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Examining the Relationship Between Gifted Behavior Rating Scores and Student Academic Performance

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EXAMINING THE RELATIONSHIP BETWEEN GIFTED BEHAVIOR RATING SCORES

AND STUDENT ACADEMIC PERFORMANCE

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Concordia University – Portland

College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in Educational Administration

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Abstract

Current trends in gifted education research suggest the importance of identifying, developing, and nurturing the talent and potential of gifted learners in addition to recognizing high ability through intelligence testing. However, despite decades of work to decrease the achievement gaps, increasing excellence gaps, the disparity between the highest levels of student achievement from White, affluent backgrounds and the top-performing students from minority or low income backgrounds, remains a problem (Plucker & Callahan, 2014). This quantitative research study examines how a component of the identification process, the gifted behavior rating scale, can be used to assess student potential and increase representation of minority populations in gifted education. In this study, ex post facto gifted behavior rating scale data gathered from the gifted screening process in a large, diverse suburban school district was correlated to determine if any relationship existed between gifted behavior rating scales scores and student academic performance. Findings from this research study indicated a weak to moderate positive correlation between students' gifted rating scale scores and student academic performance. Because results were statistically insignificant, gifted rating scale scores were not determined to be predictors of student academic performance. However, results support the talent development approach in gifted education and demonstrate that teachers are able to recognize and identify gifted behavior characteristics for high ability students effectively using a gifted behavior rating scale. In addition, the study demonstrated the academic performance success achieved by both underrepresented and non-minority high ability students in gifted programming. Further empirical research needs to be conducted to demonstrate the predictive value of using teacher rating scales as a component of the gifted identification screening process.

Keywords: gifted behavior rating scale, gifted identification, underrepresentation

Dedication

This doctoral journey is dedicated to my family

for their constant support, encouragement and love

in my quest to reach for the stars.

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Chapter 1: Introduction

Theories about giftedness have changed significantly over time. While academically gifted students are supported and identified as the upper 3% to 5% of the general population of learners, there is also significant untapped potential talent in our nation's schools (Pfeiffer, 2012). High intellectual ability was originally identified as giftedness, but evolving theories and research have broadened this perspective (Kaufman & Sternberg, 2010). While high ability is still a significant characteristic of giftedness, identifying and nurturing an individual's talent and potential is also critically important (Subotnik, Olszewski-Kubilius, & Worrell, 2011).

History of Gifted Identification

Early work in gifted identification centered on identifying high ability individuals through intelligence testing. However, as theorists advanced ideas about giftedness, researchers began considering domain specific aspects of giftedness demonstrated through exceptional functioning in the ability to problem solve or demonstrate advanced skills in a particular area (Gardner & Hatch, 1989). In addition, psychosocial aspects of functioning including motivation, persistence, engagement, and creative thinking were recognized as important indicators for potential giftedness and successful academic achievement (Renzulli & Reis, 2009).

Recent research based on the growth mindset which describes the malleability of ability and intelligence, puts greater emphasis on emerging talent and gifted potential (Dweck, 2006; Olszewski-Kubilius & Thomson, 2015). The talent development approach to giftedness suggests that talent and potential can evolve and change, and can be influenced by society, experiences and the environment (Olszewski-Kubilius &Thomson, 2015; Subotnik et al., 2011). Conceptualizing giftedness using a talent development framework also provides an opportunity

for underrepresented populations to demonstrate high levels of academic achievement through differentiated learning experiences.

With the shift in conceptualizing giftedness through a talent development approach, researchers and practitioners considered how giftedness should be identified. At first, intelligence testing was used as the sole identifier for high ability students. However, with the advent of the talent development approach, intelligence testing was determined to be insufficient in identifying the potential capacity of gifted learners. In addition, the United States began identifying significant underrepresentation of minority populations in gifted programming of 50% to 70% (U.S. Department of Education, 1993). While gifted students from underrepresented populations have the potential to be successful in gifted education, limited family and school support may lead to underachievement in school, low self-esteem, and lack of emotional support (Olszewski-Kubilius &Thomson, 2015). Underrepresented students with high ability are excelling less frequently than their peers due to potential lack of access to early educational opportunities and other educational resources that may affect intellectual development (Siegle et al., 2016). Therefore, the goal of talent development is to support underrepresented populations by providing the knowledge and skills that are necessary to fully develop a student's talent and potential to reach the highest level of achievement possible (Olszewski-Kubilius &Thomson, 2015; Subotnik et al., 2011).

Statement of the Problem

Evaluating authentic measures beyond intelligence testing to determine gifted talent and potential is critical to increasing the identification of underrepresented populations in gifted programming. Gifted identification processes that include more authentic and informal measures have become a more effective and equitable approach for assessing talent and potential

(Olszewski-Kubilius &Thomson, 2015). However, relying on informal measures such as teacher ratings can also be a barrier to underrepresented populations participating in gifted programming (Ford, Grantham & Whiting, 2008). Deficit thinking or negative beliefs about a person's potential can be an obstacle that prevents an accurate assessment of an individual's strengths (Ford et al., 2008). Research results and data demonstrating how well underrepresented populations can achieve in gifted education programs is important to promoting equity in gifted identification (Ford et al., 2008).

In addition to the need for a talent development approach to gifted education, the lack of national policy regarding gifted identification, programming, and services contributes to the continuing achievement gap between underrepresented populations and White students in gifted education (Olszewski-Kubilius & Clarenbach, 2012). Though the federal government passed the Jacob K. Javits Gifted and Talented Children and Youth Education Act in 1988 to support the need for gifted education research and programming, limited resources have been spent on reducing achievement gaps and encouraging equity in educational opportunities for gifted students (Callahan, Moon & Oh, 2014). Advocacy for high ability underrepresented populations to participate in gifted programming is needed to diminish this gap. Because local governments and state agencies determine their own policies and requirements for gifted education, the National Association for Gifted Children (2010) proposed a policy to encourage a broader approach to gifted identification beyond the use of standardized intelligence testing. The policy supports the use of multiple measures and a variety of resources to identify and serve gifted students including portfolios, performance-based tasks, student schoolwork, grades, behavior ratings, and checklists (NAGC, 2010; VanTassel-Baska, Feng & Evans, 2007).

Purpose of the Study

Studying gifted programs provides the opportunity for researchers and practitioners to seek methods for identifying gifted students that are both valid for predicting success in gifted and talented programs, and that promote equity for underrepresented populations. The purpose of this quantitative research study was to examine the relationship between teacher behavior rating scale scores and student academic achievement outcomes in a gifted education program located in one large, diverse urban school district in the state of Virginia. A correlation analysis was conducted to determine if any relationship existed between gifted rating behavior scores and student academic achievement for both random sample and underrepresented sample data collected in this study.

In the school district for this research study, second grade teachers completed a gifted behavior rating scale designed by the school district for each student from their class identified for gifted screening. Teachers received basic training about how to complete the rating scale which includes behavior indicators that can be typically observed in a school classroom environment. For this study, a random sampling of ex post facto behavior rating scale data for gifted third grade students in a large, diverse public school district was correlated with end of year grades to determine if any relationship existed. In addition, the study also correlated underrepresented gifted third grade students' data to student performance outcomes to determine if any relationships existed. The underrepresented population examined in this study includes students identified as Hispanic, Black or as a Young Scholar. The Young Scholar designation is used by this school system to identify and nurture the potential of young low income and/or minority students.

Research Questions

The following research questions were formulated for this study:

1. Is there a relationship between third grade students' gifted behavior rating scale scores used as a component of the screening process and third grade gifted students' end-of-year academic performance grades?

2. Is there a relationship between underrepresented third grade students' gifted behavior rating scale scores used as a component of the screening process and underrepresented third grade gifted students' end-of-year academic performance grades?

Significance of the Study

Results from the study did not find a predictive relationship between gifted behavior rating scales used as a component of the screening process and student academic performance outcomes. However, the study demonstrated that teachers can use gifted behavior rating scales effectively to identify gifted behavior characteristics in high ability students. In addition, examining the additional variables related to underrepresented populations with behavior rating scales and student performance demonstrated the success underrepresented students can achieve through gifted programming.

Definition of Terms

Academic performance. An end-of-year academic grade determined by averaging the final language arts and mathematics grades for each student.

Gifted behavior rating scale. A non-traditional checklist assessment instrument typically used as a component of the gifted identification process (Worrell & Erwin, 2011).

Gifted behavior rating score. A summative gifted behavior rating scale score determined by a teacher based on observed gifted behaviors and characteristics (Mason, Gunersel & Ney, 2014).

Talent development approach. A strengths-based framework that includes a flexibly designed gifted identification process in order to recognize and nurture outstanding student gifted potential (Olszewski-Kubilius &Thomson, 2015; Subotnik et al., 2011).

Underrepresentation. Underrepresented students whose ethnicity is identified as Hispanic or Black or as having a Young Scholar designation (Plucker & Callahan, 2014).

Young Scholar. Young Scholar is a designated minority and/or low income student who is also included in the underrepresented student group (Horn, 2015).

Summary

The history of gifted education research suggests the importance of identifying, developing and nurturing the talent and potential of gifted learners in addition to recognizing high ability through intelligence testing. However, despite decades of work to decrease the achievement gaps, increasing excellence gaps, the disparity between the highest levels of student achievement from White, affluent backgrounds and the top-performing students from minority or low income backgrounds, remains a problem (Plucker & Callahan, 2014). The talent development framework is a strengths-based approach that includes a gifted identification process designed to recognize outstanding potential, the key to increasing minority representation in gifted programming (Pfeiffer & Blei, 2010).

This quantitative research study examined how a component of the identification process, the gifted behavior rating scale, can be used to recognize student potential and increase representation of minority populations in gifted education. Findings from this study support the

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talent development approach and demonstrate how teachers are able to identify gifted behaviors and characteristics for high ability students effectively. In addition, results demonstrated that high ability underrepresented students can achieve successfully in gifted programming.

Chapter 2 of this research study contains a conceptualization of how current theories and trends about gifted education have changed over time. In addition, a thorough review of literature is conducted to develop an understanding of the history of gifted education and the talent development approach, underrepresentation in gifted education, shifts in policy perspectives, and barriers in gifted education. Research studies regarding approaches in identifying giftedness are examined to demonstrate the importance of multiple forms of assessment being utilized during the identification process in order to support developing student talent and potential. Finally, an understanding regarding the importance of cultural competence and culturally responsive teaching research is provided to demonstrate the critical role teachers play in nurturing and developing student talent and potential.

In chapter 3, the methodology utilized for this research study is provided. A correlational analysis was conducted in this quantitative research study in order to examine the relationship between teacher behavior rating scale scores and student achievement performance outcomes. In addition, data related to underrepresentation in gifted programming was correlated to behavior ratings and student performance outcomes to determine if at risk populations achieve comparable success in gifted programming opportunities.

Chapter 2: Literature Review

Introduction to the Literature Review

Current trends in gifted education research suggest the importance of identifying, developing, and nurturing the talent and potential of gifted learners. This review of literature lays a foundation for this research study by identifying the current theoretical positions and empirical research in support of the talent development approach for identifying giftedness. While the talent development approach puts greater emphasis on emerging potential and can address a wider range of learners, this review of literature also documents that minority underrepresentation in gifted programming continues to be a concern. A recent survey of gifted programming indicated that more than 50% of the responding districts noted that underrepresentation of minority students still exists (Callahan et al., 2014). Finally, this review of literature discusses the research in support of an identification process in gifted education that utilizes multiple forms of assessments in addition to intelligence tests to provide a more clear and comprehensive view of student talents and abilities (VanTassel-Baska et al., 2007).

In the next section of this chapter, a conceptual framework is included to provide a theoretical focus, brief examination of scholarly literature relevant to this research, and the methodological approach used in this study. Following the conceptual framework, a broad review of relevant scholarly literature is examined. Subsections in the literature review begin with the historical conceptualization of giftedness and a consideration of the talent development approach to gifted education. Next, an understanding of the current state of underrepresented populations in gifted education is developed to include barriers and deficit thinking, policy perspective shifts, and the development of a national definition for giftedness. The importance of developing cultural proficiency as well as culturally responsive teaching is examined and

substantiated by successful programming designed to increase diversity in gifted education. Finally, the historical usage of the gifted identification process is provided to develop an understanding of the importance of traditional and non-traditional forms of assessment and identification as components of the screening process.

Conceptual Framework

The concept of giftedness began as a measure of ability based on intelligence tests. Exceptional intelligence was viewed as fixed trait that a person demonstrated and did not change (Olszewski-Kubilius & Thomson, 2015). Intelligence testing was proven to validly predict student achievement and over time, researchers built on the foundation of intelligence theory by discovering diverse components of giftedness (Olszewski-Kubilius & Thomson, 2015). The quantifiable aspect of intelligence testing fit into the psychometric approach in education that described the learner in terms of measurable abilities (Elkind, 1989). Individual differences in academic performance were described as differences in the amount of a given ability (Elkind, 1989).

The developmental philosophy of education differs from the psychometric philosophy in that the learner is viewed as having developing abilities and talents that emerge with age (Elkind, 1989). Gifts are defined as innate abilities in at least one domain area such as intellect or creativity (Plucker & Callahan, 2014). Common characteristics associated with giftedness include advanced vocabulary, reasoning, speaking skills, and interests that are typical of older children or adults (Pfeiffer, 2012). In addition, gifted children are likely to demonstrate the ability and desire to learn quickly and retain complex knowledge, a high level of curiosity, and an emotional sensitivity (Pfeiffer, 2012). Talent, described as potential for future achievement, is demonstrated by mastery of the gift as evidenced by specific skill areas that place the

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individual in the top 10% of age peers (Olszewski-Kubilius & Thomson, 2015; Plucker & Callahan, 2014). The developmental approach in education strives to produce creative and critical thinkers in learning environments that challenge and nurture emerging gifts and talents (Elkind, 1989). When a child applies effort, study, and practice in a supportive learning environment, potential can be developed into successful achievement (Olszewski-Kubilius &Thomson, 2015).

The current trend in giftedness research is to identify and nurture specific talents such as the ability to problem solve and think critically which are important to achieving giftedness (Kaufman & Sternberg, 2010). Talent development is a process that continues to build and change for individuals based on their continued experiences and opportunities to develop talent and achieve greater success (Plucker & Callahan, 2014). The talent development approach also supports recent research supporting the malleability of ability and intelligence (Dweck, 2006). As a theoretical framework, gifted education scholars support a talent development approach because it places greater emphasis on emergent talent and potential and can address a wider range of learners (Dai & Chen, 2013; Olszewski-Kubilius & Thomson, 2015; Renzulli, 2005; Subotnik et al., 2011). This approach places emphasis on recognizing and nurturing the potential strengths and talents of children instead of interpreting differences as deficits or weaknesses (Ford & Whiting, 2008). Siegle et al. (2016) stated that in a talent development model for underrepresented students, it is imperative to include opportunities that prepare students for the gifted identification process and provide culturally relevant learning experiences that students find meaningful.

The talent development framework is a strengths-based approach that includes a flexibly designed gifted identification process to recognizing outstanding potential, the key to increasing

minority representation in gifted programming (Pfeiffer & Blei, 2010). An important aspect of the identification process also includes professional development to support teacher thinking beyond nomination of gifted students to recognizing talent potential (Siegle et al., 2016). In addition to using standardized intelligence tests to identify gifted children, research suggests that non-traditional assessment tools such as non-verbal tests, performance-based tasks, student work, achievement grades, and teacher checklists can support the talent development approach (VanTassel-Baska, et al., 2007; Worrell & Erwin, 2011).

Subotnik's (2011) research demonstrated that the psychosocial aspects of functioning such as task persistence, high engagement, and focused attention during learning play a major role in children that demonstrate giftedness. In other words, students who are identified as gifted are expected to work harder, faster, and with more intensity than non-gifted peers (Worrell & Erwin, 2011). Psychosocial skills and strengths specifically support a student's ability to handle adversity or to strive for higher levels of achievement (Subotnik et al., 2011). Demonstrating qualities such as risk-taking, coping with challenges, and persisting may support a student's ability to achieve higher levels of talent development from those students who do not (Subotnik et al., 2011). The lack of identification of strong psychosocial skills for underrepresented populations may hinder identification and talent development. Ford and Whiting (2010) noted that many underrepresented students face barriers in identification and retention because of educators' perceptions that students may not achieve in gifted programming. As a result, teachers may tend to underestimate the potential and capacity of high ability students during the identification process (Olszewski-Kubilius & Clarenbach, 2012). Subotnik's (2011) research suggested that educator psychosocial awareness and skill training is important to the talent

development and identification process and will support an underrepresented student's ability to achieve optimal performance.

Siegle et al. (2016) suggested that some disadvantaged students may be in learning environments that do not provide the opportunities to develop their talents, and may need educational interventions to nurture and support their emerging skills. The National Association of Gifted Children (2010) noted that:

Some gifted individuals with exceptional aptitude may not demonstrate outstanding level so achievement due to environmental circumstances such as limited opportunities to learn as a result of poverty, discrimination, or cultural barriers; due to physical or learning disabilities; or due to motivational or emotional problems. Identification of these students will need to emphasize aptitude rather than relying only on demonstrated achievement. Such students will need challenging program and additional support services if they are to develop their abilities and realize optimal levels of performance. (para. 4).

Because of teacher familiarity and frequent interaction with potentially gifted students, one valid, nontraditional identification assessment tool, a teacher behavior rating scale, is one of the best ways to identify the psychosocial aspects of high functioning (Worrell & Erwin, 2011). A teacher behavior rating scale is an assessment tool designed to complement an intelligence test by providing a more comprehensive picture of a student's capabilities (Pfeiffer, Kumtepe & Rosado, 2006). As an important part of the gifted screening process, teachers serve as a useful source of information regarding observations of gifted behaviors and talent potential (Worrell & Erwin, 2011). The gifted behavior rating scale, can be used effectively to document observable behaviors and psychosocial attributes such as motivation, passion, self-efficacy, and self-

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regulation (Pfeiffer & Jarosewich, 2007; Worrell & Erwin, 2011). Designed to consider student behaviors and performance growth over time rather than at a single point in time, the behavior rating scale can be an effective component in the gifted identification process (Olszewski-Kubilius & Clarenbach, 2012). Worrell and Erwin (2011) also noted that because it is important for a teacher to know the student when using a behavior rating scale as an assessment tool, the gifted screening process should take place toward the end of an academic year rather than at the beginning of a school year.

The field of gifted education currently has few sound teacher rating scales used as a component of the screening process. Pfeiffer and Jarosewich (2007) examined a number of rating scales that are used for gifted identification, but indicated their limitations based on a lack representative standardized normative samples and low interrater reliability. Because of the lack of widely used validated gifted behavior rating scales, many school systems develop their own rating scale forms. While there has been some progress made in developing standardized teacher rating scales, more research needs to be conducted in order to create valid assessment tools that also consider race, ethnicity, and socioeconomic characteristics in their design (Peters & Gentry, 2010).

This quantitative research study was based on the current conceptualization of gifted education and examined how the identification process could be used to recognize student potential and increase representation of minority populations in gifted education. A correlational design will be used in an effort to examine if a pattern or relationship exists between the variables (Adams & Lawrence, 2015). Frequently used in quantitative studies, a correlational design demonstrates whether the relationship of the study variables is significantly different than what would be expected by chance alone (Adams & Lawrence, 2015). In this research study, ex

post facto data gathered from the gifted screening process in a large, diverse suburban school district in the state of Virginia was correlated to determine if it had predictive value to student academic achievement. Four variables including high ability third grade gifted students, high ability underrepresented third grade gifted students, gifted behavior rating scores, and student academic grades were included in the correlational analysis. The results of this research study revealed how teachers can use gifted behavior rating scales to assess gifted potential effectively and demonstrated the success underrepresented populations achieve through gifted education opportunities.

Historical Conceptualization of Giftedness

Beginning with the earliest researchers at the turn of the twentieth century, giftedness was conceptualized as an exceptionally high ability that was believed to be genetically inherited (Kaufmann & Sternberg, 2010). The concept of giftedness was equated with the ability to learn at a faster rate, master complex ideas and to reason at a higher abstract level (Dai & Chen, 2013). However, as researchers began to examine non-intellectual variables of intelligence such as the motivation and opportunity to learn, a broader construct for giftedness began to emerge (Robinson & Clickenbeard, 2010). The issue of innate or natural ability became the center of debates suggesting that nurturing components such as interests and aptitudes could affect giftedness (Robinson & Clickenbeard, 2010). The nature versus nurture debate lead to changes in the conceptualization of giftedness.

Influenced by the early work in gifted education, expanded ideas about giftedness were developed to include domain-specific, systems, and developmental models (Kaufmann & Sternberg, 2010). Domain-specific models recognize that talents in fields such as music and art can be developed at different times from early childhood to adulthood and opportunities should

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be provided to students with demonstrated potential and interest (Subotnik et al., 2011). Domain-specific models broadened the definition of intelligence to include an individual's ability to problem solve using multiple intelligences (Kaufmann & Sternberg, 2010). In domain-specific models, giftedness emphasized areas of aptitude and focused on what individuals needed to receive accommodations and enrichment to meet their learning needs. The systems models expanded the view of domain-specific aptitudes to include psychological traits such as creativity and task commitment and explained how these characteristics play a role in the development of gifted behaviors (Renzulli, 1999). Finally, developmental models were designed in response to the limited view of innate ability as the determinant of giftedness. The developmental models recognized the malleability of intelligence to include external environmental and psychological variables such as family, school, motivation, and creativity, and explained how those factors interact with innate abilities to produce gifted behaviors (Kaufmann & Sternberg, 2010).

In the early 1900s, Galton and other researchers including Binet and Simon, developed a mental scale designed to identify gifted students (Kaufmann & Sternberg, 2010). Terman adapted Binet's scale in 1916 and created the Stanford-Binet Intelligence Scale, one of the first intelligence tests used to identify giftedness in children (Kaufmann & Sternberg, 2010). Terman's seminal longitudinal study that began in the 1920s included a sample of over 1,000 high intelligence children selected on the basis of their Stanford-Binet test scores of 130 or above which represented approximately 2% of the intelligence quotient distribution (Subotnik et al., 2011). Based on three decades of data, Terman's findings concluded that gifted children were healthier, better-adjusted, and higher achievers in school than non-gifted students (Robinson & Clickenbeard, 2010). While Terman believed in intelligence testing to identify giftedness, he also recognized the importance that teachers have in identifying giftedness in children. The

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author suggested that teachers be better trained to identify signs of high ability in children so that they could be tested and placed in a school environment to meet their needs (as cited in Kaufmann & Sternberg, 2010).

While the psychometric philosophy of education provides conceptualization of a learner through a measure of ability, the developmental philosophy of a learner is based on emergent abilities that develop over time. The developmental philosophy assumes that all children have the capacity learn and grow intellectually, though not at the same age (Elkind, 1989). Within the conceptualization of the developmental theoretical framework, learning is seen as a creative activity and knowledge is created and re-created based on experiences (Elkind, 1989). The developmental philosophy paved the way for research in giftedness based on a broader view of intelligence.

Beyond solely equating giftedness with high intelligence, researchers began to explore other aspects of intelligence including domain-specific aptitudes recognizing that children should receive acceleration or enrichment based on developmental skill levels. For instance, Gardner based his multiple intelligences model on the idea of a broader understanding of human intelligence and defined intelligence as "the capacity to solve problems or to fashion products that are valued in one or more cultural settings" (Gardner & Hatch, 1989, p. 5). Gardner (2000) explained that because students have varied experiences and cultural backgrounds, learning based on multiple intelligences provides a way to differentiate and individualize schooling. Another research psychologist, Daniel Goleman, more recently demonstrated the significance of emotional intelligence factors such as motivation, self-confidence, and empathy that lead to successful achievement (Renzulli & Reis, 2009).

In 1977, Renzulli, proposed a more systematic model of giftedness. In this model, Renzulli described a three-ring definition of giftedness to include characteristics of above average intelligence, creativity, and task commitment (Renzulli, 1978, 1999, 2005). Each characteristic is important in the development of gifted behaviors and recognizes that giftedness can be demonstrated by high performance in a specific domain (Renzulli, 1978). Renzulli's research in the concepts of giftedness were a result of numerous case students about people with unusual accomplishments that would not have been identified based solely on cognitive ability test scores (Renzulli, 1999). Results from the students demonstrated that while above average intelligence tends to remain stable over time, highly creative and productive individuals vary in their task commitment (Renzulli, 1999). The three ring model was designed to convey the dynamic properties of giftedness as constructs that are constantly changing rather than fixed traits (Renzulli, 1999). Specifically, Renzulli (1978) suggested that, "gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance" (p. 261).

Renzulli also advanced thinking in giftedness by proposing a difference between what he called schoolhouse giftedness and creative-productive giftedness (Kaufman & Sternberg, 2010). Schoolhouse giftedness refers to a student's ability to demonstrate giftedness in a school setting through test taking and general academic learning (Kaufman & Sternberg, 2010). The creative-productive gifted student demonstrates characteristics unlike an average learner. This type of gifted child tends to stand out as an independent and original thinker who is very curious, a risk taker, perseverant, and is able to think abstractly and problem solve complex information (Renzulli & Reis, 2009). A creative gifted child may have the ability to produce original ideas that can have an impact on society (Renzulli, 1978, 1999, 2005). Renzulli (1999) noted that

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schoolhouse giftedness is valued in traditional school environments, especially those that focus on analytical skills rather that creative or practical skills. Research has also demonstrated a high correlation between academic learning in subjects such as reading, writing and math, and getting high achievement grades in school (Renzulli, 1999). On the other hand, creative–productive giftedness describes learning opportunities that promote the use and application of knowledge, and inductive reasoning skills (Renzulli, 1999). Renzulli suggested that a significant number of people who have been recognized for their outstanding accomplishments have almost always achieved in one specific field or domain (Renzulli, 1999).

In response to the emphasis on conceptualization of giftedness based on internal factors of intelligence, theorists emphasized the changing nature of giftedness by broadening the systems model to include external factors to produce gifted behaviors. Gagné (2004) proposed a talent development approach that uncovered how a person's inherent abilities or gifts could be influenced by factors other than intellect. Renzulli (2005) supported the talent development approach and suggested that the term giftedness be used to label how a student demonstrates giftedness rather than the individual. By adapting a talent development approach to giftedness, a more diverse population of gifted learners can be identified.

Talent Development Approach

Modern conceptualization of giftedness is a result of an evolution of ideas and theories expanded to include the current state of research. The talent development framework is the current approach used in the field of gifted education and it associates giftedness with accomplishment rather than just inherent intelligence (Pfeiffer, 2012). This approach is important because it puts greater focus on the development of emergent talent and gifted

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potential and is also consistent with research on the malleability of ability and intelligence described as a growth mindset (Dweck, 2006; Olszewski-Kubilius &Thomson, 2015).

Through Dweck's (2006) research, the malleability of intelligence became linked to a focus on a growth mindset as opposed to a fixed mindset. A growth mindset is a belief that intelligence is malleable and can be developed while a fixed mindset suggests that an individual has a predetermined amount of intelligence, skill or talent (Ricci, 2013). Using a growth mindset, a teacher can nurture and support a learner's potential by providing differentiated learning opportunities to meet students' needs (Dweck, 2006).

In the talent development approach, giftedness is based on a changing set of developing capabilities and potential that can be cognitive or non-cognitively based (Olszewski-Kubilius &Thomson, 2015). Opportunities for talent to emerge must be provided first, followed by educational experiences that enhance and nurture the emerging talent to exceptional levels (Siegle et al., 2016). This approach assumes that talent and potential is evolving and changing; can be motivation-based; and can be influenced by experiences, environment, and social support (Olszewski-Kubilius &Thomson, 2015; Subotnik et al., 2011). As children develop and grow, potential is developed into successful achievement when supported by appropriate learning opportunities, effort, study, and practice (Olszewski-Kubilius &Thomson, 2015). The goal of the talent development approach is to cultivate a broader, more diverse range of successful learners (Dai & Chen, 2013).

Subotnik's (2011) landmark work in gifted education led to a proposed definition about giftedness to guide future research and practice in the field. His work recognized that intellectual ability along with specific talent domains should be emphasized and increasingly expected as children grow older (Subotnik et al., 2011). The framework emphasizes developmental potential

rather than demonstrated achievement, especially for young children who have had fewer opportunities to learn (Worrell, Olszewski-Kubilius & Subotnik, 2012). Giving students challenging learning opportunities and monitoring their responses is an effective means of recognizing potential not readily detected in intelligence testing (Worrell et al., 2012). Subotnik et al. (2011) also emphasized that teachers should be trained to look for those potential abilities and assessment should start with young children and be continuous, systematic, and ongoing throughout childhood and adolescence. Subotnik et al. (2011) proposed the following definition for conceptualizing giftedness:

> Giftedness is the manifestation of performance that is clearly at the upper end of the distribution in a specific talent domain even relative to other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental in that the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted. Both cognitive and psychosocial variables play an essential role in the manifestation of giftedness at every developmental stage, are malleable, and need to be deliberately cultivated. (p. 176)

Other experts in the field of gifted education support rethinking the conceptualization of giftedness and shifting the focus to developing a learning pathway for building potential in identified individuals (Dai & Chen, 2013; Subotnik et al., 2011; Ziegler & Phillipson, 2012; Ziegler, Stoeger & Vialle, 2012). However, despite the promise of the talent development approach, a recent national survey of gifted programs found that a broadened conceptualization of giftedness has not been widely adopted or operationalized at the local school district level (Callahan, et al., 2014). The perception of giftedness as a fixed or static trait still exists even

though a majority of states include the potential to achieve in their definition of giftedness (Olszewski-Kubilius & Clarenbach, 2012). In addition, factors including funding, state regulations, underrepresentation, and the teacher workforce composition have a significant impact on the quality of gifted programming at the local district level (Callahan et al., 2014).

In recent research, Siegle et al. (2016) promoted the design of a talent development model that proactively supports recognizing and nurturing students' gifts and talents. The model includes five components: pre-identification, preparation, identification, intervention, and outcomes (Siegle et al., 2016). The pre-identification process involves identifying students who are recognized for their potential talent. Teachers must be aware of gifted characteristics and demonstrate an ability to recognize underrepresented students who may be able to develop talents and abilities during this stage in the process (Siegle et al., 2016). In the second component, pre-identified students participate in preparation activities and learning experiences designed to nurture gifts and talents. Culturally responsive lessons are especially designed to support underrepresented students and include flexible grouping, challenging instruction and authentic learning opportunities (Siegle et al., 2016). The third aspect of this model involves identifying gifted students using multiple assessment and performance data in a holistic inclusive screening approach (Siegle et al., 2016). The intervention component of this talent development model recognizes that gifted underrepresented students are at a greater risk of feeling isolated and therefore, are more likely to underachieve in gifted programming. Underrepresented students require differentiated instruction and learning experiences that meet their cultural needs in a safe and supportive learning environment (Siegle et al., 2016). The final component of this model, outcomes, involves more than academic success of underrepresented students. Ideally, this talent and development model provides underrepresented students the opportunity to develop

higher levels of persistence, participation in culturally relevant experiences, and higher rates of

retention and success in gifted programming (Siegle et al., 2016).

Underrepresentation in Gifted Education

The talent development approach is instrumental to addressing the underrepresentation of

certain student populations. According to the U.S. Department of Education (1993), a minimum

of 3% to 5% of the student population are identified as gifted and talented. However, statistics

demonstrate that minority populations, including those who live in poverty or are African-

American or of Hispanic-American ethnic origin, are underrepresented in gifted programming by

50% to 70% (U.S. Department of Education, 1993). Plucker and Callahan (2014) noted that

despite decades of work to decrease the achievement gaps, increasing excellence gaps, the

disparity between the highest levels of student achievement from White, affluent backgrounds

and the top-performing students from minority or low income backgrounds, remains a problem.

Because of the excellence-achievement gap, recognizing, acknowledging, and addressing the

differences in achievement and barriers to excellence for underrepresented populations must be

an important focus in education (Siegle et al., 2016).

Barriers in gifted education. Two significant beliefs that constitute barriers in gifted

education are deficit thinking and the discontinuity paradigm (Tomlinson & Jarvis, 2014). In

deficit thinking, negative, stereotypical, and prejudicial beliefs influence how students are

viewed (Ford et al., 2008). Student differences may be perceived as weaknesses rather than

strengths. Perceptions about underrepresented populations combined with a lack of cultural

understanding and competence impede the ability to recruit and retain these students in gifted

education (Ford et al., 2008). The deficit perspective suggests that fixing the students will

improve academic achievement rather than changing the school culture to support building the

capacity of students to reach their fullest potential (Hammond, 2015). In gifted education, deficit thinking is considered the main barrier to equitable identification and retention of underrepresented populations (Tomlinson & Jarvis, 2014).

As a societal problem, Ford (2010) suggested that deficit thinking leads to the belief that culture diversity is viewed as inferior to White students which undervalues the importance of culture in teaching and learning. Ford (2010) considered deficit thinking as the basis of four main roadblocks for recognizing and nurturing the talent and development of underrepresented populations in gifted programming:

(a) lack of teacher referral, (b) students' differential performance on traditional intelligence and/or achievement tests, (c) stagnant and outdated policies and procedures for labeling and placement, and (d) social-emotional concerns and eventual decisions of their Black and Hispanic students and their primary caregivers about gifted education participation. (p. 32)

In addition to deficit thinking, the discontinuity paradigm is also a significant barrier in gifted education. According to this paradigm, the underachievement of minority populations is attributed to the lack of commitment by educators to provide culturally responsive instruction that values diverse perspectives (Ford et al., 2008; Tomlinson & Jarvis, 2014). This perspective suggests that teachers may not have the knowledge or understanding of the cultural needs of their diverse students. As a result, teachers who are not culturally proficient may not be able to understand diverse populations thereby creating a barrier in their ability to effectively identify and teach underrepresented gifted students.

Research conducted by Flowers, Milner and Moore (2003) suggests that many novice teachers and school counselors may have limited interactions and experiences with diverse

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student populations, and this impacts their ability to understand and meet students' learning needs. Because of a lack of professional development, teachers may underestimate the capacity of underrepresented gifted students and focus on students' apparent weaknesses (Olszewski-Kubilius & Clarenbach, 2012). Milner and Ford (2007) agreed with this perspective and emphasized the need for teachers to pursue cultural and multicultural competence in order to support the recruitment and retention of underrepresented populations in gifted education. Coursework and ongoing professional development opportunities that provide relevant instructional strategies and interventions designed to meet the needs of culturally diverse populations are therefore, critically important for educators (Flowers, et al., 2003).

In an attempt to further examine deficit thinking and the discontinuity paradigm, a qualitative research study was conducted to develop a greater understanding of the experiences of gifted African American, inner-city elementary school students (Harmon, 2002). During the study, six gifted African American fourth and fifth grade students who were bused from their predominantly African American neighborhood to desegregate a predominantly White school were interviewed in order to identify characteristics of effective and ineffective teachers (Harmon, 2002). Data from the student interviews about ineffective teachers indicated a common belief that the teachers did not understand or appreciate the African American culture and had lower academic expectations for them compared to their White classmates (Harmon, 2002). The three teachers identified as effective were interviewed and observed in their classrooms throughout the school year and each demonstrated cultural competence in their perceptions and in their ability to design relevant multicultural learning experiences for their students (Harmon, 2002). Findings from the study support the need for teachers to develop an

understanding and tolerance for diverse populations, and the use varied multicultural curriculum materials and instructional strategies to meet students' needs (Harmon, 2002).

Policy perspectives. While the federal government does not mandate gifted education programming, the U.S. Department of Education (1993) proposed a more culturally responsive definition for giftedness:

Children and youth with outstanding talent perform at or show the potential for performing at remarkably high level of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capacity in intellectual, creative, and/or artistic areas, 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 youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (p. 19)

The talent development approach is evident in this definition and it also recognizes the barriers that some children face compared to others in life (Ford et al., 2008). Unfortunately, the quality of gifted education programming varies significantly depending on state law and local school division policy and practices. Olszewski-Kubilius and Clarenbach (2012) reported significant variability across states on their funding and policies for student identification and programming and in many areas, local school divisions make all decisions regarding gifted education services. In addition to decreased state-level funding for gifted education services in many districts, dedicated federal funding for research provided through the Jacob K. Javits Gifted and Talented Students Education Act was eliminated in 2011 (Olszewski-Kubilius & Clarenbach, 2012).

Over the past two decades, state policies and practices for gifted education have evolved significantly. Mcclain and Pfeiffer (2012) conducted an extensive national survey in order to examine state definitions, screening procedures, and identification practices for gifted education. This research reported a 100% participation rate and was conducted by accessing each state's Department of Education website for public information to answer the seven-item, open-ended survey research questions and by contacting each state's gifted coordinator for a personal interview (Mcclain & Pfeiffer, 2012). Findings from this research study demonstrated that all fifty states currently have policies in place beyond using a single intelligence score to determine gifted identification. While there are significant differences in how giftedness is defined, most states recognize that while high ability is important to gifted identification, talent development is also a critical aspect to the construct of giftedness (Mcclain & Pfeiffer, 2012).

The research findings also indicated that approximately half of the states recognize that some students are less likely to be recognized through traditional identification methods and have mandated specific policies and flexible non-traditional gifted identification procedures that may benefit identifying underrepresented populations (Mcclain & Pfeiffer, 2012). For example, the state of Georgia includes specific accommodations around testing for students who are from underrepresented populations and in Alabama, a matrix including multiple assessment criteria is used to support identifying students from culturally diverse backgrounds (McBee, 2010; Mcclain & Pfeiffer, 2012).

To demonstrate the importance of shifting policies in gifted programming, McBee, Shaunessy and Matthews (2012) conducted a research study to examine the effectiveness of gifted education policy on underrepresentation in the state of Florida. Although the state of Florida allowed local districts the opportunity to create alternative identification plans to increase

minority populations in gifted programming, underrepresentation still existed. The purpose of this study was to analyze the state's current alternative identification policy and procedures known as Plan B, which was designed to specifically increase the number of underrepresented students in gifted education compared to one population of students (Black students) included in the former policy (McBee et al., 2012). Findings from this research indicated that the presence of a gifted education policy reduced the degree of underrepresentation for minority and Black students in gifted programs (McBee et al., 2012). The results of this study suggest that the development of effective gifted identification state policy should be one of the first steps in promoting equitable participation in gifted programming (McBee et al., 2012).

An additional case study conducted in a rural West Virginia school district demonstrated recent significant changes affecting the district's gifted education identification policies and procedures. Pendarvis and Wood (2009) designed a study to analyze and describe one school district's efforts to increase underrepresented student participation in gifted education. The school district combined teacher training to encourage underrepresented student referrals to gifted education and the implementation of new state policy requiring alternative assessments for underrepresented students who did not have high scores on traditional intelligence tests (Pendarvis & Wood, 2009). Research results indicated an increase of historically underrepresented students for gifted education compared to the original policy criteria based solely on conventional and alternative assessments (Pendarvis & Wood, 2009). However, because some diverse students did not meet the testing score criteria, this school district added an additional criterion to the screening process to include a work sample portfolio approach for students whose standardized test results could be considered invalid based on economic or cultural differences (Pendarvis & Wood, 2009).

Policy issues related to gifted education continue to be a methodological issue that needs to be addressed. Because the area of gifted education is not federally mandated, individual states have the ability to design unique pathways to gifted education using varying definitions, identification processes and programming (Ford et al., 2008). In a recent national survey of gifted education programs, findings indicated that while most states had regulations in place for the development and implementation of gifted programming, funding across states varied considerably (Callahan et al., 2014).

Due to the lack of consistent programming, comprehensive national research studies about identification and underrepresentation in gifted programming are difficult to conduct. While various research studies have examined individual state policy and mandates regarding gifted education, a systematic accounting of state and local district efforts in gifted education has not been conducted (McBee et al., 2012). Research designed to systematically analyze comprehensive efforts of school districts to reduce underrepresentation in gifted education may support a better understanding about the effectiveness of specific gifted programming and provide an opportunity for broader research studies in the field of gifted education.

Cultural Proficiency. As school districts become more diverse, professional development supports teachers' needs to gain the knowledge, skills and attitudes to explore how ethnicity and culture effect teaching and learning. Cultural proficiency training becomes a critical component for closing achievement and excellence gaps between majority and minority students. Lindsey, Jungwirth, Pahl and Lindsey (2009) defined cultural proficiency as a process of framing personal and organization learning to develop principles that guide personal behaviors and organizational practices in a culturally diverse environment. The process of becoming culturally proficient is intentional and takes place from the inside-out (Lindsey et al., 2009). In a

culturally proficient school, students achieve at high levels; enrollment in gifted education is equitable; teachers feel empowered; and diversity is considered a resource, not a barrier to teaching and learning (Guerra & Nelson, 2007). Building cultural proficiency requires self-examination and reflection about assumptions regarding self and others, and results in changing the way people talk, plan, act, and engage with other people who are unlike themselves.

Building cultural proficiency in schools requires transformative change in perceptions and actions regarding diversity. Even with best intentions, people hold individual perceptions and prejudices based on life experiences (Ferguson, 2008). Effective educators must learn how to suspend judgements about others in order to support every child's academic and social needs in school. Diversity training for educators begins with developing an understanding of the surface aspects of culture such traditions and customs. However, deeper introspection about diversity requires individuals to self-reflect about their own values, behaviors and judgments about others, and participate in active dialogue with others to examine those beliefs (Ward, 2013).

Cultural proficiency training also provides an opportunity to examine individual and school cultural identity in all aspects of schooling including instructional practices, classroom design and management, student/teacher relationships, and parent communication (Guerra & Nelson, 2007). By participating in professional development training about cultural diversity, teachers have the opportunity to shift their thinking from a deficit view to a positive view of others that supports social justice and equitable practices in education (Ward, 2013). Lindsey et al. (2009) described five essential elements for cultural proficiency that serve as standards for educators and schools. Cultural proficiency is achieved when an educator or school has

incorporated the essential elements into practice that is committed to being responsive to the educational needs of all cultural groups in a school community (Lindsey et al., 2009).

The first essential element in cultural proficiency is assessing cultural knowledge. Participating in professional learning about others' cultures; examining how people and schools as a whole react to cultures; and learning how to work effectively with all cultures build competence in this element (Lindsey et al., 2009). The second element of cultural proficiency involves valuing diversity of cultures. Achieving cultural proficiency in this element requires articulating beliefs and a vision that recognizes and meets the needs of multiple cultural, learning, and communication styles (Lindsey et al., 2009). The third essential element of cultural proficiency involves managing the dynamics of differences between people. Through professional learning community inquiry-based discussions and accepting multiple perspectives, individuals begin to build capacity for accepting and understanding conflicts related to differences and diversity (Lindsey et al., 2009). The fourth essential element is adapting to diversity which is accomplished by learning more effective ways to teach diverse cultures to ensure successful student learning and achievement. Lindsey et al. (2009) suggested that using multiple assessment data, culturally responsive instruction, and standards-based curriculum are important adaptive changes needed to meet students' cultural needs. Finally, institutionalizing cultural knowledge is the final essential element to reaching cultural proficiency. When professional learning about cultural experiences, perspectives and needs become an integral part of the school and community, cultural competency can be achieved and sustained (Lindsey et al., 2009).

One recent study examined cultural proficiency at three public high schools in Los Angeles, California (Anderson, 2011). In this study, 195 teachers and 532 students identified

indicators of cultural proficiency based on teacher and student perspectives. The student populations in the high schools were primarily Latino who were taught by predominantly White teacher populations. Findings from the study demonstrated the importance of cultural proficiency in schools. Specifically, White respondents rated White teachers as culturally proficient validating that the White teachers connected with students of the same culture. Alternatively, the Latino respondents, particularly teachers, described their schools and teacher colleagues to be not culturally proficient (Anderson, 2011). The study also revealed that students perceive how teachers respect and value their parents and the community more important than race, social class or educational background (Anderson, 2011). Culturally proficient teachers are perceived as being able to recognize and build upon the support that minority families give to their children. When cultural proficiency training is used as a tool to change teachers' perceptions about how they value students, families and the school community, academic success is the result (Anderson, 2011).

Culturally responsive teaching. Teachers are the key to educational equity and excellence and they must demonstrate the skills and instructional practices necessary to meet the learning needs of their diverse student populations. However, for many underrepresented populations, educational experiences may be designed with limited opportunities to increase higher order thinking skills (Hammond, 2015). Deficit thinking about underrepresented populations may also contribute to teacher beliefs about race, culture, and intelligence and exist as a barrier to effective educational experiences (Ford et al., 2008).

Culturally responsive teaching is about empowering learners by providing them with challenging, relevant opportunities that will stimulate higher levels thinking and processing skills (Hammond, 2015). In order to reduce underrepresentation in gifted education, teachers must use

a strengths-based cultural lens to examine students who are gifted as well as from diverse backgrounds (Ford et al., 2008). Furthermore, teachers must demonstrate a willingness to understand a student's creative and intellectual gifts in alternate ways (Milner & Ford, 2007). Finally, teachers may also need to develop stronger partnerships with parents to understand their cultural perspectives as well as to foster communication that may benefit their students (Milner & Ford, 2007).

In a research study supporting the importance of culturally responsive teaching in gifted programming, Briggs, Reis and Sullivan (2008) documented the effective identification and participation of underrepresented populations in gifted programming. Researchers identified twenty-five successful gifted programs from across the nation and analyzed data from questionnaires, documents reviews, interviews, observations, and other documents to determine how the coordinators and teachers increased the number of academically successful culturally diverse students in their gifted programs (Briggs et al., 2008). Findings from the study identified three characteristics that increased the identification of culturally diverse students, and three intervention strategies that may have helped these students achieve at a high level in gifted programs (Briggs et al., 2008).

The three characteristics for identifying student participation in gifted programming included an acknowledgement of underrepresentation by school district personnel; an increased awareness about the impact of culture on student academic achievement; and program supports that were put in place to support districtwide change efforts (Briggs et al., 2008).   The three intervention strategies found to support culturally diverse student achievement included: implementing multiple criteria identification strategies specifically designed to increase culturally diverse students in gifted programming; designing instructional changes that included

greater exposure to content information and more systematic efforts to develop students' critical thinking and problem-solving skills; and creating ongoing professional development opportunities designed to support teachers' learning needs as instructors for gifted students (Briggs et al., 2008).

In their 2-year case study of three sites, Tomlinson and Jarvis (2014) confirmed how effective teachers and schools can support the academic success of minority students with high potential. Each of the three case study sites used in this study had reputations for supporting academic success of minority students from low-income backgrounds effectively (Tomlinson & Jarvis, 2014). Findings from the study indicated that teachers and schools impact underrepresented populations by fostering minority students' academic success through challenging curriculum and by developing the capacity of high-potential students (Tomlinson & Jarvis, 2014). Specifically, the teachers who were most effective in supporting students with high potential reported genuine efforts to understand students' cultural and family perspectives and experiences (Tomlinson & Jarvis, 2014). The study's data reported many examples of teachers taking interest in students' lives outside of school and attempting to make school learning experiences culturally relevant and responsive to their needs (Tomlinson & Jarvis, 2014),

In another research study, one successful programming model used to support high potential, underrepresented students was Project M^3: Mentoring Mathematical Minds, funded by the Jacob K. Javits Gifted and Talented Students Education Act, with the goal to engage mathematically promising students in complex math opportunities. Findings from the longitudinal research study demonstrated that students moving from grades three to five experienced growth of mathematical concepts on the Iowa Test of Basic Skills (IOWA) and

above-grade level items from the Trends in international Mathematics and Science Study
(TIMSS) (Gavin, 2014).

In culturally responsive teaching, an educator is able to recognize and understand cultural
differences in student learning and apply appropriate instructional and socio-emotional strategies
to promote effective learning (Hammond, 2015). A culturally responsive environment
encourages teachers to be empathetic and infuses multicultural teaching strategies and resources
into all subjects in order to meet the needs of all learners (Ford et al., 2008; Hammond, 2015;
Harradine, Coleman & Winn, 2014; Tomlinson & Jarvis, 2014). In order for teachers to become
culturally proficient, opportunities for systematic and ongoing professional development in
culturally responsive teaching are critically important.

Designing a culturally responsive teaching environment requires that a teacher reflect on
his or her own biases, assumptions and cultural awareness and develop an understanding and
knowledge about multicultural perspectives (Ford et al., 2008; Hammond, 2015; Harradine et al.,
2014; Shaklee, 2004; Tomlinson & Jarvis, 2014). A teacher must build trust with students across
their differences in order to build deeper socio-emotional connections (Hammond, 2015). By
providing students with a positive learning environment, teachers can have a positive impact on
students' beliefs about self-esteems, motivation and confidence in school (Ford, 1994). Bartz
and Matthews (2001) developed five strategies to help teachers support and develop diverse
students' educational and career goals:

(a) demonstrate the relationship between schoolwork and careers by using vocational,

career and other job-related examples in their classroom work, (b) ascertain what

students' interests are and relate those interests to possible vocations or careers, (c) stress

the acquisition of skills needed to master pre-requisites for specific vocations or careers,

(d) point out the relationship between success in school and success in work, and (e)

assure students that every has attributes that, properly coupled with training and

aspirations, can lead to a successful and rewarding career. (p. 36)

In recent research, the effect of culturally responsive teaching impacting student

achievement was demonstrated in a multiyear project at three elementary schools in South

Carolina (Swanson, 2006). During the project, teachers used curriculum originally developed for

high-ability learners with all students in a high-poverty, high-minority setting (Swanson 2006).

Both qualitative and quantitative data were collected to evaluate Project Breakthrough as a

successful demonstration of culturally responsive teaching that positively impacted student

achievement (Swanson, 2006). Findings from the project's data analysis indicated that student

achievement improved during the three years of implementation, and teachers demonstrated

positive shifts in their attitudes related to meeting the academic needs of underrepresented

students (Swanson, 2006).

One tool that has been designed to impact a teacher's ability to systematically observe

and document academic strengths of underrepresented students is the Teacher's Observation of

Potential in Students (TOPS) (Harradine et al., 2014). The TOPS tool was designed to identify

strengths of students that may have otherwise been overlooked using traditional identification

methods (Harradine et al., 2014). The TOPS tool was created based on nine domains of

strengths gathered from research literature on indicators of giftedness, each of which was

described by a list of behaviors to indicate potential in that domain (Harradine et al., 2014). The

behavior indicators included both teacher-pleasing behaviors such as a student who appears to be

an eager learner or a child who is a self-starter, and non-teacher pleasing behaviors such as a

student who is argumentative or distracting to classmates (Harradine et al., 2014). Teachers

were asked to use the TOPS tool to systematically observe and document students' behaviors over time. Recent research study findings using the TOPS tool indicated two statistically significant relationships between teacher race and perceptions of student behavior suggesting that the tool is useful in helping teachers change their perceptions of students from a deficit thinking perspective to a strengths-based or potential view (Harradine et al., 2014). Harradine's (2014) research noted that by giving teachers the opportunity to observe, document and reflect on their high ability students' strengths, they can better recognize potential in underrepresented populations. Furthermore, these research finding support the importance of providing teachers with professional development training on cultural responsive teaching to better identify and support the needs of high ability underrepresented students (Harradine et al., 2014).

In addition to supporting a teacher to be culturally responsive, school systems must embrace opportunities to build student potential. One such successful program, Young Scholars, exists in Fairfax County, Virginia, as a comprehensive effort to nurture and develop underrepresented populations (Horn, 2015). The Young Scholars program model systematically identifies low-income, high-ability students from diverse backgrounds in grades K–2 and offers family and academic support in order to nurture and develop potential talents (Olszewski-Kubilius & Clarenbach, 2012). Culturally responsive teaching is emphasized through the Young Scholars program so that student potential can be recognized and nurtured (Shaklee, 2004). The data analyzed in longitudinal studies of Young Scholar designation indicates a significant increase in underrepresented students' participation in advanced academic coursework in all levels of K–12 education (Horn, 2015). Culturally responsive school environments provide an opportunity to respect the culture of students and provide educational experiences to develop their talents and capacities as successful learners (Murphy, 2010).

Approaches to Gifted Identification

Identification of giftedness in children has been typically conducted using two approaches stemming from how gifted behavior is conceptualized. The traditional identification approach is based on assessing gifted behaviors that are already demonstrated through performance or productivity; and the second, the talent development approach, is based on outstanding promise or potential. The first approach views giftedness as a single entity that can be measured by intelligence tests such as the Stanford-Binet Intelligence Scale, one of the first intelligence tests used to identify gifted students (Kaufman & Sternberg, 2010). While intelligence and achievement tests can identify academically strong students, they do not identify potential, especially among underrepresented student populations (Ziegler, Ziegler & Stoeger, 2102). Researchers have conceptualized giftedness to be related to domain-specific behaviors through which talent is developed in addition to high intelligence test scores (Pfeiffer & Blei, 2010). Using the talent development perspective as a basis for identifying giftedness not only allows for a demonstration of achievement over time, but it also allows for late bloomers or disadvantaged students to fully develop potential giftedness (Olszewski-Kubilius & Thomson, 2015). While intelligence testing is a good predictor of academic success, other reliable measures can also be used very effectively to identify giftedness.

The goal of screening in the identification process is to examine a school population for students who are demonstrating outstanding achievement or may have the potential to be outstanding achievers. In 2010, the National Association for Gifted Children adopted a policy supporting the use of multiple measures and a variety of resources to identify and serve gifted students. In addition, NAGC (2010) noted that identification equity for underrepresentation in gifted education should be an aspirational goal along with eliminating the achievement gap.

Research suggests that traditional assessments such as intelligence tests are particularly insufficient in identifying underrepresented populations including minority and low-income students (VanTassel-Baska et al., 2007; Worrell & Erwin, 2011). Multiple forms of assessment should be used including portfolios and other nontraditional forms of identification and assessment such as nonverbal tests, dynamic assessments, performance-based tasks, student work samples, academic grades, behavior rating scales, and checklists (VanTassel-Baska et al., 2007).

Traditional forms of assessment. Intelligence testing originated in schools for the purpose of identifying the educational needs of students. Historically, Binet's work in 1905 had the most influence on modern measures of intelligence (Newman, 2010). Specifically, Binet's intelligence scales were measures based on his observations of children and what they typically do at certain ages (Newman, 2010). His work established the basis for the intelligence quotient and had implications for identifying giftedness in children. Terman's research continued to expand these ideas and he developed the Stanford-Binet Scale, a measure that could identify students who scored in the top 2% superior range on the test (Newman, 2010). As a result, intelligence testing became the standard method for identifying gifted students.

As new theories about giftedness evolved, identifying giftedness broadened to be associated with accomplishment rather than just inherent intelligence (Pfeiffer, 2012). Research studies confirmed that capabilities in academic achievement, creativity, and leadership also provide measures of cognitive ability and potential giftedness (Pfeiffer, 2012; Subotnik et al, 2011). As a result, measures used for intelligence and cognitive abilities testing have also been revised and developed to better reflect the talent development approach to identifying giftedness.

Because intelligence is an important predictor of school performance and future talent and development, standardized intelligence testing continues to be widely used in the process of gifted identification in school settings. Measures of intelligence or cognitive ability provide information about how a child learns best and what a child may find easier or harder to learn in school (Newman, 2010). Many of the current most widely used intelligence tests have adopted or reflect the Cattell-Horn-Carroll Theory of Intellectual Abilities (Newman, 2010). This theory is based on a three-stratum model of abilities: at the lowest and broadest level, general and specific intellectual abilities are measured; at the narrowest level, general or specific academic aptitudes are measured (Newman, 2010). Current measures of cognitive ability generally used to identify giftedness include the Stanford-Binet, Fifth Edition; Weschler Intelligence Scale for Children, Fourth Edition (WISC); Woodcock-Johnson, Third Edition Tests of Cognitive Abilities; and Differential Ability Scales, Second Edition (Newman, 2010).

Nontraditional forms of assessment. One type of nontraditional assessment that has been used successfully in the identification process is a nonverbal intelligence test because it decreases possible language barriers. A non-verbal test is constructed with reduced language on the part of both the examiner and the child (Pfeiffer & Blei, 2010). VanTassel-Baska, Feng and Evans (2007) noted that the Naglieri Nonverbal Ability Test (NNAT) is a useful nonverbal intelligence test. A research study of NNAT test administration to more than 20,000 students identified similar percentages of White (5.6%), Black (5.1%) and Hispanic (4.4%) students as being identified in the 95th percentile on the test (VanTassel-Baska et al., 2007). However, Erwin and Worrell (2012) cautioned that because an achievement gap still exists, a test that predicts academic performance should reflect this gap and the absence of a gap raises validity questions about the NNAT scores.

Dynamic assessments and performance-based tasks are also non-traditional assessments that may be useful in ensuring diversity in gifted education. The dynamic assessment approach usually consists of a test-intervention-retest format, with the focus on the improvement students make after an intervention based on their cognitive learning related to the testing tasks (VanTassel-Baska et al., 2007). In a research study, Calero, Garcia-Martin and Robles (2011) used dynamic assessments to examine the differences in learning potential of different groups of students independent of their intelligence test scores. Results of the study indicated that students demonstrated a significantly higher improvement on the dynamic assessments than students of average intelligence in all areas (Calero et al., 2011). The study's results support the view that multiple forms of criteria should be considered in the screening process, particularly when identifying children of potentially high intelligence who may have average or inadequate current performance (Calero et al., 2011).

Performance tasks are another nontraditional tool that can be used for identification of gifted behaviors. VanTassel-Baska et al. (2007) conducted a two year study using performance tasks data to target identification of more low-income and minority students for gifted programs. The study found that performance task-identified students were more likely to be identified through the nonverbal assessment part of the tasks (VanTassel-Baska et al., 2007). However, students that were identified based on performance tasks, in general, performed at lower levels than traditional identified students. Notably, when used in combination with more traditional measures, including performance tasks as a component of the identification process yielded up to 20% more students from underrepresented groups statewide (VanTassel-Baska et al., 2007).

Student work samples and achievement grades are also useful components of the screening process for gifted identification. Work samples from various subject areas that

demonstrate a student's creativity, achievement, motivation, interests, or learning styles provides

essential information that can be useful in the screening decision-making process (Ford &

Whiting, 2010). Worrell and Erwin (2011) noted that student work and achievement grades

provide insight to student understanding about the material being taught. Outstanding work

samples may provide insight about a student's talent in a particular domain, especially for a

student who has not demonstrated mastery of content based on achievement grades or other

standard indicators (Worrell & Erwin, 2011). Creating a student portfolio of work samples as

evidence of advanced student ability fosters a growth mindset in students and teachers, and also

supports the talent development approach in gifted identification (Dweck, 2006).

Other commonly used nontraditional tools for assessing and identifying students for

gifted programs include teacher and parent referrals, grades, and behavior rating scales or

inventories. Teacher rating scales are among the most widely used screening instruments used

for gifted identification in the United States (Renzulli, Siegle, Reis, Gavin, & Reed, 2009).

Gathering systematic observational information about students' strengths and needs can provide

valuable identification information and supports a talent potential perspective (Harradine, et al.,

2014). While there may be benefits to these alternative tools, drawbacks can include a teacher's

lack of knowledge about giftedness concepts and a reliance on grades or classroom performance

to judge giftedness (VanTassel-Baska et al., 2007). In addition, a lack of multicultural

understanding can lead teachers to view culture-specific behaviors as deficits rather than sources

of giftedness (Worrell & Erwin, 2011). Despite potential limitations, teacher rating scales are

one of the best ways to identify psychosocial aspects of high intelligence (Worrell & Erwin,

2011). A typical behavior rating scale requires a teacher who knows a student well enough to

form a summative judgment about a student's behavior in respond to observable behaviors and

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attitudes provided in a Likert-style format (Mason et al., 2014). Because teachers interact with

students on a daily basis, they serve as a useful source of information in the identification

process. As a component of the identification process, teacher rating scales should assess

observable behaviors and attitudes such as motivation, passion, self-efficacy, and self-regulation

(Worrell & Erwin, 2011). Based on findings from recent research studies, the use of the gifted

rating scale is gaining forward momentum as a valid identification tool in the screening process,

and a potential predictor of student academic performance.

Originally developed in 1971, the Scales for Rating the Behavioral Characteristics of

Superior Students (SRBCSS) were based on Renzulli's three-ring giftedness theory which

suggested that a wider range of students might be able to develop gifted behaviors (Renzulli et

al., 2009). The original SRBCSS behavior scales were based on learning, motivation and

creativity behaviors, but as the concept of giftedness was expanded to a talent and development

approach, additional behavior scales were added to examine talents and gifts in other areas

including leadership, art, music, drama, communication and planning (Renzulli et al., 2009). To

increase the reliability of teacher ratings, the SRBCSS training manual included activities to train

teachers about the use of the behavior scales. External reviews of the SRBCSS suggested that

the ten factors used in the scales correlated with other measures of the constructs which provided

support for the validity of the SRBCSS instrument (Renzulli et al., 2009).

In 2006, Pfeiffer, Kumtepe and Rosado developed the Gifted Rating Scale (GRS) as a

scale intended to complement the use of an intelligence test and other tools used in the gifted

screening process. The GRS classification system is based on six scales to include intellectual

ability, academic ability, artistic talent, creativity, leadership, and motivation and is used to

indicate the likelihood that a student might be gifted (Pfeiffer et al., 2006). Test development for

the GRS followed specific steps that included surveying experts in the field along with pilot and field testing that reported high reliability and validity (Pfeiffer & Blei, 2010). Based on the standardization sample findings, the GRS demonstrated high coefficient alpha reliability scores that ranged from 0.97 to 0.99, and standard error of measurements from 1.0 to 1.41 across the six scales for eight age ranges (Pfeiffer & Blei, 2010).

Pfeiffer and Jarosewich (2007) described the gifted rating scale - school form, the GRS-S, as a promising screening tool for identifying gifted students that also provides a level playing field and strong face validity for students from diverse ethnic and racial backgrounds. The GRS-S is designed to be user-friendly and requires minimal training to administer, score, and interpret (Pfeiffer & Jarosewich, 2007). In an analysis of the GRS-S used in a national standardization sample of 592 students from 6–13 years old, statistical findings support the validity of the GRS classification system, especially in the intellectual and academic ability scales (Pfeiffer & Jarosewich, 2007; Pfeiffer & Blei, 2010). This same study also investigated the possible effects of age, gender and race with the GRS-S standardization sample. Findings indicated that no significant differences were found based on age or race/ethnicity for any of the GRS-S scales (Pfeiffer & Jarosewich, 2007).

Pfeiffer, Petscher and Kumtepe (2008) conducted further research to document the internal consistency and validity of the GRS-S standardization sample using an independent sample to cross-validate findings. This study examined the possible effect of gender, age, race/ethnicity, and rater familiarity with a sample of 122 students in grades 1–8 using the GRS-S scale (Pfeiffer et al., 2008). Findings from the study were consistent with analyses conducted in the standardization sample and confirmed that the GRS-S scales have excellent internal consistency (Pfeiffer et al., 2008).

Another research study conducted by Peters and Gentry (2010) promoted the use of a gifted rating tool, the HOPE Scale, as an instrument designed to support more equitable identification of underrepresented students. Participants in the study, 349 teachers, used the 13-item teacher rating scale to identify specific social and academic behaviors of their students for 5,995 elementary students from five school districts in the Midwest (Peters & Gentry, 2010). Findings from the study indicated that teachers were able to effectively nominate underrepresented students for gifted programming (Peters & Gentry, 2010).

Peters and Gentry (2012) conducted additional research analyzing the use of group-specific norms to achievement tests and a teacher rating scale to determine equity in identifying underrepresented populations. The authors' research suggested that applying local school norms instead of nationally normed scores on intelligence tests may support identifying more high ability students from similar economic backgrounds (Peters & Gentry, 2012). Results from the research indicated that using group-specific norms combined with a teacher rating scale were the most effective method for increasing the number of underrepresented students found eligible for gifted programming. The authors indicated that talent development and gifted education programs must be responsive to the strengths and needs of the students they serve by using non-traditional gifted identification methods.

Recent research has been conducted to examine the relationship between teacher rating scales and student performance. In one study, Reid, Diperna, Missall and Volpe (2014) examined the ability of a teacher rating scales to effectively predict student performance at the preschool level. The Teacher Rating Scales of Early Academic Competence (TRS-EAC) was completed by 60 teachers for 440 children enrolled in Head Start and public preschool classrooms in an effort to gather validity and reliability evidence for this new strengths-based

rating tool (Reid et al., 2014). Despite a small sample size, preliminary statistical evidence

demonstrated predictive validity of the rating scales with mathematics achievement measured

seven months after the rating scales were completed (Reid et al., 2014).

In an additional research study conducted by Rosado, Pfeiffer, and Petscher (2015), the

reliability and validity of the Spanish-translated version of the Gifted Rating Scale (Pfeiffer et

al., 2008), was correlated with measures of ability testing and academic performance based on

student report card grades. This large-scale study was conducted in two public school districts in

Puerto Rico and participants included 618 students in grade 1–8, and 63 home room teachers

from 13 elementary schools and five middles schools (Rosado et al., 2015). Statistical findings

from the study indicated positive and significant correlations between the GRS and student

academic performance (Rosado et al., 2015). While the use of a specific gifted rating scale as a

potential screening tool is supported in this research, further investigations regarding the

relationship between the use of gifted rating scales and student academic performance is

warranted.

Review of Methodological Issues

A specific methodological issue related to researching underrepresented populations in

gifted education involves small sample sizes. Plucker and Callahan (2014) suggested that

experimental research studies or randomized, controlled studies would be useful to advance

effective models in the field of gifted education. However, the diversity of subjects across

research studies, along with inconsistency in how giftedness is defined, contributes to the

complexity of methodological issues that researchers face (Plucker & Callahan, 2014). In

addition to the necessity for further research studies, the quality of gifted programming for

underrepresented populations may be improved by addressing significant barriers in gifted

education, policy issues and the need for teachers to provide rigorous, authentic instruction designed to meet the cultural needs of all learners.

Summary

The field of gifted education has developed historically from an intelligence theory perspective to a developmental philosophy. The talent development approach supports emergent talent and potential, which is important to increasing the identification of underrepresented populations in gifted education programming. This approach assumes that talent and potential is evolving and changing, can be motivation-based; and can be influenced by experiences, environment and social support (Olszewski-Kubilius &Thomson, 2015; Subotnik et al., 2011). Teachers play an important role in the identification process. Identifying gifted children using the talent development approach should include measures of intelligence as well as psychosocial aspects of functioning. In order to reduce underrepresentation, teachers must use a strengths-based cultural lens to examine diverse students who demonstrate high ability and potential (Ford et al., 2008). In addition, cultural proficiency and culturally responsive teaching practices are integral components of valuing cultural diversity. Identification of giftedness should include traditional and nontraditional assessments, and take into account the background factors that allow talent and potential to be nurtured and demonstrated (Worrell & Erwin, 2011).

Chapter 3: Methodology

Evaluating authentic measures beyond intelligence testing to determine gifted talent and potential is critical to increasing the identification of underrepresented populations in gifted programming. Research supports the use of multiple measures and a variety of resources to identify and serve gifted students including portfolios, performance-based tasks, student schoolwork, grades, behavior ratings, and checklists (VanTassel-Baska et al., 2007). Gifted identification processes that include more informal measures are used as an effective and equitable approach for assessing talent and potential (Olszewski-Kubilius &Thomson, 2015). In addition, research data demonstrating how well underrepresented populations can achieve in gifted education programs is important to promoting equity in gifted identification (Ford et al., 2008).

Purpose of the Study

Studying gifted programs provides the opportunity for researchers and practitioners to seek methods for identifying gifted students that are both valid for predicting success in gifted and talented programs, and that promote equity for underrepresented populations. The purpose of this quantitative research study was to examine the relationship between teacher behavior rating scale scores and student academic performance outcomes in a gifted education program. In this study, a random sampling of ex post facto behavior rating scale data for gifted third grade students in a large, diverse public school district was correlated with end of year grades to determine if any correlative relationship existed. In addition, the study also correlated gifted underrepresented students' behavior rating scores to student academic performance outcomes. Findings from this study emphasize the teacher's role in assessing student talent and potential, and demonstrate the success underrepresented students can achieve in gifted programming.

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Research Questions and Hypotheses

The following research questions were examined in this study:

1. Is there a relationship between third grade students' gifted behavior rating scale scores used as a component of the screening process and third grade gifted students' end-of-year academic performance grades?

2. Is there a relationship between underrepresented third grade students' gifted behavior rating scale scores used as a component of the screening process and underrepresented third grade gifted students' end-of-year academic performance grades?

It was not known if or to what extent there was a relationship between gifted behavior rating scale scores used in the screening process and the end-of-year academic performance grades of third grade gifted students or underrepresented third grade gifted students.

Therefore, the null hypotheses for this study stated:

1. There is no relationship between gifted behavior rating scale scores as used in the screening process and end-of-year academic performance grades of third grade gifted students.

2. There is no relationship between gifted behavior rating scale scores as used in the screening process and end-of-year academic performance grades of underrepresented third grade gifted students.

Research Design

The quantitative research methodology used in this study was a correlational design. The purpose of a correlation is to examine the relationship between variables as they exist (Adams & Lawrence, 2015). In this study, four variables were examined in order to address the

research questions: third grade gifted students, underrepresented third grade gifted students, gifted behavior rating scale scores, and academic performance grades. In order address the first research question, ex post facto data using a sample of high ability third grade students' gifted behavior rating scale scores from the gifted identification screening process was correlated with end-of-year third grade gifted student performance grades to determine if a predictable pattern existed between the variables. For the second research question, ex post facto data using a sample of underrepresented high ability third grade students' gifted behavior rating scale scores from the gifted identification screening process was correlated with end-of-year underrepresented third grade gifted student performance grades to determine if a relationship existed between the variables.

Recent research conducted by Rosado, Pfeiffer and Petscher (2015) supported the use of correlation methodology as one method used to examine the validity of variables included in a Spanish-translated version of the gifted rating scale. Specifically, scores on the intellectual and academic scales were compared to measures of academic achievement and correlated with the motivation scales (Rosado et al., 2015). Findings from the study indicated significant correlations between variables which supported the use of the gifted rating scale as a valid component of the gifted screening process (Rosado et al., 2015).

Target Population, Sampling Method and Related Procedures

In this study, gifted behavior rating scale scores and end-of-year academic grades for a sample of identified third grade students who were found eligible for gifted and talented programming in a large, diverse, suburban school district located in the southeastern United States were examined. Eligible students attend school in a full-day gifted program at their local school site or designated gifted center school. In this study, student gifted behavior rating scale

data used as a component of the gifted identification screening process during the 2014–2015 school year were correlated with final student academic grades at the end of the 2015–2016 school year.

During the 2014–2015 school year, over 1,700 diverse second graders were included in the pool of high ability students screened for gifted identification in this school district. After the local and central screening processes were completed, just over 1,500 rising third grade students were found eligible for gifted education for the 2015–2016 school year. Of those eligible students, the number of underrepresented students included: 68 Hispanic, 22 Black, and 97 Young Scholars.

In order choose the appropriate sample size for this study a number of factors were considered. The statistical significance value is set to 5% ($p < 0.05$) as the threshold for a type 1 error (Akobeng, 2016). Using this threshold reduced the chance of erroneously rejecting the null hypothesis (Adams & Lawrence, 2015). In addition, the type II error rate or statistical power of the sample size is set at 80% (0.8) (Akobeng, 2016). By selecting a larger sample size, power is increased which allows for a smaller amount of error in the study design and a potentially stronger statistical effect (Adams & Lawrence, 2015). Therefore, in order to examine the first research question, a simple random assignment process was used to select the study's sample, ex post facto data for 20% of the students (n = 310) found eligible for full-time gifted education. The gifted rating scale scores and end-of-year academic grades data were collected for gifted students across the entire school district in order to ensure equal representation for the single variable correlation (Adams & Lawrence, 2015). In the second research question, data for underrepresented students was examined in the correlational analysis between gifted behavior rating scale scores and student performance.   In order to increase the internal validity, all

eligible student data of Hispanic, Black, and Young Scholar designation (n = 187) were examined as an underrepresented sample.

The selection of student data from the pool of high ability students that were screened for gifted identification in this school district is an important factor for choosing the sample for this research study. The second grade screening pool is determined based on a benchmark score that is selected after a review of results from the intelligence testing conducted during students' first and second grade years. However, in addition to the students who are automatically screened as part of the second grade pool candidates, parents and teachers also have the option to submit a screening referral form on behalf of their child regardless of intelligence test scores. In these cases, students who have not been identified as having high ability based on intelligence test scores are examined in the same manner as those students who have been identified as having high ability. Classroom teachers complete behavior ratings for every student that is identified as a high ability pool candidate, or as a candidate referred by a parent or teacher.

Instrumentation

The instrumentation used in this research study includes gifted behavior rating scale scores and student academic performance grades in language arts and math. The school district currently uses a Gifted Behavior Rating Scale that was originally created in 1992 in collaboration with a professor from a local university and consultants in the field of gifted education. The reliability and validity of this behavior rating scale has been established through its consistent use over two decades in identifying gifted students who have achieved successfully in gifted education programming in this school district. Research also supports the successful use of teacher ratings supported by teacher training and a talent domain-based rating scale that includes clearly defined behaviors and characteristics (Peters & Gentry, 2010). The rating scale used by

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the school district is based on four categories of learning: exceptional ability to learn, exceptional application of knowledge, exceptional creative/productive thinking, and exceptional motivation to success (see Appendix A). Each category on the rating scale includes a list of eight performance indicators that provide examples of what the behavior could look like in the school environment. In addition to academic behaviors, the indicators also provide teachers with examples of talent domain behaviors such as art, music or creativity. The use of talent domain attributes in this rating scale is supported in current approaches for gifted identification that emphasizes the importance of nurturing specific talents and abilities in addition to intellect (Subotnik et al., 2011). As children grow, talent and potential is developed into academic success when supported by suitable learning opportunities, effort, study, and practice (Olszewski-Kubilius &Thomson, 2015).

Because teachers have such a critical impact on a student's school experience, a teacher's understanding and knowledge about teaching practices related to gifted child development and how to differentiate instruction to meet a gifted child's needs is very important (Shaklee, 2004). Therefore, in order to complete gifted rating scales effectively for diverse student populations, teachers need to receive training in behaviors typically exhibited by gifted students (Olszewski-Kubilius & Clarenbach, 2012). Sobotnik's (2011) research demonstrated that psychosocial aspects of functioning such as high engagement, intense focus and strong task persistence play a major role in children that demonstrate giftedness. However, negative teacher perceptions about underrepresented populations combined with a lack of cultural understanding and knowledge create barriers in gifted identification and retention (Ford et al., 2008). In order to support an underrepresented student's ability to achieve optimal performance, psychosocial awareness and

culturally responsive skill training is important to the talent development and gifted identification process (Subotnik, 2011).

The talent development approach places emphasis on recognizing and nurturing a student's potential strengths and talents instead of interpreting differences as deficits (Ford & Whiting, 2008). Professional development training provides teachers with the necessary knowledge and instructional skills needed for culturally responsive teaching so fair and equitable rating scale determinations can be determined for high ability underrepresented students (Ford et al., 2008). Shaklee (1997) noted that teachers should also work with intervention specialists to build capacity to identify differentiated learning opportunities for all high ability students, and how to gather appropriate work samples for students during the gifted screening process.

The school district using the gifted behavior rating scale in this research study developed specific professional development training opportunities designed to support teachers' needs to be able to identify and nurture psychosocial aspects of student performance. Attributes commonly associated with giftedness include a child's ability to demonstrate advanced language and problem-solving skills, a high level of curiosity and sensitivity, and a thirst for knowledge and learning (Pfeiffer, 2012). Prior to completing a gifted behavior rating scale for identified high ability students during the gifted screening process, teachers receive professional development training conducted by the school's gifted education resource teacher about how to complete the rating scale. One of the primary roles of the gifted education resource teacher in each elementary school is to provide job-embedded professional development in order to develop a growth mindset and to build the capacity of teachers to recognize and nurture gifted behaviors for their diverse student populations. Professional development teacher training conducted by each school's gifted education resource teacher includes a variety of resources such as media

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presentations designed by central office staff, curriculum frameworks, and a training video that explains and models the use of the gifted rating scale tool.

The school district's professional development video, *The Gifted Behavior Rating Scale* (n.d.), describes the four categories of gifted behaviors and provides visual examples of how gifted behaviors can be exhibited through students' work samples. For example, in the exceptional ability to learn category, teachers are trained to recognize how a student may demonstrate the capacity to learn information quickly, have in depth knowledge, or display an exceptional memory for facts and other information. In the second category, exceptional application of knowledge, student work samples may demonstrate strong reasoning and problem-solving skills, a high aptitude in art or music, or the ability to transfer abstract concepts easily to other subjects. In the third category, exceptional creative/productive thinking, teachers are trained to determine evidence of creative and divergent thinking, or the ability of a student to demonstrate thinking or knowledge in original ways. In the final category, exceptional motivation to succeed, a student may demonstrate the ability to show initiative, a strong sense of responsibility and leadership, or is able to explore, research, and question ideas and issues independently.

To complete the gifted behavior rating scale, a teacher familiar with the student determines a rating of 1, 2, 3 or 4 in each gifted rating scale category by observing the frequency of the identified gifted behaviors demonstrated, and by gathering student work sample evidence that supports each rating. The process of gathering work samples to support teacher ratings fosters a growth mindset and also supports the talent development approach in gifted identification (Dweck, 2006). On the rating scale, a rating of 4 indicates a student who consistently demonstrates the behaviors in that category. A rating of 3 describes a student who

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frequently demonstrates behaviors in that category. A rating of 2 describes a student who occasionally demonstrates the behaviors for that category. Finally, a rating of 1 describes a student who rarely demonstrates the behaviors listed in that category. The total gifted behavior rating score is the sum of numbers assigned to each of the four categories so the range of scores is between 4 and 16.

Elementary student academic grades are assigned using standards-based reporting in this school district. Teachers follow a standards-based curriculum for instruction and measure a student's progress according to how he or she is performing on expected standards in each subject area. Achievement grades are reported using a four point scale and final grades reflect the student's achievement at the end of the school year for that standard (See Appendix B). A rating of 4 indicates that a student consistently demonstrates concepts and skills for that standard. A rating of 3 indicates that a student usually demonstrates concepts and skills for that standards. A rating of 2 means that a student sometimes demonstrates concepts and skills for that standard. Finally, a rating of 1 indicates that the student seldom demonstrates concepts and skills for that standard.

In the state of Virginia, school accreditation standards are based on annual Standards of Learning (SOL) test results in the core subject areas of language arts, math, social studies and science for grades K–6 (Virginia Department of Education, 2016). However, at the third grade level, SOL tests are conducted in language arts and math only. In order to examine a single construct for student academic performance, one final grade representing overall academic achievement in language arts and math was utilized in this research study.

To determine an overall academic performance grade, final achievement grades for each standard related to language arts were totaled and averaged to determine an overall final grade

point average for language arts achievement.   The final achievement grades for each math

standard were totaled and averaged to provide an overall final academic grade point average for

math achievement. Finally, since the purpose of this study was to examine the predictive value of

gifted behavior ratings to a single construct of student performance, one final grade for academic

performance was determined by averaging the final language arts and mathematics grades for

each student.

Data Collection

The data sources for this research study was gathered from the school district's gifted

education screening process. The process begins at the local school level with a holistic

examination of multiple criteria including student demographic information, intelligence test

scores, progress reports, gifted behavior rating scores, and student work samples.   The second

part of the screening process occurs at the central office level where committee members

comprised of teachers and administrators consider each screening file independently and

holistically in order to make an objective eligibility determination. The central office in the

school district maintains student eligibility data electronically that includes demographics, test

scores, academic performance grades, and gifted behavior rating scale scores. For this study, all

ex post facto data was reported in aggregate form and individual student data was not identified

(Adams & Lawrence, 2015).

The gifted behavior rating scale data needed for this research study was gathered from the

results of the gifted screening process in this school district. Prior to conducting the initial

screening meeting at the local school level, demographic and testing data was downloaded from

the school district's student information system into a unique data collection software program

designed by the school system and used by the school's gifted and talented resource teacher

during the local screening process. In addition to the automatic generated student information, the resource teacher noted each student's reading level, teacher rating scale scores for each of the four categories, and type-written narrative comments as part of the gifted rating scale form. Once inputted, the central office technology specialist was able to retrieve data electronically onto an Excel spreadsheet format. No informed consent was necessary for this study as de-identified data was used for the research analysis and there was no way to identify individual students. There was also minimal risk to underrepresented students because the data was being gathered from across a very large, diverse school district and presented in aggregate form.

Data Analysis Procedures

For this research study, a technology specialist in the district randomly selected the sample participants' ex post facto data, and provided the researcher with Excel files including the data without any student identifying information. The spreadsheet included total gifted rating scale scores and a final report card grade for a random sample of 310 students' data, which was approximately 20% of the total number of students from the gifted screening pool (n = 1,532) who were found eligible for fulltime gifted programming for the 2015–2016 school year. In addition to the random sample data retrieval, the technology specialist provided the researcher with one additional Excel spreadsheet of ex post facto data with de-identified information for all identified Hispanic (n = 68), Black (n = 22) and Young Scholar designation (n = 97) to represent the underrepresented sample of gifted third grade students (n = 187) who were found eligible for gifted programming for the 2015–2016 school year.

In order to prepare the data for analysis, a coding book was developed and includes information about how the four variables were considered (see Appendix C). For the gifted students' variable and underrepresented gifted students' variable, each set of paired values were

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identified numerically in order to preserve anonymity. For the first data analysis, students were

identified numerically as #1 - #310 after being selected as the random sample (20%) from the

total numbers of students (n = 1,532) included in the gifted screening pool who were found

eligible for fulltime gifted programming for the 2015–2016 school year. The second student

sample will be numbered #1 - #187 representing the underrepresented population of students (n =

187) who were found eligible for fulltime gifted programming for the 2015–2016 school year

based on their designation as Hispanic (n = 68), Black (n = 22) and Young Scholar designation

(n = 97). The third variable, gifted behavior rating scale scores, were provided for each student

in each sample as one numerical value between 4 and 16, representing the summative gifted

behavior rating score given for each student. The fourth variable, student academic performance

grade, was designated as a numerical value of 1, 2, 3 or 4, representing a rubric grade given on a

standards-based report card. The final performance grade used for this research analysis was an

average of final grades in each standard for language arts and math in order to represent a single

construct of student performance.

The data analyses for this study was conducted with Pearson's *r* statistical tests using the

Statistical Package for the Social Sciences (SPSS) software to determine whether there was a

linear relationship between the two variables, gifted behavior rating scale scores, and academic

performance (Adams & Lawrence, 2015). The first correlation was conducted using the random

sample of high ability third grade students who were found eligible for gifted programming

during the screening process. The second correlation was conducted using the sample of

underrepresented high ability third grade students who were found eligible for gifted

programming during the screening process. The correlation statistics between the gifted

behavior rating scale scores and student grades identified if a positive or negative relationship

existed between the variables, and the strength of the relationship (Adams & Lawrence, 2015). Once the relationship between the variables was determined, a regression analysis was performed to determine if the criterion variable could be predicted based on the predictor variable creating a line of best fit (Adams & Lawrence, 2015). In other words, could the predictor variable, gifted rating scale scores, predict the criterion variable, student academic performance for the sample of gifted third grade students? Secondly, could the predictor variable, gifted rating scale scores, predict the criterion variable, student academic performance for the underrepresented gifted third grade students?

Limitations, Delimitations and Assumptions

While the methodology used in this study was useful in determining if a pattern or relationship exists among variables, the design was not without limitations and delimitations. Using a correlational design for this study presented a limitation because a causal relationship of the variables could not be determined (Adams & Lawrence, 2015). Instead, the relationships among the variables were examined as they existed using ex post facto data. However, the correlational design provided an opportunity to increase external validity for this study because results could be easily generalized to existing populations.

An additional limitation exists in this study due to the small sample size data drawn for the eligible underrepresented student sample. Small sample sizes may affect the strength of the relationship because existing data is used and as a result, there may great variability in the data that will not be associated with the relationships among variables (Adams & Lawrence, 2015). In order to increase internal validity, all eligible students' data was used in the data analysis for the underrepresented sample variable instead of randomly selected sample data. Because the number of all third grade gifted eligible students was much larger, a random sampling of data

was drawn for the single variable data analysis between gifted behavior rating scores and student academic performance.

Delimiters in this study were the use of data from a unique gifted behavior rating scale that is used in one school district, and the inclusion of rating scores for gifted third graders only. As a component of the gifted screening process, behavior rating scales provide authentic information about observable student behaviors from the classroom learning environment (Harradine et al., 2014). While research has been conducted to support the use of gifted behavior rating scales based on talent domain attributes, school districts currently design gifted rating scales independently (Worrell & Erwin, 2011). The school district in this study has been using the same version of their gifted behavior rating scale successfully for two decades which increases its reliability and validity. However, in order to increase the external validity of the findings in gifted identification research, additional correlational studies will need to be conducted on a larger scale to include more than one school district examining the predictive value of behavior rating scales and student academic performance.

The second delimiter, using gifted behavior rating scale scores for third graders only, is based on how the gifted screening process is managed in this school district. A pool of high ability second graders is determined each spring based on verbal and non-verbal intelligence testing scores completed in first and second grade. The school district uses an intelligence testing subtest score to determine a second grade pool of high ability students who are automatically considered during the gifted screening process. In grades 3–8, a parent or teacher referral process is also used to initiate the local and central screening process in this school district and is not based on intelligence test score results. Results from this research study add support to current scholarly literature emphasizing the importance of teacher knowledge and skill

in recognizing and developing student talent and potential in underrepresented populations. Additionally, findings demonstrate the academic success high ability underrepresented populations can achieve in gifted programming.

Internal and External Validity

The reliability and validity of the measures used in this study were established through consistent use of the behavior rating scale as a component of the gifted screening process in the school district over time, and by evaluating student academic performance using standards-based progress reporting. However, while a behavior rating scale is an efficient method to gather information about observable student behaviors and attitudes, it is subject to measurement errors that can be a potential threat to the internal validity of the study (Mason et al., 2014). Measurement errors based on construct, rater, cultural, or ethnic biases could impact the interpretation of the study's findings.

The screening pool data examined in this study represented a single measurement construct. A potential type of measurement error, construct bias, could occur if referral-based data was also included in this research study. Construct bias can occur when different factors are measured across samples and are used to compare groupings (Mason et al., 2014). For instance, if more than one construct is being measured, the researcher must be sure that the same factors are present and have the same meaning across groups (Mason et al., 2014). If the factors being measured are different across groups, the validity of the study could be questioned and construct bias could exist. Because high intelligence is a critical factor in defining giftedness, the sample for this study must be identified as having high ability. Limiting the correlation to one factor, high ability, minimized the measurement error of construct bias in this research study.

In addition to construct bias, rater bias can be another type of systematic measurement error found when rating performance or behavior that is caused by rater attitudes, beliefs, or experiences (Hoyt, 2000). In the use of behavior rating scales, rater bias can negatively affect the ability to screen individuals accurately for gifted programming and could lead to an overestimation or underestimation of behaviors (Mason et al., 2014). While teachers in this school district have been provided training regarding the use of behavior rating scales for observing gifted behaviors for identified students with high ability and potential, they may or may not hold the same beliefs about students who have been referred during the screening process. In other words, teachers' beliefs about students who in their opinion, should or should not have been referred to the gifted identification screening process because they do not have high ability scores, could influence their behavior ratings for referral-based students.

Mason, Gunersel and Ney (2014) noted that referral processes related to using behavior ratings likely include underlying beliefs, values, and attitudes about student characteristics that are subject to biased scoring practices. In order to limit rater bias for this research study, the study's sample included the gifted behavior rating scale scores and end-of-year academic grades for identified high ability third grade students who were found eligible for gifted and talent programming, and the study did include any students who were found eligible through parent or teacher referral, or through the appeal process.

Cultural and ethnic biases can occur as measurement errors because of differences in raters' cultural or ethnic beliefs, attitudes, or expectations (Mason et al., 2014). In a literature review of research studies regarding teacher bias, Mason, Gunersel and Ney (2014) identified thirteen specific studies that demonstrated mixed evidence of ethnicity bias, and stronger evidence of cultural bias due to teacher culture. Specifically, in two of the studies chosen based

on strong sampling and data collection methods, no ethnic bias was found for teachers rating Attention Deficit Hyperactive Disorder (ADHD) behaviors (Mason et al., 2014). However, in two additional studies involving teacher ratings of Asian and students of other ethnicities with ADHD, findings demonstrated evidence of teacher bias based on perceived differences in positive stereotypes.

In this same literature review conducted by Mason, Gunersel and Ney (2014), six studies were investigated to examine cultural bias in teacher ratings. Findings indicated significant differences in ratings of behavior across the culture categories (Mason et al., 2014). However, the research designs varied among these studies and may have affected the ability to generalize results. The mixed findings in the studies included in this extensive literature review demonstrated that biases in teacher ratings of behavior are influenced by beliefs and attitudes, but also noted that there is a significant lack of empirical research measuring explicit beliefs about culture or ethnicity in the process of teacher ratings (Mason et al., 2014).

Finally, criterion-related validity concerns could be considered an internal threat to this study. Predictive criterion-related validity involves determining a correlation coefficient with a future criterion such as academic grades (Vogt, 2007). In order to measure criterion-related validity, a predictor variable is correlated with an outcome or dependent variable. In this study, gifted behavior rating scale scores served as the predictor variable for student academic achievement, the criterion or dependent variable. However, when the independent variable or dependent variable has little variance in scoring, the data analysis will most likely be statistically insignificant. In order to limit criterion-related validity concerns in this study, research data was collected from across elementary schools in the school district in a power sample for the random selection of high ability third grade students' data (n = 310). The second sample for

underrepresented students' data, while smaller in size, represented all eligible data for gifted students designated as Black, Hispanic and Young Scholar (n = 187). Until the data was analyzed during the research study, findings regarding the limited variances in gifted behavior rating scores and student academic grades were unknown.

Ethical Considerations

The ethical considerations for this quantitative research study demonstrated limited researcher bias, no risk to participants, and results that support the body of research in gifted education. The research study was conducted from the practical perspective of an elementary school principal engaged in the gifted identification process at both the local school and central school district levels. While the researcher has significant knowledge and experience in gifted education pedagogy, examining data related to the gifted education screening process posed no bias issues. There was no risk to participants in this study as the use of a correlational statistical design assures anonymity. There was minimal risk to underrepresented student identification in this study as the student data was gathered from across the large, diverse school district and considered as one group. Ex post facto data for the study's samples was reported in aggregate form and individual student data was not identified (Adams & Lawrence, 2015). Finally, the research study supported current understanding about how teachers can use gifted behavior rating scales to improve assessment of gifted potential, and demonstrated the success underrepresented populations achieve through gifted education opportunities.

Summary

In summary, the purpose of this quantitative research study was to examine the predictive value of teacher behavior rating scales related to student academic achievement outcomes in a gifted education program. In this study, ex post facto data from the gifted identification process

for gifted third grade students in a large, diverse public school district located in the state of

Virginia was correlated with student grades to determine if a predictable pattern exists between

the variables. The instrumentation used for this research study included a teacher gifted behavior

rating scale that was designed and used exclusively by the school district. The use of talent

domain attributes in this rating scale is supported in current approaches for gifted identification

that emphasize the importance of nurturing specific talents and abilities in addition to intellect

(Subotnik et al., 2011). Findings from this research demonstrated how teacher can recognize

gifted behavior characteristics effectively, and also indicated the academic success of

underrepresented populations in gifted programming.

Chapter 5: Findings

Introduction

      The instrumentation used in this research study included gifted behavior rating scale and student academic performance data. The school district uses a gifted behavior rating scale tool that was designed in 1992 in collaboration with a professor from a local university and consultants in the field of gifted education. Student academic performance is evaluated through the use of a standards-based progress report. The reliability and validity of the measures used in this study were established through the consistent use of the talent domain-based behavior rating scale in the school district over two decades, and by evaluating student academic performance using a standards-based progress reporting tool. The talent domain attributes included in the rating scale are supported in current approaches for gifted identification that emphasize the importance of nurturing specific talents and abilities in addition to intellect (Subotnik et al., 2011). Specifically, the rating scale used by the school district is based on four categories of learning: exceptional ability to learn, exceptional application of knowledge, exceptional creative/productive thinking, and exceptional motivation to success (see Appendix A). Each category on the rating scale includes a list of eight performance indicators that provide examples of what the behavior could look like in the school environment. In addition to academic behaviors, the indicators also provide teachers with examples of talent domain behaviors such as art, music or creativity.

      The gifted behavior rating scale and student achievement data used in this research study was gathered from components of the gifted screening process and student progress reporting in a large, diverse public school district located in the state of Virginia. The central office in the school district maintains student gifted education data electronically in an information database

that includes demographics, test scores, academic performance grades, and gifted behavior rating scale scores. The data is maintained in a unique data collection software program designed and used solely by the school system as part of its student information database. The reliability and validity of the student information database has been established through its consistent use by the school system as the central source of data used by every school in the school district. All information regarding student registration, assessments, progress reporting and other relevant information is maintained in this database that is accessed only by authorized school personnel. The advanced academics department uses this database to access information about students being screened for or enrolled in gifted education in the school district.

Because existing data was used for this research study, a correlational design was chosen in order to effectively examine the relationship between the variables of gifted behavior rating scores and student academic performance. The hypothesis testing process was selected in order to consider whether the relationship between variables is significantly different than would be expected by chance alone (Adams & Lawrence, 2015). The null hypotheses developed for this study stated that:

1. There is no relationship between gifted behavior rating scale scores as used in the screening process and end-of-year academic performance grades of third grade gifted students.

2. There is no relationship between gifted behavior rating scale scores as used in the screening process and end-of-year academic performance grades of underrepresented third grade gifted students.

In order to examine the relationship between variables in this study, a Pearson product-moment correlation coefficient known as the Pearson's *r* statistical analysis was selected. The

Pearson's *r* test is used when both variables are measured using an interval scale and it provides information about the direction of the relationship between variables, and the strength of the relationship scale (Adams & Lawrence, 2015). Prior to conducting a Pearson's *r* test, a graph or scatterplot of the relationship between variables was calculated to provide information about the direction and strength of the relationship. A positive correlation occurs when the two measures move in the same direction together (Adams & Lawrence, 2015). The next step in the hypothesis testing is to conduct the Pearson's *r* statistical test. The results of this test indicated the strength of the relationship between variables. Finally, a regression analysis between the variables was examined to determine if the predictor variable, gifted behavior rating scores could predict the criterion variable, student academic performance.

Description of the Sample

The first research question in this study involved examining the relationship between third grade students' gifted behavior rating scale scores used as a component of the screening process and third grade gifted students' end-of-year academic performance grades. In order to examine this research question, a simple random assignment process was used to select the study's sample of ex post facto data for 20% of the students (n = 310) found eligible for full-time gifted education. The gifted rating scale scores and end-of-year academic grades data were collected for gifted third grade students across the entire school district in order to ensure equal representation for the single variable correlation (Adams & Lawrence, 2015).

The second research question involved examining the relationship between underrepresented third grade students' gifted behavior rating scale scores used as a component of the screening process and students' end-of-year academic performance grades. For this research question, data for the underrepresented students was examined in a correlational analysis

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between gifted behavior rating scale scores and student performance.   In order to increase the internal validity, all eligible student data of Hispanic, Black and Young Scholar designation (n = 187) were examined as the underrepresented sample.

In order to complete the data analyses for this research study, a central office technology specialist retrieved and transferred research data electronically to the researcher in two secured Excel spreadsheet email files. In the first spreadsheet, sample participants' ex post facto data was provided without any student identifying information and included summative gifted rating scale scores and end-of year final grades for a random sample of 310 students. The sample represented 20% of the total number of third grade students included in the gifted screening pool (n = 1,532) who were found eligible for full-time gifted programming for the 2015–2016 school year.   In addition to the random sample data retrieval, a second Excel spreadsheet was provided to include a sample of students' de-identified data for the underrepresented sample of gifted third grade students (n = 187) who were found eligible for gifted programming for the 2015–2016 school year. Using the Statistical Package for the Social Sciences (SPSS) software data analysis program, scatterplots were created and Pearson's *r* correlation tests were conducted to determine if any relationship existed between gifted rating behavior scores and student achievement for both the random sample and underrepresented sample data.

The four variables examined in this study included third grade gifted students, underrepresented third grade gifted students, gifted behavior rating scale scores, and academic performance grades. The variables were coded in order to prepare the data for analysis (see Appendix C). For the gifted students' variable and underrepresented gifted students' variable, each set of paired values, gifted behavior rating score and end-of-year final grade, were identified numerically in order to preserve anonymity. In the first data analysis, students were

identified numerically as #1 - #310 after being selected as the random sample (20%) from the total numbers of students (n = 1,532) included in the gifted screening pool who were found eligible for full time gifted programming for the 2015–2016 school year.

For the second sample analyzed in this study, students were numbered #1 - #187 representing the underrepresented sample of students (n = 187) who were found eligible for full time gifted programming for the 2015–2016 school year based on their designation as Hispanic (n = 68), Black (n = 22), or Young Scholar (n = 97).   The third variable, gifted behavior rating scale score, was provided for each student in each sample as one discrete integer value between 4 and 16, representing the student's summative gifted behavior rating score.   The fourth variable, student academic performance, was designated as a value of 1, 2, 3 or 4, representing a rubric grade given on a standards-based report card. The final performance grade used for this research analysis was an average of final grades in each performance indicator for language arts and math in order to represent a single construct of student academic performance.

The data for both samples were first graphed in scatterplots in order to determine the direction and apparent strength of the relationship between variables. Then, a Statistical Package for the Social Sciences (SPSS) software Pearson's *r* correlation test was used to examine the strength of the relationship between the two variables, gifted behavior rating scale scores and academic performance (Adams & Lawrence, 2015).

Summary of the Results

The research analysis revealed a weak to moderate correlation between variables examined in this study. The first research question examined the relationship between a random sample of third grade gifted students' gifted rating scale scores and end-of-year academic performance. The data analysis revealed a weak positive correlation between variables ($r = .34$,

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p < .001). The results supported rejecting the null hypothesis in favor of the alternative

hypothesis that there was a relationship between students' gifted behavior ratings and student

end-of-year performance. However, the regression analysis revealed that because the correlation

was not significant, the variable, gifted behavior rating scores, was not a predictor of student

academic performance. The second research question examined the relationship between

underrepresented third grade gifted students gifted rating scale scores and end-of-year

performance. This correlation revealed a moderate positive correlation between variables

(*r* =.43, *p* < .001). The results supported rejecting the null hypothesis in favor of the alternative

hypothesis that there was a relationship between underrepresented students' gifted behavior

ratings and student end-of-year performance. However, the regression analysis revealed that

because the correlation was moderate, the variable, gifted behavior rating scores, was not a

predictor of student academic performance for underrepresented students.

Detailed Analysis

The first research question examined if there was a relationship between third grade

students' gifted behavior rating scale scores used as a component of the screening process and

third grade gifted students' end-of-year academic performance grades. Before conducting a

correlation analysis of the data, a graph of the relationship between the two variables was

conducted. A scatterplot of the data revealed a line of best fit that moves from the middle left of

the graph to the upper right portion of the graph indicating a positive relationship between

variables, gifted behavior rating scale scores and student academic performance grades.

Specifically, the diagram revealed an elliptical cloud shape of data that moves in a slightly uphill

pattern. The data also revealed a loosely clustered relationship between the gifted behavior

rating scores on the X axis, and the student academic performance grades on the Y axis at the

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upper right end of the diagram. There appeared to be a relationship between the two variables

because it was easy to discern a pattern with the data points situated around a straight regression

line (see Figure 1). A linear relationship demonstrates that the direction and rate of change in

one variable is consistent with another variable (Vogt, 2007).
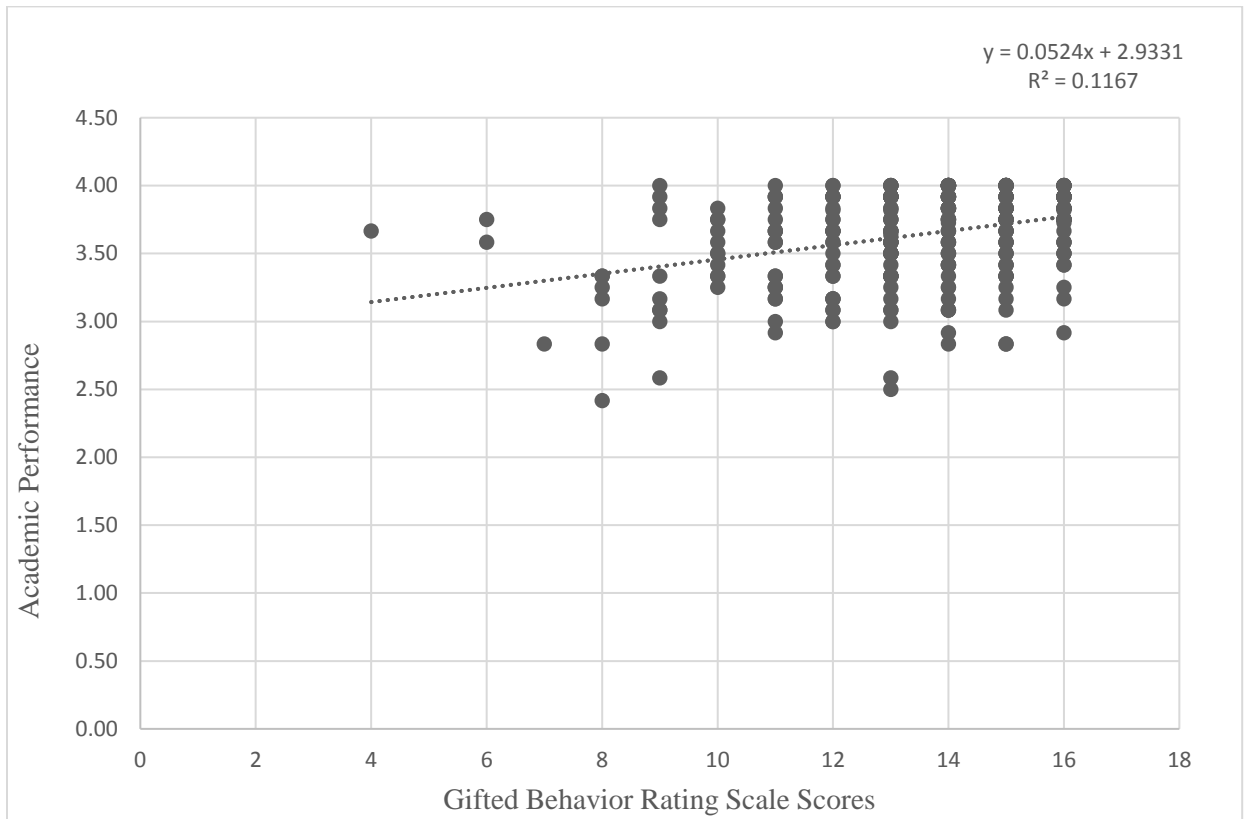
Figure 1. Scatterplot of Third Grade Gifted Students' Behavior Rating Scale Scores and Student
Academic Performance

The gifted behavior rating scale scores for the random samples were quite diverse,

ranging from 4 to 16, with a mean at the upper end of the possible scores on the scale

(M = 13.45, SD = 2.15). The academic performance grades were also diverse ranging from 2.5

to 4.0 with a high mean relative to the grades (M = 3.64, SD = .33). The average of the squared

differences from the mean indicated a larger variance for the gifted behavior ratings, 4.63, than

the student academic performance, .11. The standard errors for the means of the gifted behavior

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rating scores, .12, and the achievement grades, .02, indicated a small standard deviation within the sampling distribution.

A Pearson's *r* correlation was then computed to examine the relationship between gifted behavior rating scale scores and academic performance grades. A weak positive correlation was found between the two variables, $r = .34$, $p < .001$. The coefficient of determination, r^2, was also calculated in a regression analysis to determine if gifted behavior ratings can be a predictor for academic achievement. For this sample, 12% of the variability in academic achievement was accounted for by its relationship to gifted behavior rating scores. The proportion of variability between the predictor variable, gifted rating scores, and criterion variable, academic performance, suggests that there is no predictive relationship between the variables.

Finally, in order to know if the correlation was significantly different than what would be obtained from chance alone, the critical Pearson *r* value was considered. Using the degrees of freedom (*df*), the table of critical Pearson's *r* values indicated a critical value of .11, $p < .05$. Because the Pearson's Correlation *r* value, .34, exceeded, the critical *r* value of .11, the statistical strength of the relationship between the variables was confirmed. Therefore, the data analysis supported rejecting the null hypothesis in favor of the alternative hypothesis that there was a weak relationship between gifted behavior ratings and student end-of-year performance. However, because the results did not reveal a significant correlation between variables, findings did not indicate that gifted behavior rating scores can be a predictor of student academic achievement (see Table 1).

Table 1

Summary of Correlation Data between Third Grade Gifted Students' GBRS and Student Academic Performance

Variables	Gifted Behavior Rating Scale Scores (GBRS)	Academic Performance	Total
N			310
Mean	13.4452	3.6372	
Variance	4.6297	0.1091	
Standard Deviation	2.1517	0.3303	
Standard Error	0.1222	0.0188	
Pearson's Correlation (r)			0.3415*
Coefficient of Determination (r^2)			0.1166
Critical r value			0.113
Degrees of Freedom (df)			308

*$p < .001$

The second research question examined if there was a relationship between third grade underrepresented students' gifted behavior rating scale scores used as a component of the screening process and third grade gifted students' end-of-year academic performance grades. A scatterplot of the data revealed a line of best fit that moves from the middle left of the graph to the upper right portion of the graph indicating a positive relationship between variables. Specifically, the diagram revealed an elliptical cloud shape of data that moves in a slightly uphill pattern. The data also revealed a loosely clustered relationship between the gifted behavior rating scores on the X axis, and the student academic performance grades on the Y axis at the upper right end of the diagram. There appeared to be a relationship between the two variables

because it was easy to discern a pattern with the data points situated around a straight regression line (see Figure 2).
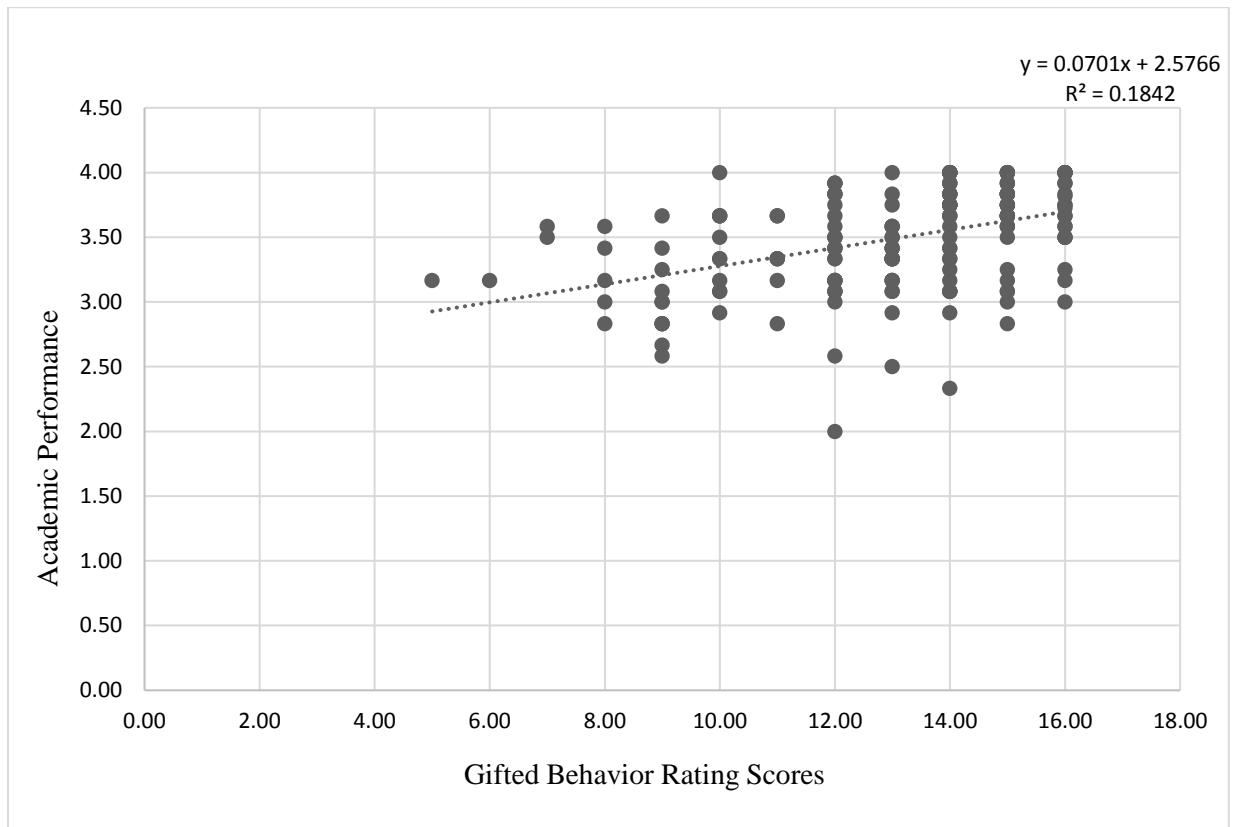
Figure 2. Scatterplot of Third Grade Underrepresented Gifted Students' Behavior Rating Scores and Student Academic Performance

The gifted behavior rating scale scores for the underrepresented samples were quite diverse, ranging from 5 to 16, with a mean at the upper end of the possible scores on the scale ($M = 13.05$, $SD = 2.35$). The academic performance grades were also diverse ranging from 2.0 to 4.0 with a high mean relative to the grades ($M = 3.49$, $SD = .38$). The average of the squared differences from the mean indicated a larger variance for the gifted behavior ratings, 5.53 than the student academic performance .15.   The standard errors for the means of the gifted behavior rating scores, .17, and the achievement grades, .03, indicated a small standard deviation within the sampling distribution.

A Pearson's *r* correlation was then computed to examine the relationship between gifted behavior rating scale scores and academic achievement. A moderate positive correlation was found between the two variables, $r = .43$, $p < .001$. The coefficient of determination, r^2, was also calculated in a regression analysis to determine if underrepresented gifted behavior ratings can be a predictor for academic achievement. For this sample, 18% of the variability in student academic achievement was accounted for by its relationship to gifted behavior rating scores. The proportion of variability between the predictor variable, gifted rating scores, and criterion variable, academic performance, suggests that there is no predictive relationship between the variables.

Finally, in order to know if the correlation was significantly different than what would be obtained from chance alone, the critical Pearson *r* value was considered. Using the degrees of freedom (*df*), the table of critical Pearson's *r* values indicated a critical value of .14, $p < .05$. Because the Pearson's Correlation *r* value, .43, exceeded, the critical *r* value of .14, the statistical strength of the relationship between the variables was confirmed. Therefore, the data analysis supported rejecting the null hypothesis in favor of the alternative hypothesis that there was a moderate relationship between underrepresented gifted behavior ratings and student end-of-year performance. However, because the results did not reveal a significant correlation between variables, findings did not indicate that underrepresented gifted behavior rating scores can be a predictor of student academic achievement (see Table 2).

Table 2

Summary of Correlation Data between Underrepresented Third Grade Gifted Students' GBRS and Student Academic Performance

Variables	Gifted Behavior Rating Scale Scores (GBRS)	Academic Performance	Total
N			187
Mean	13.0535	3.4912	
Variance	5.5348	0.1479	
Standard Deviation	2.3526	0.3845	
Standard Error	0.172	0.0281	
Pearson's Correlation (r)			0.4288*
Coefficient of Determination (r^2)			0.1838
Critical r value			0.139
Degrees of Freedom (df)			185

*$p < .001$

Summary

This quantitative research study was designed to examine the relationship between teacher behavior rating scales and student academic achievement outcomes in a gifted education program. In this study, a random sampling of ex post facto behavior rating scale data for gifted third grade students in a large, diverse public school district was correlated with end of year grades to determine if any correlative relationship existed. In addition, the study also correlated gifted underrepresented students' behavior rating scores to student academic performance.

In this study, four variables were examined in order to address the research questions: third grade gifted students, underrepresented third grade gifted students, gifted behavior rating

scale scores, and academic performance grades. In order address the first research question, ex

post facto data using a sample of high ability third grade students' gifted behavior rating scale

scores from the gifted identification screening process was correlated with end-of-year third

grade gifted student performance grades to determine if a predictable pattern existed between the

variables. The correlation revealed a weak positive correlation between variables ($r = .34$,

$p < .001$) and supported rejecting the null hypothesis in favor of the alternative hypothesis that

there was a relationship between students' gifted behavior ratings and student end-of-year

performance. However, the regression analysis revealed that because the correlation was weak,

the variable, gifted behavior rating scale scores, was not a predictor of student academic

performance.

For the second research question, ex post facto data using a sample of underrepresented

high ability third grade students' gifted behavior rating scale scores from the gifted identification

screening process was correlated with end-of-year underrepresented third grade gifted students'

performance grades to determine if a relationship existed between the variables. This correlation

revealed a moderate correlation between variables ($r = .43$, $p < .001$) and supported rejecting the

null hypothesis in favor of the alternative hypothesis that there was a relationship between

underrepresented students' gifted behavior ratings and student end-of-year performance.

However, the regression analysis revealed that because the correlation was of moderate strength,

the variable, gifted behavior rating scores, could not be considered a predictor of student

academic performance for underrepresented students.

Notably, results demonstrated that the mean values for both samples' data for the gifted

behavior rating scale scores and for student academic achievement were very similar. While the

range of gifted behavior rating scale scores in both samples was quite diverse from 4 to 16, the

means were relatively high for both samples (M = 13.45; M = 13.05). In addition, both samples'

means indicated relatively high academic performance success for students enrolled in the gifted

education programming regardless of the gifted behavior rating scale scores (M = 3.64;

M = 3.49). These results suggest that teachers are able to effectively use gifted behavior rating

scales to recognize observable characteristics of gifted students' behaviors for underrepresented

students as readily as gifted characteristics for non-minority students. Results also demonstrate

that high ability third grade students and underrepresented high ability third grade students

demonstrate academic performance success in gifted programming.

Chapter 5: Discussion and Conclusions

Introduction

The field of gifted education has evolved considerably during the past 100 years. Originally developed through the lens of intelligence testing, the field has grown to embrace a talent and development approach that is better suited to recognizing and nurturing the diversity of gifted learners. This approach places emphasis on recognizing and nurturing the potential strengths and talents of children instead of interpreting differences as deficits or weaknesses (Ford & Whiting, 2010). Siegle et al. (2016) noted that for underrepresented students, a talent development model must include opportunities that prepare students for the gifted identification process, and provide culturally relevant learning experiences that students find meaningful.

The talent development framework is a strengths-based approach that includes a flexibly designed gifted identification process to recognizing outstanding potential, the key to increasing minority representation in gifted programming (Pfeiffer & Blei, 2010). As a result, the acceptance of a talent and development approach in gifted education has paved the way for a more comprehensive holistic approach to identifying giftedness. In doing so, students with potential who may not have the background knowledge and experiences to be immediately successful in gifted education have the capacity to flourish within culturally responsive teaching and learning environments (Siegle et al., 2016).

The process for identifying giftedness in children has also changed over time. Initially, giftedness was identified as a static entity measured by intelligence tests such as the Stanford-Binet Intelligence Scale, one of the first intelligence tests used to identify gifted students (Kaufman & Sternberg, 2010). While intelligence and achievement tests can identify academically strong students, they do not identify potential, especially among underrepresented

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student populations (Ziegler et al., 2102). As the talent and development approach has become

more accepted in the field of gifted education, researchers have conceptualized giftedness to be

related to domain-specific behaviors through which talent is developed in addition to high

intelligence test scores (Pfeiffer & Blei, 2010). Identifying giftedness measured by recognizing

outstanding promise or potential not only allows for a demonstration of achievement over time,

but it also allows for late bloomers or disadvantaged students to fully develop potential

giftedness (Olszewski-Kubilius & Thomson, 2015).

   While intelligence testing is a good predictor of academic success, other reliable

measures can also be used very effectively to identify giftedness. Research suggests that

traditional assessments such as intelligence tests are particularly insufficient in identifying

underrepresented populations including minority and low-income students (VanTassel-Baska et

al., 2007; Worrell & Erwin, 2011). Multiple forms of assessment should be used including

portfolios and other nontraditional forms of identification and assessment such as nonverbal

tests, dynamic assessments, performance-based tasks, student work samples, academic grades,

behavior rating scales, and checklists (VanTassel-Baska et al., 2007).

   Gifted behavior rating scales have become a widely used effective instrument as a

component of the gifted screening process because they provide teachers with a way to assess

observable behaviors and attitudes such as motivation, passion, self-efficacy, and self-regulation

(Worrell & Erwin, 2011). However, in order for teachers to use gifted rating scales effectively,

they must receive professional development training about how to identify gifted behaviors and

attitudes. As a professional responsibility, teachers must have sufficient knowledge about a

student's academic and psychosocial needs for placement in gifted programming (Thompson &

Morris, 2010). In addition to teacher training regarding characteristics of gifted behaviors,

cultural proficiency and culturally responsive teaching are also becoming increasingly important to closing the equity and excellence gaps between minority and non-minority students in gifted education. Finally, advocacy for national data used for gifted education research is necessary to address diversity in gifted education as well as to support valid gifted identification processes.

Summary of the Results

The purpose of this research study was to examine a random sampling of ex post facto behavior rating scale data for gifted third grade students in a large, diverse public school district correlated with end of year grades to determine if any relationship existed. Additionally, a correlation was conducted between underrepresented gifted third grade students' rating scale data to student performance outcomes to determine if any relationship existed. The underrepresented sample examined in this study included students identified as Hispanic, Black or Young Scholar. The Young Scholar designation is used by the school district to identify and nurture the potential of young low income and/or minority students. Findings from the data analysis indicated a weak positive relationship between third grade students' gifted behavior rating scale scores and student academic achievement ($r = .34$, $p < .001$). A moderate positive correlation between the additional variables related to underrepresented students with behavior rating scale scores and student academic performance was also demonstrated ($r = .43$, $p < .001$). Finally, because there was no significant correlation between variables, a regression analysis confirmed that in this study, gifted behavior rating scale scores were not a predictor of student academic achievement.

An important finding in this study was related to the mean values related to gifted behavior rating scores and student academic achievement for both student samples examined.

The gifted behavior rating scale summative scores ranged from 4 to 16. The data analysis

revealed similar mean values for the third grade gifted students' gifted behavior rating scores

(M = 13.45) and for the underrepresented third grade gifted students' gifted behavior rating

scores (M = 13.05). The mean values in both samples' data suggest that the teachers recognized

and identified gifted behavior characteristics for all high ability students, including those who

were designated as underrepresented students.

Grades for student academic achievement ranged from 1 (seldom demonstrates concept

skill) to 4 (frequently demonstrates concept skill). For the sample of third grade gifted students,

the mean value for student academic achievement grades (M = 3.64) was similar to the mean

value for the sample of underrepresented third grade gifted students' for student academic

achievement grades (M = 3.49). Findings indicated high academic success for the students

enrolled in gifted education. Specifically, these findings demonstrated underrepresented gifted

students achieved grades comparable to non-minority gifted third graders and can achieve

successfully in gifted education programming.

Discussion of the Results

Findings from both research questions in this study indicated a weak to moderate

correlation between students' gifted rating scale scores and student achievement grades. One

factor that may have impacted the results of this study was a criterion-related validity concern

based on the variables being examined. Predictive criterion-related validity involves determining

a correlation coefficient with a future criterion such as academic grades (Vogt, 2007). In order to

measure criterion-related validity, a predictor variable is correlated with an outcome or

dependent variable. In this study, gifted behavior rating scale scores served as the predictor

variable for student academic achievement, the criterion or dependent variable. In order to

establish a relationship between variables, each variable must demonstrate variability in their scores (Adams & Lawrence, 2015). When one or both measures has a restricted range of scores, it becomes difficult to measure the relationship between the variables and the data analysis will most likely be statistically insignificant.

In order to limit criterion-related validity concerns in this study, research data was collected from across elementary schools in the school district in a power sample for the random selection of high ability third grade students' data (n = 310). The second sample for underrepresented students' data, while smaller in size, represented all eligible data for gifted students designated as Black, Hispanic and Young Scholar (n = 187). Findings from the data analysis of this study indicated a very restricted range of academic performance grades from 2.0 to 4.0. In addition, the means for academic performance for both samples indicated relatively high scores close to the ceiling for measuring academic performance (M = 3.64; M = 3.49). The restricted range of academic performance grades may have impacted the ability to find a significant relationship between the variables in this study.

Although correlation results were not statistically significant, the data analysis revealed important information regarding the teachers' use of gifted rating scales to recognize students' gifted behavior characteristics and abilities. In both samples, the mean scores for the third grade gifted students' gifted behavior rating scores (M = 13.45) and for the underrepresented third grade gifted students' gifted behavior rating scores (M = 13.05) were very high. Similarly, the mean scores for the third grade students' academic performance grades (M = 3.64) and for the underrepresented third grade gifted students' academic performance grades (M = 3.49) were also close to the ceiling for grades. The findings demonstrated that the teachers recognized and identified gifted behavior characteristics for high ability students effectively, including those

who were designated as underrepresented students, and that the students achieved successfully in gifted programming. However, this study did not determine a statistically significant relationship between gifted rating scale scores and student academic performance so further empirical research examining the value of teacher checklists as a component of the gifted screening process is warranted.

Secondary findings from this research study indicated the academic success that underrepresented students can achieve in gifted programming. The moderate positive correlation between underrepresented students' gifted behavior rating scale scores and academic performance ($r = .43$, $p < .001$) produced slightly stronger statistical findings to the random sample correlation between third graders' gifted rating scores and student achievement ($r = .34$, $p < .001$). The data analysis also revealed strong academic achievement grades for both samples in the study. The underrepresented sample of gifted third grade students' data demonstrated high academic achievement (M = 3.49) as did the random sample of gifted third grade students' data (M = 3.49). Therefore, findings in this study support the notion that underrepresented students can achieve academic success when placed in gifted classroom learning environments.

Discussion of the Results in Relation to the Literature

The holistic talent and development approach used to identify gifted students has been a strengths-based method to recognize and meet the needs of diverse gifted students. Teachers can contribute significantly to the gifted identification process by using gifted rating scales as an alternative assessment tool beyond standardized test scores. The gifted rating scale is also particularly effective for assessing the talent and potential of underrepresented students. A gifted behavior rating scale provides teachers with a method to observe and evaluate gifted potential through observable classroom behaviors and gifted characteristics (Thompson & Morris, 2010).

The data analysis in this study demonstrated a relatively high mean value for the third grade gifted students' gifted behavior rating scale scores (M = 13.45). Similarly, the findings noted a high mean value for the underrepresented third grade gifted students' gifted rating scores (M = 13.05). Based on the high average of gifted behavior rating scale scores for both samples in the study, the results suggest that teachers were able to use the gifted behavior rating scale effectively to recognize and identify gifted behavior characteristics of students in the underrepresented sample as readily as those students in the random sample of gifted third graders' data.

In order for teachers to use of gifted behavior rating scales effectively, training in cultural competence and how to recognize gifted characteristics is very important. Effective professional development training emphasizes teachers' thinking about gifted students and how to recognize and nurture potential talents (Siegle et al., 2016). In addition, cultural proficiency and culturally responsive teacher training is important so that teachers are able to foster, support and challenge students to develop their full potential as creative, real-world problem solvers (Plucker & Callahan, 2014).

The school district for this research study has developed and utilizes comprehensive teacher training in both the use of gifted behavior rating scales and cultural proficiency. Every elementary school in this school district uses the support of a gifted resource teacher to guide the recognition and development of potential student talent in the early primary grades, as well as to support teacher training and guidance through the gifted identification process. The resource teachers use available materials and resources developed by central office personnel in order to provide consistent teacher training opportunities across the school district. Having a resource teacher whose primary role is to monitor student talent and development, train classroom

teachers, and guide the gifted screening identification process positively impacts this school district's gifted education programming success.

An emphasis on cultural proficiency and culturally responsive teaching is also a current goal in this school district. Face-to-face training and centrally designed video training modules have been created to enhance the cultural competence of all teachers in this school district. Cultural proficiency training provides an opportunity to examine individual and school cultural identity in all aspects of schooling including instructional practices, classroom design and management, student/teacher relationships, and parent communication (Guerra & Nelson, 2007). Results of this particular research study supports the value of thorough teacher professional development as a component of an identification process that also promotes equity and diversity in gifted programming.

Beyond identification practices, culturally responsive classroom instructional practices can impact successful achievement in gifted education programming. One of the most common instructional methods for gifted learners occurs through differentiated instruction that takes place within the regular classroom (National Association of Gifted Learners, 2011). Successful learning environments are designed for flexible instruction, opportunities for collaborative goal setting, peer interaction and cooperative learning (Weinfeld, Barnes, Jeweler, & Shevitz, 2006). In particular, culturally responsive classrooms provide opportunities for all students to improve their academic performance. Student potential is realized when a student is motivated and supported by teachers, parents and others to achieve learning goals in a positive classroom environment (Weinfeld et al., 2006). In addition, underrepresented students particularly benefit from working with their gifted peers as a strategy to increase the impact and meaningfulness of their learning opportunities (Cuevas, Lee, Hart, & Deaktor, 2005). A differentiated classroom

provides a high quality learning environment in which all students have the opportunity to develop their particular strengths and gifts (Tomlinson, 1999).

The design of the culturally responsive learning environment can also have an impact on successful student achievement. One strategy used to meet the needs of gifted learners is to provide content-based acceleration by curriculum compacting while remaining with grade level peers (Plucker & Callahan, 2014). Challenging underrepresented students in an accelerated learning environment is supported by research and also included in many school reform models (Plucker & Callahan, 2014). In an accelerated instructional model, compacting curriculum allows teachers to reduce repetitive practice for material that is already mastered and to move forward with new instruction. Students have the opportunity to benefit from a brisk pace of instruction, challenging instruction, high teacher expectations and advanced materials (Tomlinson, 1999). In addition, more subject area depth and complexity can be provided in order to increase high level critical thinking skill and development (Fogarty & Pete, 2011). Other grade-based acceleration strategies where students do not stay with age-based peers include grade skipping, multiage classrooms or early graduation from high school and college are other options (Plucker & Callahan, 2014). In the school district used for this research study, gifted learners are placed in advanced academic classrooms that accelerate learning through curriculum compacting and using enhanced learning standards to guide instructional practices. Based on the differentiated instructional model used by this school division, study results demonstrate that high ability underrepresented students can achieve academic success commensurate with their non-minority peers.

Limitations

This study, like much of the research conducted in gifted education, includes several research limitations. First, this quantitative study was conducted based on a correlational design examining static rating scale and academic performance data. In addition, the restricted range of the instrument measures impacted the ability to find a significant relationship between the variables in this study. Therefore, results of this study cannot be interpreted through the lens of causality. In order to increase the rigor of research, quantitative and qualitative studies that provide insight into causality are needed. Case studies and other research that are longitudinal in nature may provide a better analysis of gifted student performance success over time. In particular, longitudinal research that analyzes underrepresented students' data is important as these students may require a longer adjustment period to higher performance expectations in gifted programming in order to achieve academic success (VanTassel-Baska, 2006).

An additional limitation in this study and in current gifted research is the lack of standardized gifted identification process designs. In this study, a gifted behavior scale used by one school district was utilized to examine the relationship between variables. Creating a gifted rating scale that can be validated as measure of intellectual giftedness is a difficult challenge (Pfeiffer & Jarosewich, 2007). While some progress has been made, there is currently no standard criteria for identifying gifted students so school districts have the freedom to decide what gifted identification procedures are used.

Another limitation for this study and in gifted research is the generally limited pool of data regarding gifted students. The random samples gathered for analysis in this study were restricted based on the eligible data from one school district. In 2005, the Joint Committee on Testing Practices suggested that researchers obtain evidence about how diverse subgroups

perform on standard assessments, and also make efforts to acquire samples sizes that are large enough for adequate subgroup analysis (Peters & Gentry, 2010). Because gifted data is generally based on a subpopulation of students in a specific school district, most research studies report findings based on small sample sizes. Access to a more standardized identification process and systematic source of data for gifted education research is needed. Peters and Gentry (2010) noted that in addition to research conducted on the validity of assessment tools, separate evaluations regarding characteristics specific to underrepresented students' needs to be examined as well.

Implications of the Results for Practice, Policy and Theory

The current trend in giftedness research is to use the talent development approach to identify and nurture specific talents such as the ability to problem solve and think critically which are important to achieving giftedness (Kaufman & Sternberg, 2010). As a theoretical framework, gifted education scholars support a talent development approach because it places greater emphasis on emergent talent and potential and can address a wider range of learners (Dai & Chen, 2013; Olszewski-Kubilius & Thomson, 2015; Renzulli, 2005; Subotnik et al., 2011).

The talent development framework is a strengths-based approach that includes a flexibly designed gifted identification process to recognizing outstanding potential, the key to increasing minority representation in gifted programming (Pfeiffer & Blei, 2010). In addition to using standardized intelligence tests to identify gifted children, research suggests that non-traditional assessment tools such as non-verbal tests, performance-based tasks, student work, achievement grades, and teacher checklists can support the talent development approach (VanTassel-Baska, et al., 2007; Worrell & Erwin, 2011).

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Studying gifted programs provides the opportunity for researchers and practitioners to continue to seek methods to identify gifted students effectively and promote equity for underrepresented populations. This quantitative research study was designed to examine the relationship between teacher behavior rating scales and student academic achievement outcomes in a gifted education program located in one large, diverse urban school district in the state of Virginia. A correlation analysis was conducted to determine if any relationship existed between gifted rating behavior scores and student academic achievement for both random sample and underrepresented sample data collected in this study. While the results did not demonstrate a statistically significant correlation between variables, the findings suggest that as part of a talent and development approach to gifted education, teachers are able to recognize and identify gifted behavior characteristics for high ability students effectively using a gifted behavior rating scale.

The talent development approach is instrumental to addressing the underrepresentation of certain student populations in gifted education. Statistics demonstrate that minority populations, including those who live in poverty or are African-American or of Hispanic-American ethnic origin, are underrepresented in gifted programming by 50% to 70% (U.S. Department of Education, 1993). Plucker and Callahan (2014) noted that despite decades of work to decrease the achievement gaps, increasing excellence gaps, the disparity between the highest levels of student achievement from White, affluent backgrounds and the top-performing students from minority or low income backgrounds, remains a problem. Because of the excellence-achievement gap, recognizing, acknowledging, and addressing the differences in achievement and barriers to excellence for underrepresented populations must be an important focus in education (Siegle et al., 2016).

The results of this study demonstrated implications for underrepresented students in gifted programming. The data analysis revealed comparable means for both gifted behavior rating scale scores and academic performance grades for the random sample and underrepresented sample data in this study. In other words, teachers determined gifted behavior rating scores for the underrepresented students that were comparable to the random sample student data. In addition, the underrepresented students demonstrated high average academic performance grades that were also comparable to the high average grades for the random sample student performance scores. The findings confirm the notion that underrepresented gifted students can be identified effectively and achieve successfully in gifted programming which supports continued research emphasis on reducing the excellence gaps that exist in gifted programming.

Recommendations for Future Research

The purpose of this research study was to examine the relationship between the gifted behavior scale scores and student academic achievement outcomes. Although no significant relationship was found between these variables, the study indicated a weak to moderate positive correlation between gifted rating scale scores and student academic performance. While the use of a gifted rating scale as a screening identification tool may be effective, further investigations regarding the relationship between the use of gifted rating scales and student academic performance is warranted.

Continued efforts to close achievement and excellence gaps in gifted education is also critically important. Additional future research is needed to support findings regarding the teacher's role in recognizing and nurturing gifted underrepresented students' potential in gifted programming. Empirical studies should be designed to examine efforts to increase

underrepresentation in gifted programming and determine how assessment and alternative assessment approaches can be used as valid measures for gifted identification.

In this research study, results demonstrated a wide range of summative gifted behavior rating scale scores for both the underrepresented and random sample data. These findings suggest that teacher ratings of gifted behavior characteristics and abilities could include biased beliefs, attitudes or values. Rater bias can lead to an overestimation or underestimation of student behaviors which can affect the ability to make predictions for successful student performance outcomes (Mason et al., 2014). Specific studies designed to examine teachers' implicit and explicit cultural beliefs about student behaviors in a larger represented sample is warranted.

Finally, findings from this study also demonstrated the academic success gifted underrepresented students achieve in gifted programming. Both the gifted third grade students and gifted underrepresented third grade students in this study achieved high mean academic performance outcomes in gifted programming. Teachers in the study's school district receive training in culturally responsive teaching practices and cultural proficiency. However, this study was not designed to determine if culturally informed teaching practices had any impact on student achievement outcomes. Future research is needed to validate how cultural proficiency training and culturally responsive teaching impacts student learning.

Conclusions

The purpose of this research study was to examine the relationship between gifted rating scale scores and student academic achievement. Findings from this research study indicated a weak to moderate positive correlation between students' gifted rating scale scores and student academic performance. Because results were statistically insignificant, gifted rating scale scores

were not determined to be predictors of student academic performance. However, results support the talent development approach in gifted education and demonstrate that teachers are able to assess gifted behaviors and characteristics for high ability students effectively. Finally, the study demonstrated the academic performance success achieved by both underrepresented and non-minority high ability students in gifted programming.

The field of gifted education is important work that must continue to grow and expand in order to meet the needs of high ability students. Over time, the field of gifted education has made significant progress to develop from an intelligence theory perspective to a developmental philosophy. In doing so, giftedness is now viewed from a talent and development perspective that allows for better identification of underrepresented populations in gifted education. Effective gifted programming in education necessitates a multi-measure process for gifted identification, teacher training in cultural competency and culturally responsive teaching, and advocacy for federal and state policies to guide future efforts in gifted education. As student populations becomes more and more diverse in the United States, clear, rigorous methods that are research-based must be put into practice in order to reduce achievement and excellence gaps that currently exist.

Broadening the gifted identification process to include multiple measures and data is an important component for advancing gifted education. The use of valid gifted rating scales, authentic assessments, portfolios, and other assessment information provides a holistic and balanced approach to support decisions about gifted programming. In addition, a multi-measure identification approach makes the decision-making progress more fair and equitable in support of increased gifted learning opportunities for underrepresented students.

Teacher professional development training in cultural diversity is also critical to the academic success of students. Through culturally proficiency training, educators come to understand their own assumptions, beliefs and values about people from other cultures (Anderson, 2011).   As the diversity of student populations continue to increase, teachers need pre-service coursework and field experience opportunities to learn the importance of cultural proficiency. Cultural diversity courses help to create more knowledgeable, empowered and prepared teachers who are ready to interact with diverse student populations (Scott & Mumford, 2007). Continued professional development training for professional educators also ensures that teachers are equipped with the skills necessary to meet the diverse needs of their students.

Culturally responsive teaching is a powerful method for teachers to meet the learning needs of all students and specifically, to help dependent students become successful learners (Hammond, 2015). An effective culturally responsive classroom ensures that teachers and students are developing strong relationships and students afforded differentiated learning opportunities tailored to meet their individual needs (Hammond, 2015).

Unfortunately, there are currently no federal mandates that include significant funding for gifted education research. Instead identification, programming and gifted requirements are left mostly to individual states and school district decision-making using a wide variety of identification procedures and definitions for giftedness. With the growing student diversity in schools, teachers and school-based personnel bear a greater responsibility for demonstrating the cultural competence necessary to meet the learning needs of all gifted students. Comprehensive education on multiculturalism and culturally responsive teaching must focus on developing educators' knowledge, disposition and skills (Peters & Gentry, 2010).

Finally, advocating for the future of gifted education policy is critically important so that the unique needs of gifted learners can continue to be recognized and nurtured. A common vision for the definition of gifted education that is grounded in relevant and rigorous research is needed to support the talent and development of all students for generations to come. As a national focus, specific research-based common policies and practices must be developed in order to decrease achievement and excellent gaps for high ability, underrepresented students. Polices and culturally responsive practices that support increased expectations and achievement for high ability students will support and sustain the future of our nation as a global leader in knowledge and innovation.

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APPENDIX A: Gifted Behavior Rating Scale (GBRS)

GIFTED BEHAVIORS RATING SCALE WITH COMMENTARY

A *Gifted Behaviors Rating Scale with Commentary (GBRSw/C)* is required for screening for full-time Advanced Academic Programs (AAP) (Level IV) placement. Review each category and the list of descriptors. Assign an overall rating using the scale below. Add the four scores and place the sum in the total box.

Behaviors Demonstrated:

1 = **rarely**   **TOTAL**
2 = **occasionally**
3 = **frequently**
4 = **consistently**

1. Exceptional Ability to Learn
Exhibits exceptional memory
Demonstrates in-depth knowledge
Displays persistent, intense focus on one or more topics
Is highly reflective and/or sensitive to his/her environment
Learns and adapts readily to new cultures
Learns quickly and easily
Acquires language at a rapid pace
Learns skills independently and makes connections without formal instruction

2. Exceptional Application of Knowledge
Demonstrates highly developed reasoning
Employs complex problem-solving strategies
Uses and interprets advanced symbol systems in academics, visual arts, and/or performing arts Understands, applies, transfers abstract concepts
Uses technology in advanced applications
Acts as an interpreter, translator, and/or facilitator to help others
Makes advanced connections and transfers learning to other subjects, situations, cultures
Communicates learned concepts through role playing and/or detailed artwork

3. Exceptional Creative/Productive Thinking
Sees the familiar in unusual ways / Does not conform to typical ways of thinking or perceiving
Is highly creative and/or inventive

Demonstrates unusual fluency and flexibility in thinking and problem-solving
Expresses ideas, feelings, experiences, and/or beliefs in original ways
Displays keen sense of humor
Is highly curious
Generates new ideas, new uses, new solutions easily
Perceives and manipulates patterns, colors, and/or symbols

4. Exceptional Motivation to Succeed
Demonstrates ability to lead large and/or small groups
Meets exceptional personal and/or academic challenges
Explores, researches, questions topics, ideas, issues independently
Is poised with adults and engages them in adult conversations
Exhibits a strong sense of loyalty and responsibility
Demonstrates exceptional ability to adapt to new experiences
Strives to achieve high standards especially in areas of strength and/or
interest
Shows initiative, self-direction, and/or high level of confidence

Note. This GBRS tool, designed by the school district, is used to support the gifted and talented screening identification process.   During this study, the actual instrument was not analyzed by the researcher, but was provided as information to demonstrate the talent domain-based assessment approach used in gifted identification.   The research study examined ex post facto GBRS student data gathered from the results of the gifted screening process across the school district.

APPENDIX B: Academic Progress Report

Elementary School Progress Report

Student ID:

Grading Period:

School:

Teacher:

Achievement Levels:	Life, Work, and Citizenship Skills and Effort Levels:
4 - Consistently demonstrates concepts and skills of standard taught this quarter	4 - Consistently demonstrates
3 - Usually demonstrates concepts and skills of standard taught this quarter	3 - Usually demonstrates
2 - Sometimes demonstrates concepts and skills of standard taught this quarter	2 - Sometimes demonstrates
1 - Seldom demonstrates concepts and skills of standard taught this quarter	1 - Seldom demonstrates
na - Introduced but not assessed	na - Not assessed
nt - Not taught	

Mathematics	Q1	Q2	Q3	Q4	F
Your child has been instructed using above grade-level content in mathematics. (y = yes, n = not applicable)					
Represents numbers accurately and demonstrates an understanding of number relationships					
Computes numbers with fluency and makes reasonable estimates					
Measures with accuracy and makes reasonable estimates of measurements					
Analyzes characteristics and properties of geometric figures and demonstrates an understanding of spatial relationships					
Uses data to describe, interpret, and predict events					
Represents situations and mathematical relationships using algebraic symbols					
Mathematics Effort					

Language Arts	Q1	Q2	Q3	Q4	F
Your child was assessed on the reading standards using:					
Listens and speaks for specific purposes					
Locates and uses information from a variety of sources					
Reads with accuracy and fluency					
Reads with understanding					
Writes with purpose, clarity, and expression					
Edits for usage and mechanics in own writing					
Reading Effort					
Writing Effort					

APPENDIX C: Code Book for Data Analysis

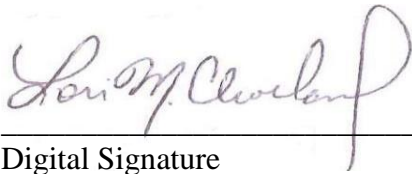
Study Variables

	De-Identified Students	Gifted Behavior Rating Score (GBRS)	Academic Performance in Math and Language Arts
Sample #1 Gifted Third Graders	#1 - #310	one summative score between 4-16	one averaged rubric score between 1-4
Sample #2 Underrepresented Gifted Third Graders	#1 - #187	one summative score between 4-16	one averaged rubric score between 1-4

APPENDIX D: Statement of Original Work

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University-Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*.

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Digital Signature

Lori M. Cleveland
_____
Name (Typed)

April 17, 2017
_____
Date