures and instruments which were submitted to the Research Review Committee. If there are any changes in the study as it relates to the MDCPS, it may be necessary to resubmit your request to the committee. Failure to notify me of such a change may result in the cancellation of the approval.

If you have any questions, please call me at (305) 995-7501. Finally, remember to forward an abstract of the study when it is complete. On behalf of the Research Review Committee, I want to wish you every success with your study.

Sincerely,

Joseph J. Gomez, Ph.D.
Chairperson
Research Review Committee

JJG:fp

APPROVAL NUMBER: 1176	APPROVAL EXPIRES: 6-30-06

VITA

LISETTE TERESA CAMPS

February 25, 1976	Born, Jacksonville, Florida
1994	Graduated Miami Palmetto Senior High School Miami, Florida
1997	Golden Key National Honor Society
1997	B.A. with Honors; Elementary Education University of Florida Gainesville, Florida
1997-2003	Teacher of the Gifted Kinloch Park Elementary School Miami, Florida
1999-present	The Education Fund
2000	Phi Kappa Phi Honor Society
2000	Finalist, M-DCPS Social Studies Teacher of the Year
2000	Florida Geographic Alliance
2000	National Association for Gifted Children
2000	M.S. Ed.; Teaching English to Speakers of Other Languages Florida International University Miami, Florida
2000-2003	Chairperson, Educational Excellence School Advisory Committee Kinloch Park Elementary School Miami, Florida
2003	National Board of Professional Teaching Standards Certified Middle Childhood Generalist

2003	Educational Specialist, M-DCPS Elementary Advanced Academic and Gifted Programs Division of Advanced Academic Programs Miami, Florida
2004-present	District Supervisor, M-DCPS Elementary Advanced Academic and Gifted Programs Division of Advanced Academic Programs Miami, Florida
2005	Chancellor's List

PUBLICATIONS AND PRESENTATIONS

Camps, L. T. (October, 2003). *Around the World.* Presentation at the Education Fund's Impact II Idea Expo Teacher Conference, Miami, Florida.

De Armas, M. P., Camps, L. T., and Ruiz, N. (October, 2004). *Advanced Academics as a Vehicle for Closing Achievement Gaps.* Presentation at the Council of the Great City Schools Conference, Las Vegas, Nevada.

Camps, L. T., Gutierrez, A. M, and Egusquiza, A. P. (October, 2005). *The Teaching Enrichment Activities to Minorities (TEAM) Program as a Vehicle for Narrowing Achievement Gaps.* Presentation at the Florida Association for the Gifted Conference, Orlando, Florida.

Camps, L. T., Gutierrez, A. M, and Egusquiza, A. P. (October, 2005). *The Teaching Enrichment Activities to Minorities (TEAM) Program as a Vehicle for Narrowing Achievement Gaps.* Presentation at the National Association for Gifted Children Conference, Louisville, Kentucky.