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The Effects of Ability Grouping on Gifted & Talented Third, Fourth, and Fifth Grade Students in Selected South Carolina Public School Districts

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by

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DEDICATION

For their support and patience I would like to dedicate this work to my family and friends. Their encouragement has meant so much throughout this journey.

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ABSTRACT

This is a quantitative research study using archival data to focus on the achievement of Gifted & Talented students in two South Carolina public school districts. The researcher used an open cohort comparative research design for this study. This study attempted to find if differences in student performance existed between students labeled as Gifted & Talented in South Carolina based on their model for instruction. The researcher used their Palmetto Assessment of State Standards (PASS) test scores in English Language Arts (ELA) and math achievement scores and compared them to the students' placement in special class model Gifted & Talented classrooms or traditional pull-out G/T classrooms. This study took approximately one and a half years and used scores from the 2009, 2010, and 2011 academic school years. The dependent variable was the scale scores gathered from the PASS tests during those years. The independent variable was the grouping method. Other intervening variables include school, district attended, socioeconomic status, ethnicity, and gender.

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Introduction

Statement of the Problem

The goal of this study was to determine if the grouping of Gifted & Talented students affected the academic performance of these students as determined by their performance on the Palmetto Assessment of State Standards (PASS) test that is administered to all elementary students in South Carolina. The researcher examined the PASS performance data from third, fourth, and fifth grade students who participated in the special class model for Gifted & Talented instruction and the students who participated in the traditional pull-out model for Gifted & Talented instruction. The researcher compared these two models of G/T instruction to determine if there were differences in student academic performance.

Problem Statement

According to the state budget reports accessed online from the South Carolina State Department of Education, Gifted & Talented programs had their funding reduced by $10,925,854 between the 2008-09 and 2009-10 academic years (South Carolina Legislature, 2009 and 2010). According to the most recent budget reports, all funding for Gifted & Talented programs has been reduced from three categories to one labeled "High Achieving Students" (South Carolina Legislature, 2009 and 2010). This category

combines the previous categories labeled: Advanced Placement, Gifted & Talented, and Junior Scholars, all of which had separate funds previously. The budget allocation for "High Achieving Students" has been held constant at $26,628,246 for the past four years (South Carolina Legislature, 2009, 2010, 2011, 2012). This represents a significant reduction in funds for Gifted & Talented programming in South Carolina. Some educators worry that all funding for Gifted & Talented programs in South Carolina will be totally removed from the public education budget and left to the discretion of the individual school districts in South Carolina. The possibility of these additional reductions is the result of a greater push toward funding flexibility in South Carolina due to the economic downturn that our state has been facing. The total loss of Gifted & Talented funding could have an impact on the services that public schools provide for those students who are identified as Gifted & Talented.

The current trend in public education is toward more heterogeneously mixed classrooms as opposed to the academically leveled classrooms of the past (Vaughn, Schumm & Forgan, 2008). This is a more democratic approach to education that reflects the democratic ideals of our society. The heterogeneously mixed classrooms are made up of a wide variety of students who bring a multitude of needs to the classroom unit. The extensive array of unique student needs such as specific learning disabilities and slow learner characteristics can often raise a dilemma for the classroom teacher who is expected to meet all of these different needs.

Gifted instruction has lost momentum since 1993 in many public schools due to the emphasis on remediation as a result of the *No Child Left Behind* legislation (Kaplan, 2004). Some teachers use gifted students to tutor struggling learners. Neither the

struggling students nor the gifted students gain anything from this type of relationship (VanTassel-Baska, 1992). Goree (1996) noted that when students with greater academic difficulties are placed in the same classroom environment with academically gifted students, the needs of the struggling student take precedence over the needs of the gifted child. This is a concern for the needs of the academically gifted.

Design

This is a quantitative research study using archival data to focus on the achievement of Gifted & Talented students in two South Carolina public school districts. The researcher used an open cohort comparative research design for this study. This study attempted to find if differences in student performance existed between students labeled as Gifted & Talented in South Carolina based on their model for instruction. The researcher used their Palmetto Assessment of State Standards (PASS) test scores in English Language Arts (ELA) and math achievement scores and compared them to the students' placement in special class model Gifted & Talented classrooms or traditional pull-out G/T classrooms. This study took approximately one and a half years and used scores from the 2009, 2010, and 2011 academic school years. The dependent variable was the scale scores gathered from the PASS tests during those years. The independent variable was the grouping method. Other intervening variables include school, district attended, socioeconomic status, ethnicity, and gender.

Significance

The literature regarding gifted students primarily focuses on the academic achievement of these students as compared with their non-gifted peers. A few studies do delve into the topic of gifted students and their perceptions regarding their academic experience. Shields (2002) concluded that gifted students who were served in a homogeneously grouped classroom had developed more career interests when compared with the students from the heterogeneous group. Shields also concluded that the students from the heterogeneously grouped class demonstrated higher academic self-confidence. She went on to say that this was due to the gifted students experiencing more stress when placed in an environment where they were sometimes struggling to keep up with one another in a more challenging academic environment with greater expectations for their performance.

In another study, Karen B. Rogers (1993) concludes that students need some form of ability grouping in order to achieve their academic goals. However, she does not delve into the issue of their attitudes toward academics in these homogeneous environments. Once again the focus of this research was on their academic achievement.

In another study, John H. Holloway (2003) asked classroom teachers whether they felt that gifted students benefited from the heterogeneously mixed classroom setting. He concluded that the teachers in his research felt that overall gifted students became frustrated by the slower pace and lesser content within the regular classroom. He also stated that these teachers felt that the large classroom setting particularly held back gifted learners who exhibited a great deal of creativity.

The *No Child Left Behind* legislation expects that all schools are to show Adequate Yearly Progress (Gallagher, 2004). Schools are charged with the responsibility of encouraging all students to perform at an adequate level. Wright, Horn, and Sanders' (1997) research states that the students who are most academically advanced are actually making the least gains when compared with their peers. Since many of these studies are now more than twenty years old, there seems to be a need for more current research in the area of Gifted & Talented student performance particularly in South Carolina schools and in the elementary grades. This research may help educators in South Carolina make decisions about how to best design a Gifted & Talented program for their schools in order to help these students meet their academic potential.

Research Questions

1. When considering Gifted & Talented students and their PASS scores in ELA, what evidence is there that ability grouped instruction differs from pull-out instruction?
2. When considering Gifted & Talented students and their PASS scores in math, what evidence is there that ability grouped instruction differs from pull-out instruction?

Conceptual Framework

The conceptual framework of this study is to determine if the way we approach Gifted & Talented grouping of students has any effect on the performance of these students and their performance on the Palmetto Assessment of State Standards test that is taken by all third, fourth, and fifth grade elementary students in South Carolina. The researcher has

examined the PASS performance data from third, fourth, and fifth grade students who participated in both the homogenously cluster grouped classroom model for Gifted & Talented as well as the students who participated in the traditional pull-out model for Gifted & Talented instruction.

Limitations

A limitation of this research is that it does not include data from all schools in South Carolina. The fact that the researcher is focusing on the performance of students from only two school districts in South Carolina limits the results. This may limit the generalizations that may be drawn from the data gathered in this research as it relates to other schools in South Carolina or even to other states. Another limitation of this research is the fact that there is so little diversity within the students who are identified as Gifted & Talented (GT) within these two school districts. This appears to be a concern for students identified as Gifted & Talented in South Carolina schools in general. And last, the time frame itself is a limitation for this study, as it did not allow for the inclusion of research into other school districts.

Definition of Terms

Ability grouping – A common instructional practice of clustering students according to their academic skills. Ability grouping allows a teacher to provide the same level of instruction to the entire group (Education Week, 2004).

Adequate Yearly Progress (AYP) – AYP is a measure of yearly student achievement. The goal of *No Child Left Behind* is for all students to be proficient in reading, language

arts, and math by the academic year of 2014. Standards for AYP are set by each state to ensure that schools reach that goal (South Carolina Department of Education, 2006).

Enrichment programs – originally designed for gifted students, but are now widely used with at-risk students; are intended to supplement the regular academic curriculum for students who might otherwise be unchallenged with their classwork. For gifted students, they are an alternative to acceleration, so that even the brightest students can remain in class with their age-mate peers, yet be challenged (Education Week, 2004).

Inclusion – The controversial practice of educating students with disabilities alongside their nondisabled peers. This often takes place in the regular education classroom in their zoned schools. The *Individuals with Disabilities Education Act* requires that disabled children must be educated in the "least restrictive environment" possible (Education Week, 2004).

Palmetto Assessment of State Standards (PASS) – All students in South Carolina who are in third through eighth grades take the PASS test in May of each academic school year. It is an achievement test which measures student performance in English language arts, writing, math, science, and social studies. However, not all grade levels take all subjects annually. It is not timed, and it is a multiple choice test with the exception of the writing portion given to all students. The students' results are reported at the individual, school, district, and state levels (South Carolina Department of Education, 2013).

Pullout programs – removing a student from the regular classroom in order to provide them with acceleration or enrichment opportunities (Education Week, 2004).

Socioeconomic status (SES) – This is determined by the students' family income. The students' status is measured by using their free and reduced lunch participation within

their schools. School districts use a table with the family's reported income and the number of family members to determine whether or not a child qualifies to receive a free or reduced price lunch while at school. If the student qualifies for free or reduced lunch status, then he or she is considered to be of low socioeconomic status (South Carolina Department of Education, 2013).

Special Class Model – this model is a self-contained gifted and talented class organized around one or more subject areas. Gifted and talented identified students are provided academic instruction that is based on state standards and differentiated to meet their unique needs. The curriculum is both rigorous and accelerated (South Carolina Department of Education, 2013).

Tracking – a method of grouping students academically that results in a static placement within ability groups. Usually students cannot change their "track" as they progress through school (Yecke, 2005).

Organization of Dissertation

This research begins with an overview of the problem being researched and a rationale for this particular quantitative study. There is a review of relevant literature and a presentation of the data gathered from the student performance within the Gifted & Talented programs within these two school districts. Finally, a summary of the information is presented with an analysis of the outcomes and recommendations for further study.

This study includes third, fourth, and fifth grade students who are identified as Gifted & Talented in South Carolina. The researcher proposes to answer the following research

questions: When considering Gifted & Talented students and their PASS scores in ELA, what evidence is there that ability grouped instruction differs from pull-out instruction? When considering Gifted & Talented students and their PASS scores in math, what evidence is there that ability grouped instruction differs from pull-out instruction? The researcher is exploring this topic because Gifted & Talented programs in South Carolina have had their funding cut over the past four years. This could have an impact on the services that public schools provide for those students who are identified as Gifted & Talented, and it will likely limit the program delivery options which are currently in place locally.

Summary of Participants/Participant Groups

To conduct this research, the researcher must clearly define whom we are researching. The students studied will be selected from those who are identified as Gifted & Talented in South Carolina. The researcher is specifically referring to students in third grade or above who have been labeled as gifted in South Carolina as defined by their scoring in the ninety-sixth percentile or above on the Cognitive Aptitude Test. While students may be identified as gifted in the third grade and above, we will only use those elementary age (third, fourth, and fifth grades) students for the purpose of this study. The Gifted & Talented classrooms in Clover School District are self-contained and will be used for the self-contained study group (M. Boyd, personal communication, September 7, 2012). The Gifted & Talented students in Lexington School District One are heterogeneously mixed in with regular education students; however, they are pulled out for weekly instruction and will be used for our pull-out model study participants (J. Purdy, personal communication, September 17, 2012).

Subjectivity Statement

The researcher is the principal at Sunset Park Center for Accelerated Studies, an elementary school in South Carolina that has a Gifted & Talented magnet program. The researcher created this program at Sunset Park and is interested in monitoring the results over time. The researcher has a vested interest in the success of this program and the students who are a part of it. While the researcher has spent a great deal of time reviewing the quantitative data regarding PASS (Palmetto Assessment of State Standards) achievement scores and growth over time, the researcher is also interested in gathering the qualitative data regarding this new program and measuring its impact on students. One could say that the researcher is an advocate for gifted students in public education. From an autobiographical standpoint, the researcher was a gifted student, and this type of program was not available when the researcher was in school. As a former gifted student, the researcher took part in the traditional pull-out model of instruction.

Summary

As stated at the beginning of this chapter, Gifted & Talented students are children with special needs. These students need a curriculum and an opportunity to learn at their own pace with instruction that addresses their uniqueness. Teachers who are not specifically trained to meet these unique needs impede their potential for progress. *No Child Left Behind* has brought in the expectation that all children are expected to learn at high levels of expectation; however, there seems to be a gap between the categories evaluated by Adequate Yearly Progress and the needs of our Gifted & Talented population. Many educators will say that those GT kids are just going to do well anyway so we do not need

to worry about them. The researcher feels that this attitude hurts these students and certainly does not serve to meet their unique needs as learners. Renzulli, Gentry, and Reis (2004) stated, "Student performance that falls noticeably short of potential, especially for young people with high ability, is bewildering and perhaps the most frustrating of all challenges facing teachers" (p. 8). With this study the researcher is proposing to examine the potential effects of ability grouping on the academic performance of elementary Gifted & Talented students in two South Carolina districts in ELA and math.

Chapter 2

Review of Related Literature

Introduction

This review examined the research on the effects of ability grouping on Gifted & Talented students. It includes both past and current sources of research. The researcher began with a review of literature on giftedness in general and then progressed to research on proponents of homogeneous cluster grouped classes as well as traditional pullout models of instruction. Next, the researcher reported on the effects of ability grouping as reported by the opponents of this instructional approach. The researcher closed with a discussion on the challenges that face gifted education and ability grouping.

Research on the Gifted Student

South Carolina students are identified and labeled as Gifted and Talented beginning in the third grade. Once identified, this label follows them throughout the rest of their academic experience through graduation. Students must meet two out of three possible dimensions in order to be identified as GT in our state. The three dimensions are: Dimension A-Reasoning Abilities, Dimension B-High Achievement in Reading and/or Math, and Dimension C-Intellectual/Academic Performance (South Carolina State Department of Education, p. 6).

Dimension A can be achieved by scoring in the ninety-third percentile or above on the Cognitive Aptitude Test which is first administered in the second grade. However, if a

student scores in the ninety-sixth percentile or above on this dimension, then they do not need to fulfill any of the other dimensions in order to qualify for GT services (South Carolina Department of Education, p. 6). Hence, a student may be identified as GT in the second grade; however, they will not begin receiving GT services in South Carolina public schools until they are in the third grade and beyond.

Dimension B can be met by scoring in the ninety-fourth percentile or above on the PASS test or any other achievement test used by South Carolina Public Schools. The PASS test is administered to all third through eighth grade students in South Carolina. Dimension C may be met by meeting the qualifying score on an assessment known as Project STAR. Project STAR, which stands for Steps to Achieving Resilience, is a standardized test designed to be used in second through fifth grades only (R. Melzer, personal communication, September 17, 2012). There are other standardized assessments which may be used in addition to Project STAR to meet this dimension; however, they vary by school district in South Carolina.

As stated earlier, South Carolina students may be identified as early as second grade; however, there is no funding for gifted and talented until they reach the third grade. Some would argue that interventions for GT identified students should begin as early as age three (Henderson & Ebner, 1997). Students may continue to qualify for GT services as they progress through their grades. They may continue to meet these dimensions at any time during their academic career.

There are many different perspectives about the perceived needs of GT students. There are those who feel that ability grouping is appropriate for GT students, and there are those who feel that it is damaging to the GT student as well as to those students who

are not labeled as GT (Vaughn, Schumm & Forgan, 2008). Those who support ability grouping state that our GT populations of students are often bored in class and expected to idly sit by while the classroom teacher tends to teach to the needs of the struggling or average learner (Anderson & Platt, 2002). There are others who feel that ability grouping leads to problems with elitism and a lower self-concept in students who are not in the GT classes (DeSena & Ansalone, 2009).

Some researchers advocate for GT students to receive academic options that extend beyond the regular education classrooms as well as for additional training for the teachers who serve them (Anderson & Platt, 2002). Many advocate for flexible grouping options, course compacting, and grade skipping (Daniel & Cox, 1988). However, the common thread that seems to run through many research articles is the desire for more information regarding this issue of ability grouping (Slavin, 1987). In fact, the researcher had trouble finding literature that was produced within the last ten years on ability grouping in South Carolina public schools. Much of what was found was prior to the 1990's. This made the researcher wonder if there is truth to the thought that ability grouping has become socially inappropriate and non-democratic. If that is so, are we sacrificing the unique needs of these students to appease the critics? There is also a suggestion that high stakes testing has encouraged educators to take their focus off of the gifted (Tow, 2011).

There is evidence of the very real issue of low minority presence in GT classrooms throughout the United States (Fetterman, 1986). Fetterman attributes this problem to schools having a small population of minority candidates to assess (1986). He fears that many teachers are not trained to properly identify giftedness in minority students contributing to the low numbers of minority students who are even given the chance to

take the tests that might allow them to qualify for GT. However, students in South Carolina all take the Cognitive Aptitude Test and the PASS test. Even though they all have exposure to these standardized tests, minority students are still markedly underrepresented in the GT population.

Another concern for researchers was that they feared that many educators hold negative views about the families of African-American students. Some noted that educators believe African-American families are dysfunctional and draw other negative assumptions despite having any real data on which to base these assumptions (Harry, Klingner, & Hart, 2005). These authors even described this problem as being "pervasive" in the minds of American educators (Harry, Klingner, & Hart, 2005). The notion that school psychologists who conduct the assessments for qualifying into GT produce the results that they think they should get as opposed to how children actually score was noted by Skiba, Simmons, Ritter, Gibb, Rausch, Cuadrado, & Chung in 2008. While this is a very negative view of educators in general, it is supported by what we know about the self-fulfilling prophesy (DeSena & Ansalone, 2009). Challenges regarding the instruments used to identify minority students and students from poverty are also noted (Feldhusen, 1989).

The History of Ability Grouping

Understandably, ability grouping is a rather controversial topic in part because of its history. Widespread ability grouping predates the *Brown v. Board of Education* decision and the creation of what we now know as the Individuals with Disabilities Education Act (IDEA), both of which conjure very negative notions of ability grouping (Ferri &

Connor, 2005). Both *Brown* and IDEA resulted from the easily recognized problem of overrepresentation of African-American students within ability grouped classrooms associated with the notion of tracking in schools (Fiedler, Lange, & Winebrenner, 2002). Even prior to 1975, the education of students with disabilities was known for segregation and persecution (Boone & King-Berry, 2007). These same authors suggest that minority students were excluded from the regular education classroom because of their behavior as opposed to their educational needs. Ultimately, the notion of separate has never been equal in education.

There is a body of research that has been conducted regarding the effects of ability grouping on self-concept. Much of that research has been led by Joseph Renzulli. In 1993 Robert Hoge and Joseph Renzulli conducted research on this particular topic. They concluded that "on average, the gifted children exhibited more positive academic self-concepts than the comparison groups" (p. 458). However, they noted that academic self-concept for gifted students declined as a result of placement in homogeneously grouped GT classrooms (Hoge & Renzulli, 1993). They suggested that this was a function of social comparison theory in action which suggests that humans tend to compare themselves and even draw self-worth from the natural comparisons that we make with those around us (Coleman & Fults, 1985). It would appear that the act of surrounding one's self with academic equals may have an equalizing effect as opposed to the often criticized elitist effect associated with ability grouping (Hoge & Renzulli, 1993).

There are also those who suggest that the overrepresentation of minority students in special education indicates a deliberate effort to continue to segregate African-American students from their white peers (Skiba, Simmons, Ritter, Gibb, Rausch, Cuadrado, &

Chung, 2008). This disturbing viewpoint seems to be further reinforced by the underrepresentation of African-American students currently in homogeneously grouped GT classrooms. It is also reinforced by the disproportionate numbers of minority students who receive punishments in schools such as suspensions and expulsions which lead to their exclusion from classrooms nationwide (Skiba, Simmons, Ritter, Gibb, Rausch, Cuadrado, & Chung, 2008).

Another factor that may contribute to the differences in over and underrepresentation of minority students in special education and GT is the influence of poverty on our students. Since minority students are more likely to come from poverty (U.S. Census Bureau, 2001), it is very difficult to factor out the effects of this factor as a contributor to the representation issues (Skiba, Simmons, Ritter, Gibb, Rausch, Cuadrado, & Chung, 2008).

There is another issue which involves GT funding. South Carolina began to reduce funding for GT when our state began to face funding problems as a result of the recent economic downturn. While funding was not completely cut out of the state budget, it did suffer a tremendous reduction which has made districts limit new ideas and innovation for this segment of our population (South Carolina Legislature, 2009 and 2010).

Proponents for Ability Grouping

Much research has been conducted on why we should group students by ability. Some educators note that GT students who are not homogeneously grouped have to endure classroom instruction that is far below their ability level and boring to them (Feldhusen, 1989). It is also noted that exposure to this type of instruction forces students to hide

their abilities and reject opportunities to share what they really know or can do within the regular education classroom for fear of being ridiculed (Feldhusen, 1989). Shore and Delacourt (1996) found that ability grouping produces positive academic outcomes for students even if no curricular modifications are made for the students.

There is research to support the academic achievement of students who are grouped according to their academic giftedness. Kulik & Kulik conducted research in 1987 that found that ability grouping had a positive effect on student achievement. It was also found that "when high-ability youth were grouped in special classes *and* given enriched or accelerated instruction, effect sizes were large" (Feldhusen, 1989, p. 9). This suggests that it is not just about the act of ability grouping our students, but it is also an important factor to adjust the curriculum and content to the learners as well. The Kuliks (1987) suggested that "grouping can be a powerful tool in the education of gifted and talented students" (p. 29).

What about the other students who are not included in the higher level ability groups? Some teachers have reported that non GT students actually perform better when the GT students leave the room (Feldhusen, 1989). This may be due to the increased opportunities that arise from the GT students being pulled out and then not able to possibly dominate the class discussions and activities. Feldhusen (1989) also stated that there was no decline in the achievement or attitudes of the regular education students who were not a part of the higher ability groups.

Gifted students must have time to work with and around other gifted students in order to reach their full academic potential (Feldhusen, 1989). He asserts that gifted students will challenge one another in ways that educators simply cannot do without giving them

exposure to one another. Most educators would argue that academic tracking is a practice which should be excluded from education. Unfortunately, many associate the act of tracking with ability grouping (Tieso, 2003). However, the researcher would argue that they are not one and the same. Tracking refers to placing students in educational paths that cannot be negotiated regardless of academic gains or declines. Ability grouping is designed to be more fluid and based on changing or growing student needs. It is unfortunate that some equate the two different educational approaches together regardless of their differences. Ability grouping may be guilty of association with tracking. However, even proponents of tracking argue that de-tracking altogether would benefit students in the lower classes at the expense of the students in the upper level classes (Argys, Rees, & Brewer, 1996).

Gifted students are also students with special needs. Some research suggests that educators do not possess enough specialized training in order to meet the unique needs of the Gifted and Talented (Plunkett & Kronborg, 2011). In fact, Rakow (2012) notes that while many G/T students are consistently scoring high marks on standardized tests, they are not being challenged and therefore do not make adequate yearly progress. In fact, she argues that our current state assessment systems are not equipped to measure such high achieving students.

When teachers are not familiar with strategies to meet the unique needs of GT students, they may simply ask these students to do something different or more of the same (Rakow, 2012). This does not support the learner appropriately, nor does it provide them with challenging work designed to keep them engaged in learning. Rogers (2002) conducted research on different grouping strategies for GT students and found that full-

time GT programs produce the highest academic results for gifted students. Behind full-time placement, cluster grouping students within the heterogeneously mixed classrooms can also be an effective approach (Rogers, 2002). Cluster grouping refers to placing small groups of students together who show similar academic abilities. This is a strategy that can be done within heterogeneously mixed classrooms with special attention from the classroom teacher or with a specialist who comes into the classroom to provide support (Rogers, 2002).

Finally, the researcher would like to address the misconception that these students will just get what they need without any intervention. As stated earlier, there is quite a bit of evidence to suggest that special classes for GT students combined with curricular adjustments produce positive gains in academic achievement for this population of learners (Preckel, Gotz, & Frenzel, 2010). While educators strive for equity, it should not be at the expense of our students who "lie on either end of the normal curve" (Tieso, p. 29). The researcher believes that Thomas Jefferson said it best when he stated that "nothing is so unequal as the equal treatment of unequal people" (Fiedler, 2002).

Opponents of Ability Grouping

While conducting the research for relevant literature on this topic, the researcher was able to find much more information regarding the opponents of ability grouping and tracking in general. Some of the current research in these areas show concern that ability grouping perpetuates social class and racial inequity because of the particular make-up of most GT classrooms and their tendency to be dominated by white, middle to upper class students (Braddock, 1990). Ability grouping is also said to promote problems of elitism

and superiority for those who are selected for these programs (Persell, 1977). In addition, ability grouping is also accused of being non-democratic in nature and has a tendency to work against standards of social equality which are so important in our public education system throughout the United States today (Slavin, 1993). In fact, Slavin has some very harsh words in the conclusions that he made after he finished his research on this topic in 1993. "Given the antidemocratic nature of ability grouping and the absence of evidence that grouping is beneficial, it is hard to justify continuation of the practice. The possibility that students in low groups are at risk for delinquency, dropout, and other social problems should also weigh against the use of ability grouping" (Slavin, p. 549). What Slavin does not dwell on is the fact that this particular study did not include GT students or students who were in homogeneously grouped special education classrooms due to their high level of need (Slavin, 1993).

Another valid concern for the opponents of ability grouping for GT students has to do with the low enrollment of minority students in these programs. Jerome Morris wrote about the historical implications of racial inequities that have reinforced the notion that African-American students are intellectually inferior to their white counterparts as evidenced by their lack of representation in GT programs nationwide (Morris, 2002). He wrote that "Gifted education, with its roots in psychology, inherited these perceptions of African American people, and remnants of this belief continue to germinate within the schooling process and the field of gifted education" (Morris, p. 59). It is hard to argue with his deduction when you look at the racial make-up of GT classrooms in our public schools today.

Morris is not alone in his criticism of GT programs in our country. Other critics discuss the underrepresentation of African-American students in gifted education. Others cite a "deficit perspective" at work in gifted education. They believe minority students are thought to be culturally deprived and simply considered inferior to the majority group and feel that this contributes to them being overlooked as suitable candidates for placement in GT classes whether or not they meet the academic criteria (Ford, Harris, Tyson, & Trotman, 2002). These concerns go back for decades. Frasier, Garcia, & Passow recommended that educators use more culturally sensitive instruments such as nonverbal tests in 1995. In 1997, the National Association for Gifted Children published a statement encouraging educators nationwide to use more than one type of assessment to make GT placement decisions (Ford, Harris, Tyson, & Trotman, 2002). This was an example of an effort to try and have an influence on the problem of underrepresentation of minority students. We still have the same issues sixteen years after this statement was released.

This issue of overrepresentation of white students within the GT population extends beyond two different cultures. It is also a concern for those of Hispanic origin. Despite the infusion of Hispanic immigrants into our schools today, this is another culture that is underrepresented (Ford, Harris, Tyson, & Trotman, 2002). Our qualifying instruments are leaving these children out of the GT classrooms as well (Ford, Harris, Tyson, & Trotman, 2002). Once again, there is the notion that some educators so strongly resist the pressure to desegregate our schools that they use ability grouping as a means to perpetuate racial school segregation despite the laws against it (Ford & Webb, 1995).

There is also evidence to suggest that teachers under refer minority students for evaluation for GT qualification (Ford, 1995). Ford suggests that this occurs as a result of most educators being unprepared in their teacher training programs to consider and identify minority students. In fact, colleges and universities are accused of promoting a monocultural perspective that does not prepare them for working with the variety of students that they encounter in classrooms today (Ford, Harris, Tyson, & Trotman, 2002).

Ability grouping also faces discrimination from those who fear that it is socially or emotionally harmful to students (Colangelo et al., 2004). This fear appears to be enough to steer many in education away from it despite the evidence that it may have achievement benefits for high ability students (Brody & Benbow, 1987). In fact, few have seriously evaluated its actual socioaffective impact on students (Adams-Byers, Whitsell, & Moon, 2004). Once again, that association with tracking comes up; however, while ability grouping may include tracking, not all ability grouping should be equated with tracking (Neihart, 2007).

And then there are those who worry about the decline in self-concept of those high ability students who move into a homogeneously grouped GT classroom and then show a decline in their self-concept (Hoge & Renzulli, 1993). However, this may be attributed to a simple adjustment period where those students who are transitioning into these classes are adjusting to a more realistic view of their own academic abilities (Rogers, 2004). This may not be a cause for concern but rather a more realistic perspective of one's own abilities.

Challenges for School Districts in Educating the Gifted

It is vital that we recognize the unique needs of GT students as well as of the needs of all students within our schools. *No Child Left Behind* (NCLB) legislation has forced our schools to focus more on the individual needs of our students; however, NCLB does not include GT students in its categories of students to be assessed through state testing (Gallagher, 2004). This has inadvertently made it acceptable and even encouraged many schools to focus more on the needs of all other categories of students (Gallagher, 2004). These efforts to put the needs of others ahead of our GT population have made this trend acceptable. The researcher believes that this is a dangerous practice for any category of student, and believes that it makes it much harder to reach their unique needs because it causes problems with time to focus on them as well as challenging to generate funding to meet their needs.

Educators also face the challenges that surround developing a true understanding of the unique needs of our gifted students. What is gifted? How do we identify it? Once identified, how do we accommodate for it? These are all relevant questions for schools and educators. The lack of understanding in regards to how we identify GT students has been recognized by educators all over our nation (Pfeiffer, 2003). In fact, the wide range of instruments used from state to state continues to exemplify this diversity in understanding.

On top of the issue of how we should identify lies the question of how valid are our existing instruments (Pfeiffer, 2003). This issue pervades the research and leaves educators wondering who knows best? In fact, Pfeiffer (2003) surveyed sixty-four

"authorities" in the field of gifted education and came up the following list of concerns (p. 164):

- Lack of Consensus on How to Conceptualize or Define the Gifted and Talented
- Problems with the Identification Process
- Questionable Validity of Existing Instruments
- Underrepresentation of Minority Group Students
- Lack of Educational Utility
- Lack of Professional Training
- Problems with the IQ Test
- Weak State and National Policy Identification Regulations and Procedures
- Unintended Iatrogenic or Negative Effects of Testing

If the authorities on gifted education are concerned with these issues, it can only be expected that the educators who are responsible for providing services for these students will struggle with many of the same concerns.

Ability grouping suffers from its association with tracking. Some believe that educators track students because it provides them with a more efficient means to meet the diverse needs of students in relatively large classrooms (Ansalone & Biafora, 2004). The managerial needs within a normal classroom can and do present challenges for the classroom teacher. There is a logical basis of concern for educators who face a wide variety of student needs but have limited time and resources. There is also the concern that students receive cues from their academic placement that affects their feelings of

self-worth and abilities that affect their chances for future progress (Gamoran, 1986). Both perspectives must be considered when academic placement decisions are made.

One of the greatest challenges facing educators today surrounding this topic has to do with the underrepresentation of minority students in GT classes. This issue transcends state and local issues. Even the specific efforts which have been made to address this concern continue to fall short of making a significant impact (Ford, 1998). Whether it is the instruments used, the lack of undergraduate multi-cultural experiences and training, or a deliberate effort to separate students based on race, this is and has been a major issue in gifted education (Ford, 1998). With only 3.1 percent of African-American students participating in public school gifted programs, there is a valid reason to be concerned (Hargrove & Seay, 2011).

Summary

Ability grouping is one of the most controversial topics in education, and it has been for quite some time (Slavin, 1987). The researcher has discussed viewpoints from both sides of this issue as well as specific concerns from educators. Their major concerns lie in the topics of tracking, social and racial underrepresentation, adequate funding, and whether or not ability grouping is an ethical concern that goes against our democratic ideals. These are major issues that all agree need to be investigated further.

Chapter 3

Methodology

Overview

The purpose of this study was to compare two groups of elementary GT students' performance on the PASS test in ELA and math in South Carolina and to see if there are differences or similarities. The *No Child Left Behind* legislation and the heightened accountability that it has brought on has caused schools and school districts to reevaluate their methods of instruction to raise the academic performance of students at all grade levels and in all subgroups. This chapter defines the research design, population, sample, data collected, procedure, data analysis, and the hypothesis.

Research Design

This research was conducted using a quantitative approach focusing on the academic achievement of Gifted & Talented students by comparing archival PASS data. The students were in third, fourth, and fifth grades in South Carolina public schools. The researcher used an open cohort comparative research design for this study. This study attempted to determine if differences exist between Gifted & Talented students' PASS ELA and math achievement scores based on their particular grouping model. This study took approximately one and a half years and used PASS scores from the 2009, 2010, and 2011 academic school years. The dependent variable was the PASS scale scores gathered

from the PASS tests. The independent variable was the grouping method used in each district, and the intervening variables are socioeconomic status, ethnicity, and gender.

Population

The researcher collected PASS data from student scores in Clover and Lexington One. During this 2013 study, these two districts were similar in racial make-up and socioeconomic status. Both of these school districts are located in South Carolina and are part of the public school system. According to the South Carolina Department of Education's website data for the 2011-12 academic year, the districts' populations were 6,522 in Clover and 22,992 in Lexington 1 (SCDE, 2013). The student population in Clover was 81.7% White, 11.9% African-American, 3.9% Hispanic, 2.0% Asian, and 0.5% American Indian. The student population in Lexington One was 79.8% White, 11.7% African-American, 5.6% Hispanic, 2.5% Asian, and 0.5% American Indian.

Table 3.1 ***Districts Considered for the Purpose of this Study***

South Carolina District	Free & Reduced Lunch Percentage	Total Number of Students in 2012-13
Anderson 1	44.1%	9,126
Clover	33.4%	6,522
Dorchester 2	42.6%	23,176
Lexington 1	38.3%	22,992
Lexington 5	32.6%	16,302

Source: SCDE (2013)

The students' socioeconomic status (SES) is determined by their parents' income level in South Carolina. The overall free and reduced lunch percentage in South Carolina public schools was 56.8%. Clover was 33.4% free and reduced lunch and Lexington 1

was 38.3% as measured by the free and reduced lunch program (SCDE, 2013). The information in Table 3.1 was used to determine socioeconomic status for this study.

Sample

This study involved Gifted and Talented students from two public school districts in South Carolina. These students were chosen based on their Gifted and Talented identification during the years of 2009, 2010, and 2011. They were also selected because of their grade level placement consisting of third, fourth, or fifth grades during the academic years mentioned above.

Instrumentation

The researcher used archival data to gather the needed information from each district on the participating groups of students. The researcher used the Palmetto Assessment of State Standards (PASS) scale scores of these students. ELA and math PASS scores were gathered with permission and assistance from Rick Blanchard, the Educational Associate for Gifted and Talented Initiatives, Advanced Placement, and International Baccalaureate Programs. The PASS tests are criterion-referenced or standards-based tests (SCDE, 2013). These PASS tests measure a student's performance on specific standards rather than comparing them to other students such as a norm-referenced test (Taylor, 2007). For these tests, the score represents how much the student knows about a particular subject area being assessed. Criterion-referenced tests are designed to measure which content and skills students have mastered (SCDE, 2013).

There are three categories which measure PASS score performance. Student performance is measured using a scale score. All students fall into one of three categories on PASS: Exemplary, Met, or Not Met. Cut off scores are established for each category and vary according to grade level; however, these cut off scores do not vary from year to year (SCDE, 2013).

The PASS test was designed to assess all students in South Carolina in third through eighth grades. The test was developed to assess student performance in English/Language Arts, math, science, social studies, and writing. The reliability value for all subject areas in all grades is reported to be at or above 0.85 (SCDE, 2013).

Procedures

The researcher contacted Rick Blanchard at the South Carolina Department of Education to get approval to conduct this research as well as to get his assistance in gathering the necessary data needed to complete this study. The researcher also spoke with the Gifted and Talented directors in both school districts in order to ascertain their permission to use their GT students in this research. Last, the researcher successfully obtained permission from the Institutional Review Board at the University of South Carolina to begin this study.

The scale scores of gifted students who took PASS from both districts were gathered from the 2009, 2010, and 2011 Spring PASS administrations. The researcher gathered the data from the South Carolina Department of Education's Gifted and Talented archives for each district. The researcher was able to break the data down by

district in third, fourth, and fifth grades. In addition, the data was separated by subject into ELA and math. The researcher collected the grouping methods used in each district from the GT directors. Students' names and PASS scale scores were kept confidential and have only been viewed by the school system and the researcher. The researcher has only used aggregate data and did not report any individual student scores.

Data Analysis

The scale scores of the students were entered into the statistical analysis program SAS and compared to find any statistical differences between gifted students who had received instruction using the special class model and those who had been pulled out for instruction. This software program allows for sorting and organizing large amounts of data such as the data file used in this research. It has graphing capabilities that are very useful when comparing data. There are formulas in the software that perform statistical calculations to compare data. The researcher disaggregated the data to address each variable and intervening variables. At this stage, the researcher organized the data into the following covariates: grouping method used for instruction, socioeconomic status, ethnicity, and gender.

The researcher began resolving assumptions on the data collected. First, the researcher needed to determine if the data were reliable. This was determined by considering the reliability coefficient for the PASS test. Next, descriptive statistics were calculated for the data to find out if the data were normally distributed. Then, the variances were checked for equality. Finally, a two-way repeated measure of ANOVA

was performed to determine any joint effects of the intervening variables of socio-economic status, ethnicity, and gender.

Unpaired t-tests were used to analyze the data. A t-test for independent groups is useful when the goal is to compare the difference between scores of two groups using the same variable. For each hypothesis, the dependent variable was the PASS scale score. Unpaired t-tests were used to test the difference in the mean scale scores between the special class grouped students in Clover and the pulled out students in Lexington I. Two-way repeated measures of ANOVA were used to analyze the possibility of interaction when considering socioeconomic status, ethnicity, and gender. The .05 level of significance was used because the sample sizes were 280 or above.

Null Hypotheses for Each Research Question

Research Question 1: When considering Gifted & Talented students and their PASS scores in ELA, what evidence is there that ability grouped instruction differs from pull-out instruction?

The following null hypotheses were used to address research question number one:

H1. There is no statistically significant difference in the scale scores of GT students who took PASS in the third grade in ELA for students who were in the special class model for instruction and students who were pulled out for instruction.

H2. There is no statistically significant difference in the scale scores of GT students who took PASS in the fourth grade in ELA for students who were in the special class model for instruction and students who were pulled out for instruction.

H3. There is no statistically significant difference in the scale scores of GT students who took PASS in the fifth grade in ELA for students who were in the special class model for instruction and students who were pulled out for instruction.

H4. There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H5. There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H6. There is no statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H7. There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H8. There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H9. There is no statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H10. There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

H11. There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

H12. There is no statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

Research Question 2: When considering Gifted & Talented students and their PASS scores in math, what evidence is there that ability grouped instruction differs from pull-out instruction?

The following null hypotheses were used to address research question number two:

H13. There is no statistically significant difference in the scale scores of GT students who took PASS in the third grade in math for students who were in the special class model for instruction and students who were pulled out for instruction.

H14. There is no statistically significant difference in the scale scores of GT students who took PASS in the fourth grade in math for students who were in the special class model for instruction and students who were pulled out for instruction.

H15. There is no statistically significant difference in the scale scores of GT students who took PASS in the fifth grade in math for students who were in the special class model for instruction and students who were pulled out for instruction.

H16. There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H17. There is no statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H18. There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status.

H19. There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H20. There is no statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H21. There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity.

H22. There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

H23. There is no statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

H24. There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender.

Chapter 4

Analysis of Findings

Overview

The purpose of this research was to compare the effects of grouping on the academic achievement of Gifted and Talented elementary students in ELA and math. Also of interest was whether the variables of socioeconomic status, ethnicity, and gender significantly impacted student achievement on PASS scores. PASS achievement scores were collected from the South Carolina Department of Education's archives for the analysis. The results of the analysis are presented in the order of the hypotheses as presented in Chapter 3.

Results of Hypothesis Testing

For each hypothesis, the dependent variable was the PASS scale score. All GT students in Lexington I were pulled out for GT instruction during the 2009, 2010, and 2011 school years. All GT students in Clover were instructed using the special class model for instruction during those same years. If the analysis of the scores revealed significant results based on a .05 level of confidence, this was interpreted as evidence that one instructional grouping method contributes to higher scale scores in these two districts in ELA and/or math. However, if there were no significant results, this was interpreted as evidence that the instructional grouping method did not affect ELA and/or math scores in these two districts.

The results are organized by hypothesis as each related to their respective research question. The first twelve hypotheses (H1 through H12) were designed to address research question number one: When considering Gifted & Talented students and their PASS scores in ELA, what evidence is there that ability grouped instruction differs from pull-out instruction? The first three hypotheses (H1, H2, and H3) asked whether the instructional grouping method had an effect on ELA scale scores by grade. The next three hypotheses (H4, H5, and H6) asked whether there was an interaction among instructional grouping method and socioeconomic status. The next three hypotheses (H7, H8, and H9) asked whether there was an interaction among instructional grouping method and ethnicity. Hypotheses H10, H11, and H12 asked whether there was an interaction among instructional grouping method and gender.

The next twelve hypotheses (H13 through H24) were designed to address research question number two: When considering Gifted & Talented students and their PASS scores in math, what evidence is there that ability grouped instruction differs from pull-out instruction? The first three hypotheses under this question (H13, H14, and H15) asked whether the instructional grouping method had an effect on math scale scores by grade. The next three hypotheses (H16, H17, and H18) asked whether there was an interaction among instructional grouping method and socioeconomic status. The next three hypotheses (H19, H20, and H21) asked whether there was an interaction among instructional grouping method and ethnicity. And finally, hypotheses H22, H23, and H24 asked whether there was an interaction among instructional grouping method and gender.

For each hypothesis using the t-tests, means and standard deviations are presented, along with the p-value for rejection or non-rejection of the null hypothesis. The alpha

level was selected at .05. Tables are provided to display major findings. Unpaired t-tests were used to analyze these hypotheses.

The ANOVA results used the General Linear Model (GLM) procedure. For each of these hypotheses, R-square is provided and the p-value using the Type III sum of squares was used for rejection or non-rejection of the null hypothesis. Again, the alpha level was selected at .05. Tables are provided to display major findings.

Hypothesis 1 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.1 below.

Table 4.1 *ELA 3rd Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	872	719.4	1150	-0.98	0.3255
Clover	280	722.2			

*Significant at the .05 level

Null Hypothesis 1 was not rejected as the $p = 0.3255$ indicated a statistically non-significant difference in the ELA PASS scale scores between the special class model students and the pulled out students. On average, Clover 3rd grade students (special class) scored 2.7378 points higher on the ELA PASS test than the Lexington I (pulled out) 3rd grade students.

Hypothesis 2 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.2 below.

Table 4.2 *ELA 4th Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	1162	691.3	1525	-1.07	0.2839
Clover	365	693.6			

*Significant at the .05 level

Null Hypothesis 2 was not rejected as the $p = 0.2839$ indicated a statistically non-significant difference in the ELA PASS scale scores between the special class model students and the pulled out students. On average, Clover 4th grade students (special class) scored 2.3675 points higher on the ELA PASS test than the Lexington I (pulled out) 4th grade students.

Hypothesis 3 (Addressing Research Question One)

There is a statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.3 below.

Table 4.3 *ELA 5th Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	1329	699.4	1809	2.53	0.0114
Clover	482	694.2			

*Significant at the .05 level

Null Hypothesis 3 was rejected as the $p = 0.0114$ indicated a statistically significant difference in the ELA PASS scale scores between the special class model students and the pulled out students in 5th grade. On average, Lexington I 5th grade students (pulled out) scored 5.2752 points higher on the ELA PASS test than the Clover (special class) 5th grade students.

Hypothesis 4 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.4 below.

Table 4.4 *General Linear Model for 3rd Grade ELA Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	2388.329161	2388.329161	0.2269	0.011260
SES	3	6977.654298	2325.884766	0.2342	
District*SES	3	5499.564293	1833.188098	0.3390	

*Significant at the .05 level

Null Hypothesis 4 was not rejected as the $p = 0.3390$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 1.126% of the variation in ELA scores is caused by these two variables working together.

Hypothesis 5 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.5 below.

Table 4.5 *General Linear Model for 4th Grade ELA Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	629.76624	629.76624	0.4919	
SES	3	23897.75094	7965.91698	0.0005	0.021100
District*SES	3	6391.09906	2130.36635	0.1878	

*Significant at the .05 level

Null Hypothesis 5 was not rejected as the $p = 0.1878$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 2.11% of the variation in ELA scores is caused by these two variables working together.

Hypothesis 6 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.6 below.

Table 4.6 *General Linear Model for 5th Grade ELA Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	7335.72222	7335.72222	0.0281	
SES	3	31414.14063	10471.38021	0.0001	0.017273
District*SES	3	4513.35064	1504.45021	0.3964	

*Significant at the .05 level

Null Hypothesis 6 was not rejected as the $p = 0.3963$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 1.7273% of the variation in ELA scores is caused by these two variables working together.

Hypothesis 7 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.7 below.

Table 4.7 *General Linear Model for 3rd Grade ELA Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	604.53077	604.53077	0.5423	
Ethnicity	9	30166.39362	3351.82151	0.0304	0.024461
District*Ethnicity	8	14357.29000	1794.66125	0.3585	

*Significant at the .05 level

Null Hypothesis 7 was not rejected as the $p = 0.3585$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 2.4461% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 8 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.8 below.

Table 4.8 *General Linear Model for 4th Grade ELA Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	303.72130	303.72130	0.6364	
Ethnicity	10	12163.25837	1216.32584	0.5370	0.009711
District*Ethnicity	8	7769.70942	971.21368	0.6787	

*Significant at the .05 level

Null Hypothesis 8 was not rejected as the $p = 0.6787$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 0.9711% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 9 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.9 below.

Table 4.9 *General Linear Model for 5th Grade ELA Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	704.580206	704.580206	0.4986	
Ethnicity	10	9595.481369	959.548137	0.7946	0.011717
District*Ethnicity	8	5460.840700	682.605087	0.8951	

*Significant at the .05 level

Null Hypothesis 9 was not rejected as the $p = 0.8951$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 1.1717% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 10 (Addressing Research Question One)

There is a statistically significant difference in the PASS ELA scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.10 below.

Table 4.10 *General Linear Model for 3rd Grade ELA Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	1900.431614	1900.431614	0.2800	0.011798
Gender	1	2350.709639	2350.709639	0.2296	
District*Gender	1	8083.479252	8083.479252	0.0260	

*Significant at the .05 level

Null Hypothesis 10 was rejected as the $p = 0.0260$ indicated a statistically significant difference in the ELA PASS scale scores of the students in both districts when considering gender. The R-square suggests that 1.1798% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 11 (Addressing Research Question One)

There is no statistically significant difference in the PASS ELA scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.11 below.

Table 4.11 *General Linear Model for 4th Grade ELA Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	1274.04763	1274.04763	0.3282	
Gender	1	16827.90526	16827.90526	0.0004	0.018876
District*Gender	1	2930.16825	2930.16825	0.1382	

*Significant at the .05 level

Null Hypothesis 11 was not rejected as the $p = 0.1382$ indicated a statistically non-significant difference in the ELA PASS scale scores of the students in both districts when considering gender. The R-square suggests that 1.8876% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 12 (Addressing Research Question One)

There is a statistically significant difference in the PASS ELA scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.12 below.

Table 4.12 *General Linear Model for 5th Grade ELA Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	9021.33215	9021.33215	0.0146	
Gender	1	15700.02212	15700.02212	0.0013	0.020697
District*Gender	1	9950.36328	9950.36328	0.0104	

*Significant at the .05 level

Null Hypothesis 12 was rejected as the $p = 0.0104$ indicated a statistically significant difference in the ELA PASS scale scores of the students in both districts when considering gender. The R-square suggests that 2.0697% of the variation in ELA scores was caused by these two variables working together.

Hypothesis 13 (Addressing Research Question Two)

There is a statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.13 below.

Table 4.13 *Math 3rd Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	872	698.0	1150	-5.76	<.0001
Clover	280	715.7			

*Significant at the .05 level

Null Hypothesis 13 was rejected as the $p = <.0001$ indicated a statistically significant difference in the math PASS scale scores between the special class model students and the pulled out students in 3rd grade. On average, Clover 3rd grade students (special class) scored 17.6925 points higher on the math PASS test than the Lexington I (pulled out) 3rd grade students.

Hypothesis 14 (Addressing Research Question Two)

There is a statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.14 below.

Table 4.14 *Math 4th Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	1162	714.9	1525	-2.54	0.0112
Clover	365	721.5			

*Significant at the .05 level

Null Hypothesis 14 was rejected as the $p = 0.0112$ indicated a statistically significant difference in the math PASS scale scores between the special class model students and the pulled out students in 4th grade. On average, Clover 4th grade students (special class) scored 6.6194 points higher on the math PASS test than the Lexington I (pulled out) 4th grade students.

Hypothesis 15 (Addressing Research Question Two)

There is a statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction. Refer to table 4.15 below.

Table 4.15 *Math 5th Grade PASS Scale Scores by District*

District	*n*	*M*	*df*	*t*	*p*
Lexington I	1329	697.7	1809	-4.02	<.0001
Clover	482	706.3			

*Significant at the .05 level

Null Hypothesis 15 was rejected as the $p = <.0001$ indicated a statistically significant difference in the math PASS scale scores between the special class model students and the pulled out students in 5th grade. On average, Clover 5th grade students (special class) scored 8.5848 points higher on the math PASS test than the Lexington I (pulled out) 5th grade students.

Hypothesis 16 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.16 below.

Table 4.16 *General Linear Model for 3rd Grade Math Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	36324.89436	36324.89436	<.0001	0.035611
SES	3	8723.35340	2907.78447	0.2241	
District*SES	3	3075.83282	1025.27761	0.6724	

*Significant at the .05 level

Null Hypothesis 16 was not rejected as the $p = 0.6724$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 3.5611% of the variation in ELA scores is caused by these two variables working together.

Hypothesis 17 (Addressing Research Question Two)

There is a statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.17 below.

Table 4.17 *General Linear Model for 4th Grade Math Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	4894.69892	4894.69892	0.0944	0.082558
SES	3	88370.69148	29456.89716	<.0001	
District*SES	3	32823.68573	10941.22858	0.0003	

*Significant at the .05 level

Null Hypothesis 17 was rejected as the $p = 0.0003$ indicated a statistically significant difference in the math PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 8.2558% of the variation in math scores is caused by these two variables working together.

Hypothesis 18 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their socioeconomic status. Refer to table 4.18 below.

Table 4.18 *General Linear Model for 5th Grade Math Considering District and Socioeconomic Status*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	14742.35378	14742.35378	0.0025	
SES	3	20341.09700	6780.36567	0.0055	0.020369
District*SES	3	1516.37956	505.45985	0.8143	

*Significant at the .05 level

Null Hypothesis 18 was not rejected as the $p = 0.8143$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering socioeconomic status. The R-square suggests that 2.0369% of the variation in math scores is caused by these two variables working together.

Hypothesis 19 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.19 below.

Table 4.19 *General Linear Model for 3rd Grade Math Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	1056.08854	1056.08854	0.4658	
Ethnicity	9	26605.70129	2956.18903	0.1464	0.049325
District*Ethnicity	8	22077.46517	2759.68315	0.1959	

*Significant at the .05 level

Null Hypothesis 19 was not rejected as the $p = 0.1959$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 4.9325% of the variation in math scores was caused by these two variables working together.

Hypothesis 20 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.20 below.

Table 4.20 *General Linear Model for 4th Grade Math Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	1473.80762	1473.80762	0.3749	
Ethnicity	10	16886.82883	1688.68288	0.5299	0.025301
District*Ethnicity	8	18232.16361	2279.02045	0.2842	

*Significant at the .05 level

Null Hypothesis 20 was not rejected as the $p = 0.2842$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 2.5301% of the variation in math scores was caused by these two variables working together.

Hypothesis 21 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their ethnicity. Refer to table 4.21 below.

Table 4.21 *General Linear Model for 5th Grade Math Considering District and Ethnicity*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	2660.70088	2660.70088	0.1960	0.034914
Ethnicity	10	25035.15293	2503.51529	0.1082	
District*Ethnicity	8	8113.71371	1014.21421	0.7464	

*Significant at the .05 level

Null Hypothesis 21 was not rejected as the $p = 0.7464$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering ethnicity. The R-square suggests that 3.4914% of the variation in math scores was caused by these two variables working together.

Hypothesis 22 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 3rd grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.22 below.

Table 4.22 *General Linear Model for 3rd Grade Math Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	72690.77645	72690.77645	<.0001	0.038002
Gender	1	21136.46488	21136.46488	0.0011	
District*Gender	1	1216.54665	1216.54665	0.4334	

*Significant at the .05 level

Null Hypothesis 22 was not rejected as the $p = 0.4334$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering gender. The R-square suggests that 3.8002% of the variation in math scores was caused by these two variables working together.

Hypothesis 23 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 4th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.23 below.

Table 4.23 *General Linear Model for 4th Grade Math Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	14159.05369	14159.05369	0.0061	
Gender	1	16079.00607	16079.00607	0.0035	0.009776
District*Gender	1	3865.62992	3865.62992	0.1519	

*Significant at the .05 level

Null Hypothesis 23 was not rejected as the $p = 0.1519$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering gender. The R-square suggests that 0.9776% of the variation in math scores was caused by these two variables working together.

Hypothesis 24 (Addressing Research Question Two)

There is no statistically significant difference in the PASS math scale scores of 5th grade GT students who were in the special class model for instruction and students who were pulled out for instruction when considering their gender. Refer to table 4.24 below.

Table 4.24 *General Linear Model for 5th Grade Math Considering District and Gender*

Source	*df*	*Type 3 SS*	*M Square*	*p*	*R-Square*
District	1	27304.36297	27304.36297	<.0001	
Gender	1	12842.47141	12842.47141	0.0048	0.013227
District*Gender	1	3921.87579	3921.87579	0.1189	

*Significant at the .05 level

Null Hypothesis 24 was not rejected as the $p = 0.1189$ indicated a statistically non-significant difference in the math PASS scale scores of the students in both districts when considering gender. The R-square suggests that 1.3227% of the variation in math scores was caused by these two variables working together.

Summary of Findings

In summary, a statistically significant difference was found to exist between the ELA PASS scale scores of 5th grade students who were in the special class model for instruction and students who were pulled out for instruction. There was also a statistically significant difference in the math PASS scale scores for all three grades considered in this research in these two districts. The ANOVA analysis showed a statistically significant difference in the performance of 3rd and 5th grade students in ELA when considering their gender and in 4th grade students in math when considering their socioeconomic status. No statistically significant difference was found in ELA or math PASS performance when considering ethnicity and GT instructional model combined. In all twenty-four null hypotheses, seven were rejected.

Chapter 5

Summary, Conclusions, and Recommendations

Summary

Accountability mandates of the *No Child Left Behind* Act have educators looking for methods to improve students' test performance at every level and in all categories (Gallagher, 2004). The purpose of this research was to determine whether or not the grouping methods used for the instruction of GT students affected their PASS scale score performance in math and language arts. This research addressed the question of which grouping method seems to have an effect on student performance. The results showed that the special class model of GT instruction proved beneficial for GT students in math in 3rd, 4th, and 5th grades in Clover School District.

Renzulli, Gentry, and Reis (2004) stated that, "Student performance that falls noticeably short of potential, especially for young people with high ability, is bewildering and perhaps the most frustrating of all challenges facing teachers" (p. 8). Kulik (1991) reported that ability grouping is one method that educators have used with success in place of gifted programs. Kulik extrapolated that placing students with similar abilities together allows the educator to design lessons that meet the state standards as well as to meet the many needs of the high performing students in the classroom. Strip and Hirsch (2000) contended that teachers must be aware of the many differences in learning styles and tendencies of the gifted students. Taylor (2004) found that gifted students have often

mastered one half of the required curricula that they are expected to learn in the regular education classroom. One might assume that this could lead to boredom and misbehavior if they are not challenged appropriately. Kulik (1991) stated that ability grouping gifted students makes it possible for their teachers to appropriately design lesson plans which do not cover material which has already been mastered.

Slavin (1987) reported that ability grouping can be considered controversial. Oakes (1985) contends that ability grouping sometimes leads to the gifted students being assigned to the best teachers. He also states that the other classrooms receive a lower quality teacher placement (Oakes, 1985). Oakes (1985) feared that the placement in the higher ability classrooms may have to do with socioeconomic status and not simply academic ability. Zirkel and Gluckman (1995) cited a case in Arkansas involving a parent who filed a lawsuit claiming that ability grouping was discriminatory. The court found that the academic benefits to the students outweighed the stigma of being placed in the lower ability leveled classes (Zirkel & Gluckman, 1995).

Findings

In the present research, PASS math and language arts scale scores were collected from two school districts in South Carolina that were similar in socioeconomic status and racial makeup to address the following research questions:

Research Questions

1. When considering Gifted & Talented students and their PASS scores in ELA, what evidence is there that ability grouped instruction differs from pull-out instruction?

2. When considering Gifted & Talented students and their PASS scores in math, what evidence is there that ability grouped instruction differs from pull-out instruction?

The sample size varied from Lexington I to Clover with Lexington I having the largest number of students. Lexington I used the pull-out model for GT instruction while Clover used the special class model during the years of 2009, 2010, and 2011. The PASS scale scores were analyzed using *t*-tests and ANOVAs with a .05 level of significance.

Specific Findings for Research Question One

The first three hypotheses that were tested compared the ELA PASS scale scores of the students who were pulled out for GT instruction and the students taught using the special class model. The results showed that the students in third and fourth grade showed no statistically significant difference in their scores. However, the fifth grade students showed a significant difference favoring those students who are taught using the traditional pull out model. On average, the fifth grade students in Lexington I (pulled out) outperformed the students in Clover (special class model) by 5.2 points as evidenced by the *t*-tests.

The analysis of hypotheses four through six compared the ELA PASS scale scores of the students using both models. This was a two way repeated measure using ANOVA to analyze the possibility of interaction when considering the socioeconomic status of the students in both districts. No significant interaction was found.

The analysis of hypotheses seven through nine compared the ELA PASS scale scores of the students using both models. This was a two way repeated measure using ANOVA

to analyze the possibility of interaction when considering the ethnicity of the students in both districts. No significant interaction was found.

The analysis of hypotheses ten through twelve compared the ELA PASS scale scores of the students using both models. This was a two way repeated measure using ANOVA to analyze the possibility of interaction when considering the gender of the students in both districts. There was a statistically significant difference in the scores of both third grade and fifth grade students when considering their model of instruction and their gender.

Specific Findings for Research Question Two

The analysis of null hypotheses thirteen through fifteen compared the math PASS scale scores of the students who were pulled out for GT instruction and the students taught using the special class model. The results showed that the students in all three grades in Clover (special class model) outperformed the students in Lexington (pulled out) on the math portion of PASS. This was evidenced by the *t*-tests that were performed on this data.

The analysis of hypotheses sixteen through eighteen compared the math PASS scale scores of the students using both models. This was a two way repeated measure using ANOVA to analyze the possibility of interaction when considering the socioeconomic status of the students in both districts. There was a statistically significant difference in the scores of the fourth grade students when considering their model of instruction and their socioeconomic status.

The analysis of hypotheses nineteen through twenty-one compared the math PASS scale scores of the students using both models. This was a two way repeated measure

using ANOVA to analyze the possibility of interaction when considering the ethnicity of the students in both districts. No significant interaction was found.

The analysis of hypotheses twenty-two through twenty-four compared the math PASS scale scores of the students using both models. This was a two way repeated measure using ANOVA to analyze the possibility of interaction when considering the gender of the students in both districts. No significant interaction was found.

Conclusions

The research that was done for this study indicated that ability grouping produced, in general, more positive gains for students in language arts and math. However, this was not indicated by the results in this study. While the students in all three grades who were taught in the special class model outperformed the students who were pulled out for math instruction, the same could not be said for language arts. In fact, this data showed that those students in 5^{th} grade who were pulled out for instruction in language arts outperformed the other students.

School districts must match their instructional approaches to the varying student abilities of all students. Feldhusen (1989) and Kulik (1991) reported that GT students outperformed regular education students when they were ability grouped and exposed to a differentiated approach to instruction. Feldhusen (1989) also noted that research has been found that indicates a ceiling effect where GT students who score the highest possible score are limited in their results. In the present study, the researcher does not know if curriculum adjustments of acceleration strategies were used within any of these

classrooms. We simply know that the teachers in both districts were expected to cover the South Carolina State Standards for their respective grade levels in ELA and math.

The interaction between the effects of the model for instruction in ELA and gender in the third and fifth grade students was interesting. While it is not possible to tell how the interaction affects this study, it is an outcome that surprised the researcher. The differences seem to be very small, but significant. This would suggest that educators may need to be aware of them and adjust instruction accordingly. Authors Gurian and Stevens (2004) recommend that educators identify and engage the specific needs of the different genders. Done well, ability grouping could help to reduce the bias in education regarding gender differences because of the focus on the strengths and varying abilities of the individual students.

Recommendations for Future Research

The first recommendation is that this study should be repeated on other districts in South Carolina. While it is challenging to find districts that use one model for gifted instruction throughout all of their schools, other districts may exist and would warrant further research.

The second recommendation is for more research into specific schools using these two separate models for gifted instruction. While finding other districts that use one particular model is difficult in South Carolina, there are many examples of schools which have adopted one particular approach. This may allow the researcher to build a network of schools from varying districts that would make it possible to expand the sample sizes and improve the consistency of the data. Consideration should also be given to schools

within the same district, and how the differing school cultures may add to the success of one approach over another.

The third recommendation has to with the variation among instructional approaches used in the gifted classrooms. This study did not consider the impact of the varying teachers within these classrooms. Differing instructional approaches, personalities, and expectations are all other avenues to be considered and researched. The impacts of these factors all have the potential to affect student academic performance. Future researchers may want to consider studying the different approaches of teachers within the same districts or even the same schools in an attempt to isolate the varying instructional approaches used by these teachers. Consideration may also need to be given to the educational levels of these teachers and their years of experience in working with gifted students.

The fourth recommendation is for this research to be conducted in other grades beyond elementary school. The academic effects of ability grouping may present themselves in various ways or possibly diminish as students move along through school.

The fifth recommendation is to replicate this study on elementary students in other states. While consideration must be given to the variance in identification methods used in other states, giftedness is identified and accounted for in instruction. This may add to the body of knowledge that is already collected on gifted students.

And last, another recommendation for future research is to conduct a similar study separating out the way in which students are identified as gifted in South Carolina. While some students are labeled as artistically gifted others are identified as academically gifted. Even then, the students identified within the academic category can be separated

by strengths in reading or math performance. The effects of instructional approaches may vary depending on their area of strengths and should be considered. It would be beneficial for educators to know how their approach could benefit any particular category of students.

Recommendations for the Profession

The significant results that were found in math may have possible implications for other schools and other districts. According to these results, elementary schools may want to consider flexible grouping options for their students in ELA and math beginning in the third grade. These findings suggest that students may benefit from being grouped heterogeneously for ELA instruction but then move to homogeneous groupings for math. This approach to grouping may help students achieve at a more advanced level with instruction that is designed to meet their academic needs.

It is recommended that all schools should consider their students and select an instructional approach that benefits their particular students. Consideration should be given to the positive effects that the special class model seemed to have on math performance in third, fourth, and fifth grades. This may be a greater challenge for schools that are located in rural areas. Colangelo, Assouline, Balsus, and New (2003) stated that one half of all the schools located in the United States are situated in rural areas. These authors cited concerns for the abilities of the small communities to have many options when selecting their instructional approaches due to limited funding. Milligan (2003) found that rural schools run into obstacles such as a smaller population of students who qualify as gifted. Fewer GT identified students results in fewer funds

received from the state for their instruction. This can create situations where there are not enough GT identified students to create a full class making the special class model impossible to even consider. Gagne (1996) worries that the students who are identified may be so far ahead of their same age peers that the regular education classroom does not suit their particular academic needs. In these situations, the classroom teacher must differentiate instruction to meet their varying needs. Kulik (1991) points out that classrooms that make only minor curricular changes have very little effect on their students' growth and performance.

It is also recommended that teachers receive an appropriate plan for professional development that is designed to meet the needs of their gifted students. While South Carolina requires teachers to be gifted and talented endorsed in order to provide instruction to these learners, a plan for ongoing professional development should be developed as instructional expectations expand over time. Strip and Hirsch (2000) found that GT students are prone to ask their teachers about abstract ideas, concepts, and theories. Preparation for these unique needs must be a part of a teacher's ongoing professional growth.

This study has found that the special class model does seem to have a positive impact on the PASS math performance of students in third, fourth, and fifth grade in Clover schools. These recommendations may help educators find more evidence to support a model for gifted instruction that benefits these learners consistently across the state and beyond.

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