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INSTRUCTIONAL DIFFERENTIATION IN GENERAL EDUCATION
AND THE GIFTED RESOURCE ROOM: TEACHER
AND STUDENT PERCEPTIONS

by

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A dissertation submitted in partial fulfillment
of the requirements for the

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Doctor of Philosophy

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ABSTRACT

Instructional Differentiation in General Education and the Gifted Resource Room: Teacher and Student Perceptions

by

Mary Trombatore Greene

Dr. Kyle Higgins, Examination Committee Chair
Professor of Special Education
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This study compared the perceptions of three groups concerning differentiated educational opportunities provided for students with gifts and talents. The perceptions of general education teachers, gifted resource room teachers, and students with gifts and talents were collected using a questionnaire that encompassed questions focused on cognitive, interpersonal, and intrapersonal skill development.

Results indicated that gifted resource room teachers and general education classroom teachers perceived that they provided differentiated instruction more often in the cognitive and interpersonal domains than in the intrapersonal domain. The most frequent differentiated instructional practices used by teachers (general education and gifted resource room) were in the cognitive domain. The perceptions reported by the general education teachers indicated that they provided differentiated instruction less often when compared to the perceptions of the gifted resource room teachers. The general education
teachers also reported that they provided more differentiated instruction in the cognitive domain rather than in the interpersonal domain, while the gifted resource room teachers reported more differentiation in the interpersonal domain. From the questionnaire data, it appears that third, fourth, and fifth grade general education classroom teachers as well as gifted resource room teachers perceive that they make only minor modifications to their curriculum to meet the needs of gifted students.

The perceptions of the students with gifts and talents indicated that they perceived the gifted resource room teachers focused on the cognitive, interpersonal, and intrapersonal domains more often than did the general education teachers in their classroom instruction. It appears the students perceived that the gifted resource room provided a more challenging educational environment in the interpersonal and intrapersonal domains than the general education classroom.
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CHAPTER 1

INTRODUCTION

A national report on the status of gifted and talented education, *The National Excellence: A Case for Developing America's Talent* (U. S. Department of Education, 1993), suggests that improved educational opportunities are needed for students with gifts and talents. The report maintains that the United States is squandering the talents and interests of this subpopulation of students. In many intellectual and artistic endeavors, these youngsters are not challenged to do their best work (Ross, 1993), and many educators argue that these students face a lack of challenge in the general education classroom (Archambault, Westberg, Brown, Hallmark, Emmons, & Zhang, 1993; Gallagher, 1985; Gallagher, Harradine, & Coleman, 1997; Gentry, Rizza, & Gable, 2001; Maker, 1982; Marland, 1972; Passow, 1982; Tomlinson, 1999; VanTassel-Baska, 1993; Ward, 1961; Westberg, Archambault, Dobyns, & Salvin, 1993). Consistently, research indicates that the majority of students with gifts and talents spend all but two or three hours per week in general education classrooms where few, if any, provisions are made for them (Archambault, et al., 1993; Council of State Directors, 1987; Cox, Daniel, & Boston, 1985; Gentry et al., 2001; Parke, 1989; Reis, 1982; Westberg, et al., 1993). For learners with gifts and talents to perform at optimal levels, the educational context must offer challenging opportunities that provide situations for the students to problem-solve and create, while also demanding high standards of excellence (Feldhusen,
VanTassel-Baska, & Seeley, 1989). This climate must ensure optimal development, positive attitudes toward learning, and high engagement (VanTassel-Baska, 1997).

In the past, the student who was considered to have gifts and talents was one who possessed exceptional reading and writing skills (Westberg & Archambault, 1997). New conceptualizations of giftedness now reflect the various ways in which children/youth perform, solve problems, and interact with their learning environment (Gardner, 1983, 1993; Renzulli, 1978, 1988; Sternberg, 1983, 1993). These new criteria have created a controversy among experts and have resulted in a movement away from the belief in a single type of giftedness or talent (e.g., a fixed intelligence) to a variety of methods for the identification of students with gifts and talents.

The teaching of students with gifts and talents has evolved into one of the most controversial issues in education (Colangelo & Davis, 1997; Torrance & Sisk, 2001). Society appears confused and divided when it is confronted with the concept of giftedness and talent (Gallagher & Weiss, 1979; Torrance & Sisk, 2001). Many people, including some educators, believe that children with gifts and talents, by their very nature, do not need education designed to meet their unique needs. They believe that this population of learners can succeed without special considerations or accommodations (Van Tassel-Baska, 1990). Gardner (1982) maintains that society is caught between the encouragement and restraint of individual accomplishment. That is to say, society admires the drive of individuals who exhibit talent, yet has a long standing commitment to equality. The fine line that educators walk when they encourage achievement while stressing equality in their classrooms has its roots in the history of gifted education.
History of Gifted Education

Society swings back and forth between the goals of equity versus excellence. Gallagher and Weiss (1979) believe that the basis for this controversy is a love-hate relationship with the concepts of giftedness and talent. In early America, attending secondary school and college was based on both academic achievement and the ability to pay fees (Newland, 1976). At the turn of the century compulsory attendance laws made schooling available for all children, but few services were provided for students with gifts and talents or students with disabilities. In the 1920s, approximately two-thirds of all large cities had created some type of program for students with gifts and talents but the stock market crash and the resulting economic depression changed the focus of the country to survival and the provision of special opportunities for these students was no longer a priority (Colangelo & Davis, 1997). Historically, the evolution of gifted education has its roots in the work of a few dedicated researchers and the race into space.

1950 to 1960

In the early 1950s, Guilford challenged educators to look beyond intelligence (IQ) scores as the traditional concept of intelligence. He maintained that IQ was only a small sample of mental abilities. Prior to this, giftedness was restricted to high IQ scores and was associated with only white, suburban, middle-and upper-class segments of society (Witty, 1940).

Guilford, known primarily for his work in the area of analyzing and categorizing mental processes, suggested that giftedness developed in several directions and involved many forms of intellectual activity (Guilford, 1956). From his work in this area, he identified four dimensions: (a) fluency or the ability to use many words, associations,
phrases, and/or sentences when given a topic or concept, (b) flexibility or the ability to use a wide variety of ideas, unusual ideas, and alternative solutions, (c) originality or the ability to provide unique words and/or unusual responses when given a problem or topic, and (d) elaboration or the ability to provide details of a topic or concept as evidence of comprehension (Guilford, 1959). The current definition of children with gifts and talents evolved out of Guilford's work and includes children who exhibit high performance in the areas of intelligence, creativity, academic ability, leadership ability, or in the performing or visual arts (P.L. 95-561, 1978).

In an effort to provide teachers with assistance in writing and classifying learning objectives, Bloom (1956) developed the Taxonomy of Educational Objectives: Cognitive Domain. The taxonomy emphasized that learning involved a range beyond facts and figures and was the basis of his cognitive domain taxonomy. The six areas within the cognitive domain are: (a) knowledge, (b) comprehension, (c) application, (d) analysis (e) synthesis, and (f) evaluation. These were developed to evaluate student progress through a specific required task (e.g., knowledge, comprehension, and/or application) and/or a task at the higher levels of the taxonomy (e.g., analysis, synthesis, and/or evaluation). The taxonomy was a framework for the teacher to use with classroom materials as an instructional organization tool and to facilitate the inclusion of tasks appropriate for a variety of student ability levels within the classroom.

In the fall of 1957, the Soviet Union launched the first satellite into space. The successful launching of Sputnik created an intense debate concerning the quality of American education and led the nation to focus on the educational system in the United States (Ross, 1993). This resulted in the belief that academically able students needed a
more rigorous secondary education and broader access to higher educational opportunities. Because of this intense scrutiny, Congress passed the National Defense Act (P.L. 85-926) in 1958 (U.S. Department of Health, Education, and Welfare, 1958). This was the first major federal legislation to provide support for education (Ross, 1993). Title V of this Act entitled Guidance, Counseling, and Testing: Identification and Encouragement of Able Students (1958) provided financial assistance for states to establish assessment programs for the identification of high achieving students (U.S. Department of Education, 1958). Funds also were provided for counseling and guidance to encourage students to develop their aptitudes and attend college. The belief was that the channeling of able students into mathematics and science would improve the ability of the United States to win the space race against the Soviet Union and improve the country’s ability to win the Cold War (Ross, 1993).

1960 to 1980

During this twenty year period, through the 1960s and 1970s, education began to focus on the rights of students with disabilities (Ross, 1997). A series of court cases, beginning with the Pennsylvania Association for Retarded Children vs. Commonwealth of Pennsylvania (PARC) (1972), found that children with disabilities were not provided services in public schools. In response to this finding and a series of court cases dealing with concerns voiced by the public, federal legislation was established to protect the rights of children with disabilities. The first law enacted was the Education for All Handicapped Children Act (EHA), (P.L. 94-142, 1975) (U.S. Department of Health, Education, and Welfare, 1975). This law redirected the focus of the federal government. Many researchers in gifted education believe the needs of students with gifts and talents
began to receive little attention at a national level during this time period (Gallagher & Weiss, 1979; Ross, 1997).

Because P.L. 94-142 did not directly apply to students with gifts and talents, proponents of gifted education requested federal legislation to address the specialized needs of this population. In 1972, Congress mandated a study concerning the status of gifted and talented education. The goals of the study were to: (a) determine the extent to which special educational assistance programs were necessary or useful to meet the needs of children with gifts and talents, (b) identify existing Federal educational assistance programs being used to meet these needs, (c) evaluate existing Federal education assistance programs to make them more effective in meeting the needs of students with gifts and talents, and (d) develop recommendations for new programs to meet the needs of these students (Marland, 1972).

Commissioner of Education, Sydney P. Marland, conducted the study and the report became known as the *Marland Report* (U.S. Department of Health, Education, and Welfare, 1972). The report indicated that the services for students identified as having gifts and talents were nonexistent. Marland concluded that there was an enormous individual and social cost when the talent of the children and youth went undiscovered and undeveloped. The study found that children/youth with gifts and talents were being deprived of appropriate educational services and that they were not receiving the necessary assistance to perform at their ability levels. He believed that this deprivation was equal to or greater than the lack of services provided to children/youth with disabilities and that students with gifts and talents would be unable to excel without assistance (Marland, 1972).
In response to Marland's report, Congress passed legislation (Public Law 93-380, 1974) to create the United States Office of Gifted and Talented to conduct research and development projects and provide grants to state and local agencies for the support of gifted education. The basic assumption at the time was that the general education program was adequate to meet the needs of most students, but that there were students with gifts and talents who required additional attention and support.

During this time period, the attention of gifted education focused on creativity and assessment measures as alternatives to the traditional intelligence test score for the identification of students with gifts and talents (Frierson, 1969). Torrance (1977) made efforts to identify and develop the talent of students from culturally diverse backgrounds. Fox (1979) and Maker (1977) recognized the need to identify the individual gifts and talents of females and/or students with disabilities. Gifted education began to conceptualize intelligence as multifaceted and recognized that intelligence needs should be nurtured differently depending on the population. The newer conceptualizations of intelligence included decision making, metacognition, and multiple dimensions (e.g., verbal-linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, bodily-kinaesthetic intelligence, musical-rhythmic intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalistic) (Gardner, 1983), in addition to the traditional memory, association, reasoning, and evaluation (Guilford, 1977). Today's interest in meeting the needs of students with gifts and talents began in the 1970s and has resulted in many programs and services dedicated to creating a suitable education for this population.
The federal gifted and talented program continued to support research and development projects until passage of the *Education Consolidation Act of 1982*. The Federal Office of Gifted and Talented was phased out and gifted education was merged with other programs. At this point in time, federal dollars to support wide-ranging educational programs (K-12) were sent to the states. Each state had the responsibility to determine what portion, if any, of the money would be used to support programs and services for students with gifts and talents (Ross, 1993).

A decade after the *Marland Report* (1972), the *Curriculum Council of the National/State Leadership Training Institute on the Gifted and Talented* (1982) articulated the belief that the education of students with gifts and talents should provide for equality of educational opportunity with the provision that it cannot be attained by identical educational experiences (U.S. Department of Education, 1982). In 1983, the publication of *A Nation at Risk: The Imperative for Educational Reform* (U.S. Department of Education, 1983) created the most intensive and sustained school reform movement in the history of the United States. Once again, as with Sputnik, the federal government was challenged to improve education in American schools. As a result, Public Law 100-297, the *Jacob K. Javits Gifted and Talented Students Education Act* (1988) was passed by Congress. This law specifically addressed the needs of students with gifts and talents.

Public Law 100-297 (1988) provided support for national demonstration projects, the creation of a national research and development center, and the development of a personnel preparation agenda in gifted education. The legislation specified that funds...
were to be spent on students who live in poverty, are English Language Learners (ELL), and/or have disabilities as well as have gifts and talents. The law also mandated research and development in the area of gifted and talented education and personnel training so that teachers could meet the special needs of students with gifts and talents in a variety of environments.

During this decade, Gallagher (1981) classified the educational objectives of programs designed for students with gifts and talents into two areas: (a) mastering the knowledge of disciplines, and (b) heuristic skills. His knowledge structures included the basic principles and systems of knowledge, while heuristic skills dealt with problem solving, creativity, and the use of the scientific method. Gallagher suggested that students with gifts and talents should be exposed to both content knowledge and higher-order skills so that they were better able to use and develop their knowledge.

Feldhusen and Sokol (1982) focused on the cognitive, affective, and generative needs of students with gifts and talents. They believed that important cognitive skills for these students included basic thinking skills, a broad store of knowledge, disciplined and in-depth inquiry, methods of research and analysis, and organizational theories and ideas. In the area of affective development, they maintained that students with gifts and talents need stimulation through association with peers, interaction with adult models, development of a strong self-concept, social learning skills, and acceptance of their own abilities. They also believed that students with gifts and talents needed certain generative skills. These include an acceptance of their roles as producers of knowledge and creative products, motivation, habits of inquiry and research, creative activity, early and continuous experience in research, and independent investigation.
Clark (1988) described the characteristics of students with gifts and talents as being encompassed by the five domains of cognitive, affective, physical, intuitive, and societal. She maintained that the special educational needs of students with gifts and talents are a function of the characteristics that differentiate them from typical learners. She suggested that organizational models for educational programs should relate to the differentiated characteristics of this population. In this manner, she believed that programs could effectively meet the educational needs of students with gifts and talents as well as nurture their high-level abilities.

In 1989 a survey conducted by the National Center for Educational Statistics indicated that the percentage of students with gifts and talents in the national school enrollment ranged from 1.2 to 9.9 percent. The median for individual states was 3.6% of the total school enrollment. Additionally, the survey reported that approximately 1.5 million children were served in public school programs designed for students with gifts and talents. At this point in time students with gifts and talents ranked as the second largest group of exceptional children, second only to students with learning disabilities. The discrepancy between need and the level of service provided to this group of students made them the most underserved group of exceptional children during this decade (Clark, 1988).

In 1989 President Bush met with the nation's governors to develop a set of national education goals. With the creation of The National Education Goals (2000), the American education system was provided with a unified set of educational expectations. The philosophy of The National Education Goals was that the American education system should set higher educational standards for all children. This philosophy resulted
in an emphasis on standardized testing practices. The objectives of Goals 2000 were: (a) the academic performance of all students at the elementary and secondary levels would increase. (b) the academic distribution of students from diverse backgrounds would more closely reflect the student population as a whole, and (c) the percentage of students demonstrating the ability to reason, solve problems, apply knowledge, write, and communicate effectively would increase. The underlying assumption of Education Goals 2000 was that students at all levels of ability, (e.g., students with gifts and talents, students who struggle to learn) should be performing at higher levels.

While the Bush administration called for higher levels of performance, research indicated that general education teachers encountered difficulties in implementing individualized instructional programs in their classrooms (Arlin, 1982; Carlson, 1982). Good and Brophy (1987) described the main problem encountered by teachers as the high student-teacher ratio in the classroom. They maintained that no individualized program could be effective if it depended on a teacher to simultaneously provide individualized instruction to all students in a class, as well as develop the curricular materials for individualized instruction. Starko (1988) found that most of the instructional time spent in general education was designed to teach and reinforce concepts that students with gifts and talents had already mastered. She found that this repetitious work often led to boredom, discipline problems, inattentiveness, and failure to develop organized study patterns for the students with gifts and talents. Starko suggested that the needs of these students be addressed through the examination of the content and pacing in the general education classroom.
In 1993 the report *National Excellence: A Case for Developing America's Talent* (U.S. Department of Education, 1993) was published. This national report maintained that improved educational opportunities continued to be lacking for students with gifts and talents. The report found that in many intellectual and artistic endeavors these children and youth still were not challenged to do their best work. The problem was especially severe among students who live in poverty and for students from diverse ethnic and racial groups, because they often have less access to advanced educational opportunities and their talents go unnoticed (Ross, 1993).

Archambault, Westberg, Brown, Hallmark, Emmons, and Zhang (1993) conducted a national survey to evaluate teacher perceptions concerning the type and extent of differentiation that occurred in the general education classroom for students with gifts and talents. They found that teachers made only minor modifications in their curriculum and instruction to meet the needs of these students. They also found that in school districts with formal programs for students with gifts and talents the general education classroom teacher reported he/she relied on the gifted resource teacher to meet the needs of these students in the resource room. The teachers indicated that the gifted resource teachers had little effect on what occurred in their general education classroom for these students. Archambault et al. (1993) concluded that one of the greatest problems facing students with gifts and talents is the lack of challenging work in their general education classrooms that addresses their unique characteristics, or academic and emotional needs.

In another study designed to ascertain the extent to which general educators are able to meet the needs of students with gifts and talents, Westberg, Archambault, Dobyns, and
Salvin (1993) conducted observations in 46 third- and fourth-grade general education classrooms to ascertain the level of interaction of the students and the teachers. In each classroom, they focused on one student with gifts and/or talents and one typically achieving student. For the students observed, they found no instructional differentiation in 84% of the activities conducted in the classrooms. That is to say, typical students and students with gifts and talents received the exact same instruction and completed the same activities. When instruction was differentiated for the students being observed, the differentiation usually occurred in mathematics instruction with the students with gifts and talents being given advanced content materials. Westberg et al. (1993) concluded that students with gifts and talents, who spend the majority of their time in general education, are not being provided instructional or curricular experiences commensurate with their abilities.

While effective programs for students with gifts and talents do exist across the country, most are limited in scope and substance (Ross, 1997). This finding was based on the fact that students with gifts and talents spend most of their school day in the general education classroom and within these classrooms few, if any, provisions are made for them (Archambault et al., 1993). To improve educational opportunities for students with gifts and talents the report National Excellence: A Case for Developing America's Talent (U. S. Department of Education, 1993) suggests the creation of: (a) challenging curriculum standards, (b) high-level learning opportunities, (c) access to early childhood education, (d) learning opportunities for children who live in poverty or are from diverse backgrounds, (e) appropriate teacher training and technical assistance, and (f) programs
designed to enable students in the United States to match the academic levels of students from around the world.

In 1994, President Clinton proposed Goals 2000: Educate America Act (U.S. Department of Education, 1994). The purpose of this Act was to provide a framework for meeting the National Education Goals (1989). This framework involves: (a) promoting coherent, nationwide, systemic educational reform, (b) improving the quality of learning and teaching in the classroom and in the workplace, (c) defining appropriate and coherent Federal, State, and local roles and responsibilities for educational reform and lifelong learning, and (d) providing a framework for the reauthorization of all Federal education programs. The overriding principle of Educate America (1994) is that all children, including students and children who have academic talents, learn in accordance with high standards. In order to accomplish this goal, the report emphasized that educational reform must take place at all levels of the system (U.S. Department of Education, 1994). The belief that all students need higher academic standards represents a shift from a focus on the reinforcement of basic skills for at-risk populations emphasized in the National Education Goals (1989).

2001 to the Present

President George W. Bush has expressed concern that too many children in America are segregated by low expectations, illiteracy, and self-doubt. In his outline for educational reform, No Child Left Behind (U.S. Department of Education, 2001), he states that the role of the federal government in education is to serve the children. The current educational reform agenda is comprised of the following key performance-based components: (a) improving the academic performance for students considered to be
disadvantaged, (b) boosting teacher quality, (c) moving limited English proficient students to English fluency, (d) promoting informed parental choice and innovative programs, (e) encouraging safe schools for the 21st Century, (f) increasing funding for Impact Aid, and (g) encouraging freedom and accountability. No Child Left Behind (U.S. Department of Education, 2001) outlines plans for reforming the Elementary and Secondary Education Act (ESEA) (U.S. Congress, 1994) and linking federal dollars to specific performance goals to ensure improved results for all students. It is important to note that these goals have little focus on students with gifts and talents.

The recent educational reform movement that stresses equity appears to have led to a reduction in the number of classes for students with gifts and talents and in the number of pull-out or resource room settings for these students (Gallagher, 1997). With the movement towards inclusion and equality for all students, concerns are being raised that the pendulum has reversed once again and the needs of students with gifts and talents are being overlooked (Gallagher, 1997). This concern has been reinforced by No Child Left Behind (2001).

Unfortunately, in schools with programs for students with gifts and talents, general education teachers sometimes assume that all the needs of these students are being met in the special program, which usually involves 2 to 3 hours (or less) of instruction per student per week. As a result, many general education teachers continue to assign undifferentiated work to students with gifts and talents during the approximate 30 hours of instructional time remaining in the school week (Parke, 1989; Tomlinson, 1999). The use of differentiated instructional techniques and strategies may be helpful to all teachers.
Differentiated Instruction

Feldhusen (1989) described students with gifts and talents as being far ahead of their age-grade peers in basic skills. He suggested that these students be provided with fast paced, high level, and conceptually oriented learning activities in large challenging chunks and that the chunks be taught in a dynamic and interactive style. He reminded educators that students with gifts and talents are able to learn more rapidly than typical students and that they are adept in dealing with complex concepts and abstract materials, precocious in their thinking skills, and advanced in their verbal abilities.

Gallagher and Gallagher (1994) discussed four methods to adapt general education curriculum to the needs of students with gifts and talents: (a) acceleration, (b) enrichment, (c) sophistication, and (d) novelty. Acceleration is defined as the speeding up of the curriculum so that a student is introduced to a concept or idea at an earlier grade level (e.g., eighth-grade algebra taught in sixth-grade). Enrichment expands the typical curriculum with differing examples and associations to build complex ideas (e.g., students are given the opportunity to self-select a topic to increase their understanding of a unit). Sophistication extends direct instruction and builds complex networks of ideas, (e.g., theories in the sciences or larger generalizations in the humanities). And, finally, novelty enhances the curriculum by introducing unique ideas typically not found in general education, (e.g., the interdisciplinary impact of technology on society).
Differentiation involves the modification of the typical curriculum in a classroom as well as the addition of enriched educational experiences that may be needed by the individual student with gifts and talents (Archambault et al. 1993; Tomlinson, 1999; Westberg, et al, 1993). According to Passow (1982), the development of a differentiated curriculum ensures the creation of an environment that facilitates the likelihood of high quality learning interactions. Differentiated instruction provides for experiences that focus on thinking skills, abstract concepts, advanced level content, interdisciplinary studies, and a blending of content, process, and product (Renzulli, Reis, & Smith, 1981; Tomlinson, 1999). It also enables students with gifts and talents to explore content, ideas, problems, or themes in greater breadth and depth than is possible through the typical curriculum while affording students the opportunity to use resources normally not available within the general education classroom and/or school at large.

Positive Effects of Providing Differentiated Education

For years there has been a continuing dialog between psychologists and educators as to whether a positive self-image builds a more effective learner, or whether effective learning builds a positive self-image (Colangelo & Davis, 1997). Research suggests that these two constructs are highly interactive. Hoge, Smit, and Hanson (1990) found that the self-esteem of over 300 students in public schools was linked to feedback from teachers and the school climate, whereas self-esteem in a particular discipline was linked to the grades students received in that discipline. Schunk (1991) maintains that self-efficacy is a predictor of such diverse outcomes as academic achievement, social skills, pain tolerance, athletic performance, career choices, assertiveness, and coping with fearful events. Even more important, is the evidence that self-image can be modified by
success or failure, by attributions, and by the timing of rewards and feedback from others, particularly from teachers (Schunk, 1991).

Two approaches to providing differentiated educational opportunities for students with gifts and talents within the gifted resource room have been enrichment and acceleration (Gallagher & Gallagher, 1994; Renzulli, 1977). Enrichment experiences allow students to investigate topics of interest in much greater detail than is possible through the standard curriculum. Providing opportunities to make selections not only enhances motivation but also increases self-image (Schunk, 1991). Acceleration provides students with learning experiences usually provided to older children. Curricula for students with gifts and talents must incorporate higher cognitive concepts, as well as opportunities to develop socially (interpersonal development) and to develop a strong sense of self-worth (intrapersonal development).

Another positive effect of providing differentiated instruction was found by Barnett and Durden (1993). They compared two groups of university students at John Hopkins University. The first group of students had taken special academically advanced courses from the Center for Talented Youth. The second group had not taken academically advanced courses. They found that the students who had taken the academically advanced courses eventually enrolled in more advanced college courses, enrolled in those courses at an earlier age, and enrolled in more college courses overall when compared to the group who had not taken the academically advanced courses.

Gentry and Owen (1999) conducted a three year, longitudinal study designed to investigate the effects of flexible grouping (a differentiated instructional technique) on the achievement of students with gifts and talents. Their study provides an example of
the impact of differentiated instruction on a school when it integrated into the general education program. Gentry and Owen found that the use of cluster grouping facilitated a significant increase in the achievement test scores for students with gifts and talents and typical students, more staff development opportunities, teacher ownership in the program, higher teacher expectations, a reduced range of achievement levels in all classrooms, and a desire by all teachers' to better met the individual needs of all students.

Renzulli (1977) explained that, although cognitive and affective skills are appropriate for all students, students with gifts and talents have abilities beyond typical students. Using differentiated educational techniques such as enrichment, acceleration, curriculum compacting and cluster grouping within the general education classroom setting increases motivation, provides a challenging and stimulating environment, and enhances the self-image of all students.

**Educator Perceptions of Differentiated Instruction**

*General Education Classroom Teachers.* Schumm and Vaughn (1991) conducted a study designed to investigate teacher perceptions of the desirability and feasibility of instructional practices and curricular modifications for all mainstreamed students (students with gifts and talents, typical learners, and students with disabilities) in their general education classrooms. Thirty-items were included on their Adaptation Evaluation Instrument (AEI) survey. The items represented modifications from a review of the literature or through transcripts from a series of focus group interviews. The participating teachers rated the desirability and feasibility of each of the 30 items on the AEI survey. The results of this study indicated that teachers did not find instructional practices and curricular modifications feasible in the general education environment.
Teachers were willing to include mainstreamed students within whole class activities and to provide encouragement and support for their academic success, however they were less willing to make specific modifications to their instruction practices, use of curricular materials, or classroom environment to meet the needs of the students.

Onosko (1991) interviewed teachers and administrators and conducted classroom observations to document barriers that might exist to the inclusion of higher order thinking skills instruction in the general education classroom. In-depth interviews were conducted with 56 teachers from 16 social studies departments. The teachers also completed a questionnaire. Nearly 500 classroom observations of the teachers’ lessons were gathered. Based upon the data collected, six barriers to the promotion of higher order thinking were identified: (a) the tradition of instruction as knowledge transmission, (b) the need to cover broad curriculum, (c) low expectations of student abilities, (d) large numbers of students, (e) lack of planning time, and (f) a culture of teacher isolation.

A national report, *Prisoners of Time* (Jones, 1994), highlighted the inefficient use of time within the school setting as a major deterrent to more effective instruction. The report was issued after 24 months of study that included 19 schools, testimony from more than 150 teachers, administrators, parents, students, and experts, and two-fact-finding trips to schools and research institutes in Germany and Japan. In his report, Jones stated that teachers in the United States spend more time in front of the students providing instruction and less time in planning, thinking, and coordinating efforts with other teachers to modify the instructional practices and curricular materials to meet the individual needs of students. The report concluded that students with gifts and talents were not performing up to their potential or competitively with students with high-ability
from other cultures. Recommendations from the report included establishing high standards that would permit American students to match or exceed the performance of students in other countries; investing in science and technology to increase productivity and enhance student achievement; increasing learning time; and providing teachers with the professional time needed for preparation, planning, cooperation, or professional growth. Jones concluded by recommending that educators and administrators develop a list of suggestions for better use of instructional time during the academic day.

Substantial interest has focused on the methods by which students think and solve problems yet the research indicates that little is being done in the general education classroom to foster problem-based learning (Gallagher, 1997).

*Gifted Resource Room Teachers.* Teachers need special skills and understanding if they are to facilitate the personal, social, and academic development of students with gifts and talents (Feldhusen, 1997). Whitlock and DuCette (1989) developed a model of the characteristics of outstanding teachers of students with gifts and talents. Excellent teachers were characterized as being enthusiastic, self-confident, motivated to achieve, committed to serve students with gifts and talents, able to apply theory in their teaching, and gained support for their gifted program.

Nelson and Prindle (1992) surveyed teachers and administrators concerning basic competencies needed by teachers of students with gifts and talents. They used the teacher competency survey developed by Hultgren and Seeley (1982). Results indicated six competencies on which teachers and principals agreed: a) promotion of thinking skills, (b) development of creative problem solving, (c) selection of appropriate methods and materials, (d) knowledge of affective needs, (e) facilitation of independent research,
and (f) awareness of the nature of students with gifts and talents. Nelson and Prindle also found that teachers of students with gifts and talents rated several other skills as higher in importance than did the administrators: (a) group process, (b) presentation of career education and professional options, (c) individual student counseling, and (d) inservice for general education classroom teachers concerning philosophy and methods in gifted education.

While some research exists (Feldhusen, 1997; McClelland, 1973; Nelson and Prindle, 1992; Whitlock and DuCette, 1989) concerning the characteristics of teachers who work with students who have gifts and talents, one research study (Olenchak & Castle, 1997) evaluated the effectiveness of a state's gifted resource program from the perception of the student and the parents. No other empirical studies reflecting the perceptions of consumers of the gifted resource room and/or differentiated instruction were located through an extensive ERIC search conducted from fall 2000 to spring 2002.

Olenchak and Castle (1997) conducted a survey in Mississippi to evaluate the effectiveness of the State's mandated Gifted Education Program. The study was constructed as a three-year assessment project to evaluate the perception of students who were enrolled in a program for students with gifts and talents, their parents, and school personnel. The assessment focused on student learning and attitude. Two survey instruments were used, one for the student with gifts and talents and the other for adults. The overall results were positive and indicated that students in the gifted program and the adults felt confident in the objectives and outcomes as demonstrated by student achievement. Based on these results, the authors concluded that the students who were
enrolled in the gifted education program in Mississippi were receiving differentiated educational opportunities.

Student Perception of Differentiated Instruction

Gentry, Rizza, and Gable (2001) investigated students in rural, suburban, and urban elementary and middle schools regarding their attitudes toward classroom activities in terms of interest, challenge, choice, and enjoyment. The student sample was drawn from the National Research Center on the Gifted and Talented (NRC/GT) collaborative school districts and included 3,744 students from schools in 7 states. The results indicated that rural elementary students perceived their classrooms as significantly less challenging, interesting, and, in some cases, less enjoyable than their urban and suburban peers. Additionally, middle school students with gifts and talents from rural schools reported less challenge and enjoyment than their suburban peers.

Gentry et al. (2001) expressed concern for middle school students with gifts and talents. They suggested that this population may be at risk for many of the same things that plague middle school students such as lower achievement, low motivation, and lacking interest in school. They concluded that the perception of students with gifts and talents concerning challenges and interests indicated that the cognitive and affective needs of gifted students are not being met (Gentry et al., 2001). The findings from this study reinforce the findings from studies conducted by Archambault et al. (1993) and Westberg et al. (1993) all of whom found a lack of challenge in classrooms, especially for students with gifts and talents.

Vaughn, Schumm, and Kouzkanani (1993) conducted a nationwide study to investigate the perceptions of mainstreamed students with learning disabilities (LD).
students considered to be low achieving (LA), and students considered to be average/high achieving (A/HA) regarding instructional and curricular modifications (e.g., altering tests, homework, assignments, instruction) made by general education teachers. The results indicated that although participating students preferred the teacher who made modifications, the achievement groups (LD, LA, and A/AH) differed on the types of modifications preferred. The A/AH students preferred the teacher who made adaptations, but varied in their responses and seemed to be more flexible in the use of grouping, homework, textbooks, and tests. One interesting finding was that students who were average/high achieving (A/AH) preferred to work with all students in class. Also, results indicated that students of all abilities preferred teachers who made modifications in their instructional styles to accommodate students and that A/AH students were eager to be challenged in the general education classroom and preferred teachers who provided them with instructional and curricular modifications commensurate with their abilities.

Current Services for Students with Gifts and Talents

Programs for children with gifts and talents vary by state, age, and funding available (Archambault et al., 1993; Gentry et al., 2001; Torrance & Sisk, 2001). The most popular instructional techniques are ability grouping, enrichment activities, and acceleration instruction (Gallagher & Gallagher, 1994; Gallagher, Harradine, & Coleman, 1997; Feldhusen, VanTassel-Baska, & Seeley, 1989; Westberg & Archambault, 1997). Because current Federal guidelines emphasize the inclusion of all students in the general education classroom, programs for students with gifts and talents are experiencing changes.
According to information provided through ERIC Clearinghouse on Disabilities and Gifted Education (2001), finding contemporary statistics on students with gifts and talents is difficult because states are not required to conduct a child-find or child-count of students with gifts and talents. More than half the states mandate either identification, programming, or both, yet only states that use a per pupil ratio for funding special programs are required to count the children. In many states, a gifted and talented position at the State Education Agency (SEA) does not exist, therefore data on the number of students with gifts and talents receiving services are not tallied. In states that have a gifted and talented position at the SEA, recent turnovers have resulted in poor data collection. Thus, complete and reliable data concerning the education of students with gifts and talents are not readily available.

The National Center for Education Statistics (1997) presented information concerning state legislation on gifted and talented programs and on the number and percent of students receiving services in public elementary and secondary schools. Of the fifty-one states surveyed, including the District of Columbia, 37 states mandate programs for students with gifts and talents. 14 states have discretionary state supported programs in which no mandate requiring the identification of or provision of services for students with gifts and talents exists. Thirty-one states provided data on the 2,373,392 students who are receiving services. The data indicated that, as of 1993, the percentage of students identified and receiving services in the total school enrollment ranged from 1.0 to 15.0%. The median of the 32 states that reported enrollment percentages was 6.4%. Sixteen of the 51 states reported zero enrollments, which could mean that the students
had not been identified or services were not available. One state provided services in grades three through six only, and one state submitted data from the 1991-92 survey.

**General Education**

The services provided in general education for students with gifts and talents have not been addressed widely in the research literature (Archambault, et al., 1993). Cox, Daniel, and Boston (1985) conducted a survey including over 1,500 schools to collect information on sixteen gifted and talented program types. This study, commonly known as the Richardson Study, also included services provided in the general education classroom. Cox et al. (1985) found that over 60% of all school districts nationally, conducted enrichment programs for students with gifts and talents. However, less than 20% of the school districts offered a program specifically designed to address the unique needs of students with gifts and talents. Most students in the study were involved in enrichment activities for fewer than three hours a week and many of the activities conducted in both their general education classroom and their enrichment program were whole class instruction. This finding indicated that there appeared to be no structured or organized effort to provide programs specifically designed to meet the varied needs of the students with gifts and talents within or outside of general education.

Three recent national studies, Archambault et al., (1993), Westberg et al., (1993) and Gentry et al., (2001) concluded that students with gifts and talents receive few, if any, services in general education classroom appropriate to meet their unique characteristics and academic needs. These studies concluded that while students with gifts and talents spend the majority of their time in general education they are not provided instructional or curricular experiences commensurate with their abilities.
This lack of concern with the provision of services for students with gifts and talents in general education continues today. Because of a reduction in funding and the elimination of special resource programs for students with gifts and talents, the general education teacher has the responsibility for providing for the needs of these students. Gallagher (1997) maintained that the general education classroom teacher has primary responsibility to the typical learner first and then to students who are not achieving at the same academic levels as their typical peers (both above and below). However, Gallagher (1997) recognized that even well-meaning teachers find it difficult to organize special experiences for students with gifts and talents because the teachers often lack the training.

Gifted Resource Room

Landrum, Callahan, and Shaklee (2001) maintained that gifted education programming should be a coordinated and comprehensive structure of informal and formal services provided on a continuing basis intended to nurture students with gifts and talents. However, the development of appropriate gifted programs requires comprehensive services based on sound philosophical, theoretical, and empirical support.

Gallagher and Gallagher (1994) identified enrichment activities and acceleration of instruction as the typical instructional techniques that are available today for students with gifts and talents. Acceleration consists of speeding up curriculum so that, for example, eighth-grade algebra might be presented in the sixth grade. Enrichment activities are usually self-selected topics of interest intended to extend the regular curriculum and promote the development of higher level thinking skills. For example, when studying the planets, the students might build a simulated space station and study the life support systems that would be needed in order to survive on the planet Mars.
Gallagher and Gallagher maintained that these differentiated curriculum techniques would serve to adapt current curriculum to the special needs of students with gifts and talents.

In 1993, Delcourt, McIntire, and Evans investigated the characteristics of gifted programs that were classified as exemplary. Four types of programs (within-class programs, pull-out programs, separate classes, and separate schools) from 12 school districts were included in their study. Data from questionnaires, observations, and interviews identified common patterns and themes in these programs. Delcourt, McIntire, and Evans concluded that several key variables were consistent across all four program types. In each exemplary program the leadership was strong, consistent, and supportive, the atmosphere was warm and inviting, the teachers were instructional leaders for their classrooms, and the student goals and objectives were clearly defined.

Ross and Ross (1992) examined the effects of a pull-out program versus a school-wide enrichment program on higher level cognitive skill processing. Results indicated that students with gifts and talents who participated in the pull out program scored significantly higher in their higher level thinking skills than did the students who participated in the school wide enrichment program.

Research concerning the gifted resource room is sparse and typically focuses on evaluating program effectiveness. Gifted resource room programs were initiated in order to provide differentiated educational opportunities to students with gifts and talents. The overall goal of educational programs for students with gifts and talents should be the fullest possible development of the child's actual and potential abilities. However, the educational objectives in the gifted resource room are no different than the educational
objectives in the general education classroom: academic advancement, social
compatibility, social responsibility, fostering a sense of self-worth, civic responsibility,
and vocational competence (Gallagher & Gallagher, 1994).

Modifications to Instructional Practices

The current trend is to educate children with gifts and talents more and more in the
general education classroom. This requires more than enrichment and more focus on
appropriate instructional practices than has typically occurred in the past (Torrance &
Sisk, 2001). Researchers currently focus on three instructional domains for designing
instruction for students with gifts and talents. The three domains are the cognitive,
interpersonal, and intrapersonal domain.

Cognitive Domain. According to Guilford's' Structure of Intellect (1956) cognition
is the first operation in any kind of intellectual activity or process. Cognition includes
discovery, awareness, recognition, comprehension, or understanding. Cognitive skills
refer to the strategies, techniques, and heuristics one uses when working to solve a
challenging problem or task (Onosko, 1991). Classroom modifications found to be
helpful in the development of skills in the cognitive domain are the provision of: (a)
opportunities to explore content, ideas, problems, or themes in depth, (b) resources not
typically available, (c) curricular modifications designed to meet student learning styles,
rates, interests, and abilities and to promote productive, creative and divergent thinking
skills; and (d) activities that encourage higher order thinking skills and/or advanced
problem solving.

Interpersonal Domain. Gardner (1983, 1993) identified the interpersonal domain of
intelligence. Interpersonal intelligence entails the ability to understand other individuals,
their actions, and their motivations. It also includes the ability to act productively on the basis of that knowledge. It is this knowledge that guides us through the social interactions of daily life (Gardner, 1993). Classroom modifications helpful in the development of interpersonal intelligence are: (a) opportunities to interact with, not only their intellectual peers, but also all students in the classroom to refine peer/group relationships, and (b) the development of leadership styles, skills and abilities.

**Intrapersonal Domain.** The companion to interpersonal intelligence is intrapersonal intelligence or a person's understanding of self (Gardner, 1993). It includes knowledge and understanding of one's cognitive strengths, styles, and intelligence as well as one's feelings and range of emotions. In addition, it entails the ability to put that knowledge to use in planning and carrying out successful activities (Gardner, 1993). Sowa and May (1997) stress the importance of developing intrapersonal skills and contend that a stronger sense of personal identity promotes trust in one's cognitive appraisal and helps a person cope with pressures from peers, school, and family. Some classroom modifications that encourage the development of intrapersonal intelligence include: (a) providing students with opportunities to self-select topics of interest, or (b) modifying classroom activities to strengthen personal identity.

**Statement of the Problem**

The recent educational reform movement stressing equity in education has resulted in a reduction in the number of pull-out or resource room programs for students with gifts and talents (Gallagher, 1997). Research in gifted education indicates that the needs of students with gifts and talents are different from those of typical children and, as
education moves more and more to educate students with gifts and talents primarily in
general education, the general education curriculum must be modified to meet the needs
of these students (Archambault et al., 1993; Gallagher, 1985; Gallagher et al., 1997;
Gentry et al., 2001; Marland, 1972; Maker, 1982; Passow, 1982; Tomlinson, 1999;

Ward (1961) labeled these modifications as differentiated education. Differentiated
educational programs and/or services provide students with gifts and talents the
opportunity to realize their full potential (Marland, 1972). The Curriculum Council of
the National/State Leadership Training Institute on the Gifted and Talented (1982)
articulated the belief that different needs cannot be met by identical educational
experiences. However, in classroom settings, whether that setting is the general
education classroom or a gifted resource room, very little research has been conducted to
ascertain whether or not these differentiated educational opportunities are provided to
students with gifts and talents. The current study addresses this issue by comparing the
perceptions of three groups of stakeholders concerning differentiated education: (a)
general education teachers, (b) gifted resource room teachers, and (c) students with gifts
and talents.

The perceptions of the general education teachers, gifted resource room teachers, and
students with gifts and talents were collected using a questionnaire that encompassed
questions focused on the three educational domains: cognitive, interpersonal, and
intrapersonal.

The research questions related to the perceptions of gifted resource room and general
education classroom teachers were:
1. What is the perceived level of differentiated instruction provided by general education teachers in the general education classroom compared to the perceived level of differentiated instruction provided by teachers in the gifted resource room?

2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by general education teachers as the focus of instruction for students with gifts and talents as compared to teachers in the gifted resource room?

3. Do teachers with a higher education level (PhD, EdD/EdS, MA/MS) perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with BA/BS?

4. Do teachers with five or more years of teaching experience perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with one to four years of teaching experience?

5. Is there a difference in the perception of the general education classroom teachers in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided for students with gifts and talents?

The research questions related to the perceptions of students with gifts and talents were:

1. Do students with gifts and talents perceive that the general education classroom provides differentiated instruction as compared to the gifted resource room?

2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by students with gifts and talents as the focus of instruction in general education as compared to the gifted resource room?
3. Is there a difference in the perception of students with gifts and talents in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided by teachers (gifted resource room vs. general education)?

Significance of the Study

Research indicates that a large majority of students with gifts and talents spend all but two or three hours per week in their general education classrooms (Council of State Directors of Programs for the Gifted, 1987; Cox, Daniel, & Boston, 1985). Because students with gifts and talents spend the majority of their school time in the general education classroom, it is imperative that the type of instruction being conducted in these classrooms be identified. It is also important that differentiated instructional practices be identified in the gifted resource room to ensure that the needs of this student population are being met in all educational environments.

Gardner’s Multiple Intelligence Theory (1983, 1993) has added two new dimensions to the educational needs of all students making it necessary for educators and researchers to identify the differentiated instruction provided, not only in the cognitive domain, but also in the interpersonal and intrapersonal domain. The inclusion of these domains will ensure students are ready to succeed outside of an academic environment, function in a multidimensional society, and realize their importance in the world. Thus, differentiated instruction has been expanded to include instruction in the cognitive, interpersonal, and intrapersonal domains to meet the needs of these students. Current research in this area is limited and tends to focus on the cognitive aspect of the differentiated instructional practices being offered.
Because of the limited nature of the research, more research examining instructional practices within the general education and gifted setting is needed. With recent legislation and funding issues resulting in increased hours that general education teachers are responsible for the instruction of students with gifts and talents, an examination of the services being provided in general education as compared to services provided in the gifted resource room is warranted.

Definitions

The following are terms and definitions used in this study. Precise definition of terms is crucial to understanding the implementation procedures and results of the study.

*Acceleration*. Acceleration is defined as the speeding up of the curriculum so that a student is introduced to a concept or idea at an earlier grade level (e.g., eighth-grade algebra might be presented in sixth-grade).

*Cognitive Domain*. Cognition refers to knowledge and the process of knowing in the broadest sense, including perception, memory, and/or judgment that leads to knowledge.

*Differentiated Education*. Differentiation involves the modification of the typical curriculum to enable students with gifts and talents to explore content, ideas, problems, or themes in greater breadth and depth than is possible through the typical curriculum.

*Educators of Students with Gifts and Talents*. Educators in gifted education have specialized in the education of students with gifts and talents by completing additional graduate-level university hours in gifted education. In the State of Nevada an endorsement in gifted education requires 12 credit hours of university course work.
Enrichment. Enrichment expands the typical curriculum with differing examples and associations that build complex ideas on the typical curriculum (e.g., students are given the opportunity to self-select a topic that adds to their understanding of the units studied).

Gifted Education. The State of Nevada Administration Code (NAC) for Special Education Programs states that, unless his/her individualized educational program otherwise provides, a student who has been identified as having gifts and talents must participate in not less that 150 minutes of differentiated educational activities each week during the school year (NAC by the Board of Education, 1993). Current services for this population are provided as a pull-out program with endorsed teachers in the education of students with gifts and talents as the facilitators of instruction.

Gifted Student. Federal legislation defines students with gifts and talents as those who show evidence of high performance capability in areas such as intellectual, creative, specific academics, leadership ability, or ability in the performing or visual arts who require services or activities not ordinarily provided by their school (P.L. 95-561, 1978). The participating school district’s Gifted and Talented Education Program’s Handbook (2001) defines students with gifts and talents as having gifts and talents in one or more of the following areas: (a) general intelligence, (b) academic aptitude in a specific area, (c) creative thinking, (d) productive thinking, (e) leadership, (f) the visual arts, or (g) the performing arts. This definition falls within the State of Nevada Administration Code (NAC) for Special Education Programs, Chapter 388 (NAC by the Board of Education, 1993).

Interpersonal Domain. Interpersonal intelligence involves the ability to understand other individuals, their actions, and their motivations.
Intrapersonal Domain. Intrapersonal intelligence is a person’s understanding of self (Gardner, 1993). It includes knowledge and understanding of one’s own cognitive strengths, styles, and intelligence as well as feelings and range of emotions.

Limitations of the Study

This study has five limitations. The first limitation deals with the survey format. As with any assessment that involves self-reporting, a participant’s responses to the questionnaire may depend on their attitude and their perception.

The second limitation involves the administration of questionnaires to students with gifts and talents. The student survey was administered by the gifted resource room teacher. The student responses to survey questions might have been indirectly influenced by the teacher in charge of the administration of the survey.

The three grade levels of the students and teachers who participated in this study is the third limitation to this study. The questionnaire was administered to third, fourth, and fifth-grade general education classroom teachers who specialize in the education of students with gifts and talents, and third, fourth, and fifth-grade students identified as having gifts and talents. Therefore, the results cannot be generalized to other grade levels, students, or teachers.

Principal and/or gifted resource room teacher dictated participation in this study. Each individual had to agree to be part of this study. Thus, if a principal did not agree that his/her school could part in this study the school did not participate. Additionally, if a gifted resource room teacher did not agree to participate, the school was not included. Because of these two variables the selection of the school was not random.
Summary

National studies and federal reports have repeatedly found that students with gifts and talents are not being challenged in the general education classroom and are therefore at risk for not developing to their full potential. Because students with gifts and talents spend the majority of their school day in general education, the instruction in this setting has the potential to have a profound effect on their learning and feelings toward school, academics, and eventually on the career paths they follow (VanTasssl-Baska, 1997; Torrance & Sisk, 2001). The few studies that have investigated the interaction between the general education environment and students with gifts and talents have focused on the cognitive development of the students. Little attention has been paid to the interpersonal and intrapersonal development of these students while in school. This study was designed to investigate not only the cognitive needs of students with gifts and talents, but to ascertain whether or not the curriculum is designed to meet the interpersonal and intrapersonal needs of students both in the general education classroom and the gifted resource room. Because this study has been designed to solicit the perceptions of students and teachers, information from this study can be used to gain insights into this general education classroom and gifted resource room experiences.
CHAPTER 2

REVIEW OF RELATED LITERATURE

Children and adolescents with gifts and talents are a diverse group of school-age students (Niehart & Robinson, 2000). They come from every ethnic, economic group, nation, and exhibit an almost unlimited range of personal characteristics (e.g., temperament, risk-taking, introversion, and extroversion). No standard pattern exists among individuals with gifts and talents. Despite this diversity, several common threads emerge in the experiences and characteristics of students with gifts and talents. These are unique and require the attention of educators so that an optimal educational experience is provided to these students. (Niehart & Robinson, 2000; Torrance & Sisk, 2001).

Terman's (1925, 1959) 34-year longitudinal study described the characteristics of individuals with gifts and talents. His book, Genetic Studies of Genius (1925), contained reports of various student measurements taken in a variety of areas including social and physical development, achievement, character traits, books read, and play interests. For inclusion in Terman's study, a student had to have an intelligence quotient (IQ) of 135 or above, as measured by the Stanford-Binet (Stanford-Binet, 1986). Approximately 1,500 students were identified and included in the study and were traced from childhood to mid-life. In addition to contributing to the knowledge-base, this long-term study refuted certain myths about gifted individuals (e.g., the gifted child as a little adult) (Sears, 1977, 1979).
Hollingworth conducted a series of case studies that included children with extremely high intelligence. In her book, *Children Above IQ 180* (Hollingworth, 1975), she reported the histories of 12 children. She maintained that the one factor differentiating the successful student from the unsuccessful student in school was the early recognition of their superior talents. Hollingworth believed it was imperative for parents and school personnel to advocate for the educational needs of this unique group of students. Some of her case studies indicated that these children were frustrated in school and felt stifled by school procedures. Hollingworth's work also provided information concerning the potential emotional problems and counseling needs of many students with gifts and talents. These findings led to the belief that the higher the intelligence the greater the need for emotional education for these students (Hollingworth, 1975). Her findings led Hollingworth to advocate for a differentiated curriculum for students with gifts and talents. Through her efforts early identification, emotional guidance, and special programs were designed for students with gifts and talents. Currently the make up of these special programs is considered crucial to the adjustment and learning of these students (Benjamin, 1990).

Learning Characteristics of Students with Gifts and Talents

Students with gifts and talents are characterized as developing in an asynchronous manner (e.g., development that is beyond what is typical for a student of a particular age). This results in advanced intellectual skills coupled with age-appropriate social and
motor skills (Silverman, 1997; Tannenbaum, 1992; Wright, 1990). This can result in an unevenness in their development that may lead to personal frustration for the students (Silverman, 1997).

Feldhusen (1989) described students with gifts and talents as far ahead of their age-grade peers in basic skills and he suggested that they be provided fast paced, high level, conceptually-oriented learning activities taught in chunks in a dynamic and interactive style. He maintained that students with gifts and talents learn more rapidly than typical students, are more adept in dealing with complex concepts and abstract materials, possess precocious thinking skills, and have advanced verbal abilities.

Marland (1972) identified six achievement areas in which students with gifts and talents may excel: (a) general intellectual ability, (b) specific academic aptitude, (c) creative or productive thinking, (d) leadership ability, (e) visual or performing arts, and (f) psychomotor ability. These areas encompass a wide range of abilities and extend giftedness beyond intelligence. In practice, however, most programs for students with gifts and talents tend to emphasize the development of intellectual ability and academic aptitude (Archambault, Brown, Hallmark, Zhang, & Emmons, 1993; Cox, Daniel, & Boston, 1985; Gentry, Rizza, & Gable, 2001; Greene and Hong, 2001e; Westberg, Archambault, Dobyns, & Slavin, 1993). Gallagher (1975, 1981) extended Marland's work by maintaining that students with gifts and talents may also possess the ability to: (a) relate one idea to another, (b) make sound judgments, (c) see the operation of larger systems of knowledge, and (d) acquire and manipulate symbol systems. The work of both Marland and Gallagher indicates that the identification and instruction of students with gifts and talents must be extended beyond intelligence.
The most distinguishing characteristic of students with gifts and talents is the pace and nature of their learning (Kannevsky, 1995). Clark (1988) portrays students with gifts and talents as one-trial learners who make intuitive leaps and rich connections. Kannevsky (1995) describes three domains that contribute to the intellectual aspects of learning potential. These are the cognitive, interpersonal, and intrapersonal domains. He maintains that educators must promote the development of each domain in order to optimize the learning potential for students with gifts and talents.

**Cognitive Domain**

Few studies have been conducted that focus on the individual cognitive development of students with gifts and talents. Historically, human cognitive competencies have been defined as a set of abilities, talents, or mental skills called general intelligence (Feldhusen, 1989; Gardner, 1993; Ramos-Ford & Gardner, 1997; Sheppard & Kannevsky, 1999). Research in this area has centered around the dynamics of mental powers in two dimensions: (a) the development of mental functions and (b) the contribution of mental functions to behavior. Sternberg (1988) hypothesized that students with gifts and talents possess increased knowledge in planning what to do and how to do it. Students with gifts and talents are also believed to possess greater awareness of the various components of intellectual functioning and their interrelationships (Sternberg, 1988).

When children enter a learning environment, they bring with them notions, concepts, and plans which relate to their beliefs regarding how their mind works (Sternberg, 1988). This belief plays an important role in guiding their mental activities and producing...
intelligent strategic or metacognitive behavior. It is this acquisition of metacognitive knowledge that Sternberg (1988) believes to be the critical component for superior or gifted performance.

Roberts, Ingram, and Harris (1992) conducted a study to assess the effect of a pull-out program for students with gifts and talents versus the effect of a school-wide enrichment program designed for gifted as well as for typical third, fourth, and fifth grade students' to increase their higher level cognitive processing skills. Students with gifts and talents and typical students in a special treatment school were compared to similar students in a comparison school. The Ross Tests of Higher Cognitive Processes (Ross & Ross, 1976) was used as a pretest that was administered at the beginning and a posttest was administered at the end of the school year.

The authors studied growth in higher level thinking (analysis, syntheses, evaluation), as measured by the Ross Test, between students with gifts and talents and students receiving special (pull-out) services compared to typical students who received special (enrichment) treatment in a school-wide program. A comparison was also conducted to identify the differences in higher level thinking (analysis, syntheses, evaluation) between typical students and students receiving special instruction in a school-wide enrichment program when compared to students with gifts and talents attending general education programs with no special instruction.

The two schools in this study were comparable in size, ethnic composition, and socioeconomic status. The treatment school provided special instruction in two areas: (a) pull-out program for third, fourth, and fifth grade students identified as being gifted, and (b) a special enrichment program that was implemented throughout the school for all
children. The comparison (nontreatment) school received no special enrichment or pull-out program, but closely matched the treatment school on the variables of economic status, ethnic composition, and school-wide Stanford Achievement Test (SAT) scores (Gardner, Rudman, Karlsen, & Merwin, 1982). The students with gifts and talents met the State criteria for being identified as gifted. Typical students were those who performed at or above the 40th percentile but not above the 85th percentile on the SAT.

One hundred and seventy students were randomly selected from the two schools to participate in the study. Thirty students with gifts and talents and 56 typical students from the treatment school participated and 27 students with gifts and talents and 57 typical students from the comparison school participated.

The treatment school’s pull-out and enrichment programs were designed around Renzulli’s triad model (Renzulli, 1977). Students with gifts and talents met together in a resource room for two- and one-fourth hours each week for training. In addition, the students learned creative problem solving, problem finding and problem solving, and methods to conduct independent research. While pull-out gifted students were engaged in activities in the resource room, the typical achieving students worked on similar activities in their classrooms. The activities were taught by the general education teachers who had received the same training as the teachers in gifted education. In the comparison (nontreatment) school, both the students with gifts and talents and typical students participated in the school district’s regular curriculum. No attempt was made to enrich or provide additional support to the existing curriculum in the nontreatment school.
The research design used in this study was a pretest/posttest control group as measured by the Ross Test of Higher Cognitive Processes (Ross & Ross, 1976). An analysis of covariance (ANCOVA) was used to assess the effect of training on students with gifts and talents and the typical students by school and grade. Pretest scores from the Ross Test were used as the covariate. A .05 level of confidence was set to test for significant differences between the treatment and nontreatment school.

Results indicated that while there was no significant difference between student groups (treatment vs. nontreatment) on the pretest scores, students with gifts and talents from the treatment school's pull-out program scored significantly higher than the typical students who participated in the treatment school's enrichment program. Additionally, results of the ANCOVA revealed significant differences between students with gifts and talents in the treatment school when compared to students with gifts and talents in the nontreatment school (e.g., mean score of 73 compared to a mean score of 64, respectfully) indicating that students with gifts and talents from the nontreatment school made less growth in their higher level thinking skills when they were maintained in a general education school program even when that program was an enrichment program.

Roberts, Ingram and Harris (1992) concluded that resource room pull-out programs appeared to produce significantly higher levels of thought processes, as measured by the Ross Test, among students with gifts and talents. They maintained that the pull-out program facilitated the learning of students in a manner that met their educational and learning capabilities. The authors expressed concern regarding their findings that indicated the students with gifts and talents from the nontreatment school made less growth in their higher level thinking skills when they were maintained in a general
education school program. They speculated that this may be indicative that general education does not meet the educational needs of gifted and talented students.

Sheppard and Kannevsky (1999) conducted a qualitative study to investigate the differences in interactions and responses between students with gifts and talents in the general education classroom (full-time, heterogeneously grouped) and a special gifted classroom (full-time, homogeneously grouped). The students who participated were engaged in a series of metacognitive awareness training activities. The focus of the study was on the impact of the training activities on student awareness and on descriptions of their thinking when given problems to solve. Additionally, the study sought to ascertain if the range of abilities in the heterogeneously grouped sample would affect what was learned by the students and the affect that the amount of participation in group discussions effected the students with gifts and talents.

Metacognition was defined in this study as the awareness and regulation of thinking processes exhibited by students in deliberate learning and problem-solving. The metacognitive awareness training activities were taught to the students in a whole-class learning situation. In a five-day series of lessons the students were given problems to solve. They were then asked to create machines that functioned in the same manner as their mind functioned when they solved the problems. In the heterogeneously grouped sample, Sheppard and Kannevsky were interested in the influence students with gifts and talents had on their typical learning peers in regards to the group’s enhanced ability, awareness, and descriptions of their own thinking.

A total of 26 fifth-grade students participated in the full training of the general education heterogeneous group in a public school. Three students within this group
scored at the 94th percentile on the Raven's Standard Progressive Matrices Test of Reasoning Ability (Sattler, 1988) and were identified as having gifts and talents. These three students became the target students for the heterogeneous group and were given the pseudonyms Paula, Brian and Wayne.

The homogeneous gifted class was composed of 13 students enrolled in a private school for students with gifts and talents. Admission criteria for the gifted school included a score on an individual intelligence test at or above the 95th percentile. These students had also completed the Raven's Progressive Matrices (Sattler, 1988) and scored at or above the 94th percentile. From this homogeneous class, three students were matched for age and ability with Wayne, Paula and Brian from the heterogeneous group. These students, Jeff, Gloria, and Malcolm, were the target students for the homogeneously grouped students and were designated as the comparison students for this study.

Students in both the heterogeneous and homogeneous groups were provided with metacognitive awareness instruction in five, 45-minute sessions conducted on consecutive days. In each session the students were given a Mind-Machine Activity Sheet and asked to imagine themselves in the problem-solving situation specified each day (e.g., doing hard math problems, writing a poem, deciding how to illustrate a story). On the activity sheet, they were asked to draw and describe a machine that represented how their mind worked when it was engaged in solving a specified problem. Two sentence stems also appeared on the sheet to structure the written description of the mind
machine metaphor: (a) When I’m _____, my mind _______. and (b) “It’s like _______. A drawing of a thought cloud above a child’s head was the frame for an illustration of the mind-machine.

Students were clustered in groups and shared their mind-machines with other students. The students with gifts and talents in the heterogeneous classroom worked in small mixed-ability groups. After the group session on the fifth day, the six target subjects in the heterogeneous and homogeneous classrooms were interviewed individually. All group training sessions and the interview sessions with the target students were recorded on videotape for later analysis. Nine open-ended interview questions were used to assess the six target students’ post training awareness of their thoughts and feelings related to their learning. Students were asked to answer questions (e.g., If you wanted to explain metacognition to a friend, what would you say?); Do you use the same kinds of thinking in different situations?).

The six target students’ mind-machine activity sheets, videotaped interview responses, and classroom behavior were analyzed. Examples of comments representing how the students’ minds were functioning during the problem solving activities were coded as: (a) realizing, (b) predicting, (c) planning, and (d) checking and monitoring. These were also used to identify any machine operations mentioned in student interview responses. The videotapes of the instructional sessions were viewed repeatedly by the authors to examine the nature of student interactions in the small group and whole class discussions. Extensive notes regarding student language and group dynamics were made. Student responses in the closing training session were analyzed by means of a content
analysis and consensus was reached between the two researchers on the themes that resulted from their independent examinations of the tapes and notes.

Results indicated that all of the participating students (heterogeneously and homogeneously grouped) changed in their awareness of the complexity of their thinking as they progressed through the training activities. Intra-individual differences were apparent in that, while each of the participating student's mind-machine was distinctive, no two students began and ended the study with the same set of ideas about the functioning of their mind. On the first day of the study none of the students indicated that they had heard the term metacognition or that they thought about their thinking. On the last day of the study each student reported that they were aware of the complexity of their thinking. Sheppard and Kannevsky maintained that these comments indicated that the students had moved from a passive, simple sense of thinking to a more active, complex sense. Additionally, the results indicated that changes in the functions of the metaphorical machine were significant in the target students with gifts and talents. The changes in the number and nature of the machines' functions from the beginning of the study to the end and the student comparisons of these mind-machines provided evidence in the changes of each students' self-awareness of their thinking. The responses of the target students with gifts and talents to the interview questions indicated that they were able to apply different kinds of thinking to different tasks and that their understanding of metacognitive abilities had increased.

Inter-individual differences also indicated that five of the six target students were aware of differences in the ways that others think about a problem. Two of the target students from each group (homogeneous and heterogeneous) commented that they had
learned about these differences during the training. Because all of the students stated that they had not previously thought about how they or others think in the beginning of the study, Sheppard and Kannevsky (1999) concluded that by the end of the study the students had become aware of the various of ways that people might solve the same problem.

Differences between the homogeneous and heterogeneous classrooms also were evident in this study. Three types of setting-specific differences emerged from the analysis of the machine functions, responses to interview questions, and student interactions during the instructional sessions. The first difference involved the number of functions the targeted students described in their written, drawn, and oral responses to the interview question that asked the students if they would approach a learning situation differently after training as compared to before training. Although all target students in both groups increased their awareness of executive functions from task one to task five, qualitative analysis indicated that the degree of increase was greater for the target students with gifts and talents in the homogeneous setting when compared to their heterogeneously grouped peers.

A second difference between the groups was found when target students with gifts and talents were asked if they had learned something new about the working of their mind. The target students in the homogeneous setting responded with descriptions of functions that were longer, more sophisticated, and more creative than the target students in the heterogeneous group. In contrast, the target students in the heterogeneous group were hesitant to share and discuss their work with others. They were less spontaneous
throughout the training sessions than their target peers in the homogeneous group and they expressed a fear of copying or being copied.

Sheppard and Kannevsky concluded that all of the students in this study benefited from the training activities in that the small-group and whole-class discussions provided opportunities to put words to the cognitive activities they had not been able to describe five days earlier. They found that students also learned to appreciate task and person variables that might influence problem-solving. Sheppard and Kannevsky maintained that similarity in the levels of ability of the students in the homogeneous setting contributed to a more fruitful social context for sharing and developing metacognitive knowledge. They also believed that the stronger gains achieved by students in the homogeneous setting may be due to the differences in the social interactions involved in the training and to the emotional factors related to risk-taking and self-concept.

In 1993, Howard Gardner challenged the existing notion of general intelligence as being two dimensional. Gardner defined intelligence as an ability or set of abilities that permit an individual to solve problems or fashion products. Eventually this developed into his Theory of Multiple Intelligence (MI) in which he identified the cognitive domain of intelligence as well as the areas of interpersonal and intrapersonal intelligence. The Multiple Intelligence Theory suggests that human cognition is a set of abilities, talents, or mental skills that are realized depending on the context in which individuals are reared and/or the opportunities provided concerning the identification, expression, and development of these intelligence domains (Ramos-Ford & Gardner, 1997).
Interpersonal Domain

Interpersonal intelligence is defined as the ability to understand other individuals in terms of their actions and motivations (Gardner, 1993). It includes the ability to act productively on the basis of that knowledge. This intelligence is the knowledge that guides a person through the social interactions of daily life. Children skilled in this domain are often leaders, organizers, and sensitive to the needs and feelings of others (Ramos-Ford & Gardner, 1997).

Friedman, Robinson, and Porter (1994) investigated the dimensions of social giftedness. They defined interpersonal intelligence as social competence and emphasized that interpersonal intelligence is a dynamic construct that occurs in a social context. Their study explored the perceptions of fifth and sixth grade students with gifts and talents in terms of the multidimension of social ability and gender differences. The goal of the study was to determine students' abilities to make differentiated judgments when they participated in an activity that involved peer nominations of students regarded as having superior social skills. Six-hundred and forty-two fifth and sixth grade students from four rural, suburban, and urban school districts participated in the study. The students were from heterogeneous ability groups (e.g., students with gifts and talents and typical learners).

A simulated activity was used to depict a problem situation. In the simulation, there were no adults in the world, and the students were required to nominate individuals from the participating group to insure a school day filled with learning. The students were instructed to select three students, independent of friendship or gender, whose behavior implied a high degree of interpersonal intelligence and who would be capable of
performing the best at a particular job. The eight jobs were leader, problem solver, harmonizer, organizer, judge, ambassador, coach, and entertainer. Each job was defined for the students and they could nominate candidates for more than one task and/or nominate themselves. They ranked their selections from first choice to third choice.

A multivariate analysis of variance (MANOVA) was used to ascertain grade and gender differences for each student selection for each of the eight jobs. Results indicated no significant mean group differences by grade. However, significant mean group differences by gender were found. An univariate analysis of variance (ANOVA) indicated significant gender differences for six of the eight jobs (problem solver, harmonizer, organizer, judge, volunteer, and ambassador). The mean group scores for females were higher than the mean group scores for males indicating that the participating students felt females were more competent at problem solving, harmonizing, organizing, judging, volunteering, and being an ambassador than the male students. All of these jobs require a high degree of leadership qualities associated with social competence in the areas of social sensitivity, troubleshooting, negotiating issues, motivating, managing, coordinating, and communicating/publicizing to the outside world. The univariate analysis of variance (ANOVA) also indicated significant gender differences for entertainer where the mean group score for male students was higher than the mean group scores for female students. The authors indicated that this may reflect the students' perceptions of this job as involving talents in the creative and performing arts that they considered more acceptable for boys to display. No significant gender or age difference was indicated for the job of coach.
Friedman, Robinson, and Porter (1994) concluded that in this study the female students were perceived as more socially competent. This may be a reflection of different maturation rates by gender, the modeling effect of the predominantly female teaching staff, or different gender expectations at this age. Friedman et al. reiterated that females are more likely to be over identified as gifted at this age as well.

Solow (1995) examined the patterns and complexities of parental perceptions concerning the social and emotional development of their children with gifts and talents. Solow used data collected as part of a longitudinal study conducted by the National Research Center on the Gifted and Talented (NRC/GT). Interview data from ten families who had participated in the national study were selected and analyzed. The ten families were selected because of their diverse ethnic, educational, economic, and geographic backgrounds. The interviews from one Asian and nine Caucasian families were coded to determine the parents perception of their child’s social abilities, adult like qualities, and sensitivity. The family incomes ranged from $10,000 to over $100,000 a year, and the educational levels of the parents ranged from a high school to postgraduate education.

The interview data were analyzed using Newberger’s (1980) model and a model developed by Sameroff and Feil (1985). Newberger’s (1980) model places parental conceptions into four comprehensive levels. Level one is termed egoistic in that the parent is concerned with his/her own needs in the interaction with the child more than focused on the child’s needs. The second level is the conventional level in which the parent interprets a child’s response in terms of external influences of the dominant tradition or culture. Newberger’s level three is the subjective-individualistic and indicates whether or not the parents understand their child as an individual who possesses
a set of needs. The final level is the process-interactional level in which a child is viewed as a growing, complex being who influences and is influenced by his/her relationship with the parent. The higher a parent’s score in the hierarchy, the more likely that the parent has greater knowledge of their child’s abilities and experiences and the more likely that he/she uses this information in a flexible manner.

The Sameroff and Feil (1985) model also has four levels representing a hierarchical level of parental reasoning. The first level is the symbiotic level in which a parent’s focus is on the present realities of the child’s behavior. In the second level, the categorical level, the parent sees the child as a separate being and tends to label the child’s personality traits while judging the child’s behavior with rigid categories. In the compensating level, the third level, parents recognize that age impacts their child’s behavior. The fourth level is labeled perspectivistic. In this level, parents realize that their child’s behavior represents the particularities of his/her setting and of the treatment experienced by the child.

The interviews of the participating parents were analytically coded using the levels from the two models. A frequency distribution was used to determine the level of reasoning expressed by the parents regarding their child’s social and emotional development. The results of this analysis indicated that the Newberger (1980) and Sameroff and Feil (1985) models did not adequately characterize the reasoning of the parents in this study. The data showed that many parents thought that their children’s social concerns and personality characteristics were not related to the fact that their child had been identified as having gifts and talents. Moreover, most of the parents did not know how to respond to their child’s behavior because they lacked a framework for
understanding the developmental issues affecting students with gifts and talents. Some parents had partial pictures of their child's social and emotional lives while others described aspects of their child's conduct without a sense that certain behaviors are common among students with gifts and talents. Several parents could not place certain behaviors or feelings their children displayed in any kind of cohesive context.

Analysis of these interview data resulted in the development of a new model to describe the spectrum of reasoning found among parents of students with gifts and talents. The new model consisted of four ascending levels. In the first level parents may observe or describe those unusual cognitive or social-emotional aspects of their child (i.e., advanced vocabulary for the child's age, doesn't make friends easily, learns quickly and retains new information), but they do not put these aspects into the gifted framework. Parents at this level have no theoretical context for giftedness. The second level involves parents recognizing that their child has gifts and talents in intellectual/creative terms, but they do not understand that behavior can be affected by high abilities. The full intellectual and partial social-emotional level in the third level in which parents make connections between their child's cognitive and psychosocial characteristics. In the final level parents have a broad framework concerning gifts and talents and recognize that certain behaviors are typical for students with gifts and talents.

Solow (1995) concluded that parents tended to focus on socialization, personality, and adolescent traits in their interviews. The parents defined socialization as their child's ability to make friends both inside and outside the classroom as well as interact effectively with adults. Some parents felt that their child was socially well adjusted while other parents discussed problems. Most parents attributed the problems to the individual
child, the child being too bossy in groups, or the child being immature around their peers. While some parents blamed factors that lay outside their child's control (e.g., limited social lives, values different from the community). Solow (1995) maintained that the more thoroughly parents understand the social and emotional aspects of their child's giftedness, the better able they will be to respond productively to their children. He believed that without a comprehensive framework for understanding giftedness, parents and teachers may be prone to misinterpret the behavior of children with gifts and talents.

_Intrapersonal Domain_

Intrapersonal intelligence has been defined as the understanding of self (Gardner, 1993). This understanding involves the knowledge of one's cognitive strengths, styles, and intelligence as well as one's feelings and range of emotions. Intrapersonal intelligence includes the ability to put this knowledge to use in the planning and carrying out of successful life activities. Because this type of intelligence is very private, researchers believe that it can only be measured through language, music, visual art, or other forms of expression (Gardner, 1993; Ramos-Ford & Gardner, 1997). A student who demonstrates intrapersonal intelligence can be defined as being sensitive to the feeling of others as well as his/her own feelings.

In a classic study in the field of gifted education, Terman (1925) showed the significance of intrapersonal intelligence. Terman followed 1,528 children with IQs of 135 and above into adulthood in an attempt to discover the development of the students and the factors that contributed to the success of these individuals as adults. Terman began his study in 1921 focusing on IQ as a predictor of life success. However, the relationship Terman expected between intelligence and achievement was not always
present. He found that nonintellectual factors, such as force of character, perseverance, and motivation, played a part in the formula for success. These factors are labeled intrapersonal intelligence today.

To better understand the differential success of his participants, Terman and Oden (1947) selected 150 of the most successful men and 150 of the least successful men and put them into two groups based upon the: (a) nature of work, importance of position, and professional output; (b) qualities of leadership, influence, and initiative; (c) recognition, honors, awards, biographical listings, election to learned societies; and (d) earned income. A comparison between the groups was conducted. An analysis of variance (ANOVA) that included intellectual abilities, academic performance, mental health, social adjustment, and family background was conducted. Although the most and least successful men did not differ significantly on the basis of their IQs when they were originally identified for the study, their school records indicated discrepancies in the two groups. Both groups were equally successful in elementary school, but the grades of the least successful men began to decline in high school. In high school, these men began to receive Cs as compared to the successful men.

When the high school grades of both groups were analyzed, Terman and Oden found that 90% of the successful men graduated from college versus 37% of the unsuccessful men. He also found that 70% of the successful men entered into professional careers versus 9% of the members of the unsuccessful group. The successful group also showed social adjustment with more of the group in leadership positions and exhibiting a higher marriage rate and lower divorce rate than those in the unsuccessful group.
To follow-up and further analyze the possible reasons for differences in the family background and personality traits of the participants in the Terman (1925) study, Terman and Oden (1947) found that the successful group came from a stronger educational tradition. Three times as many fathers of the successful group participants had graduated from college and more than twice as many of the fathers of the successful participants attended professional classes.

Concerning personality traits, the two groups of participants (successful vs. unsuccessful) showed the highest differences in integration toward goals, perseverance, self-confidence, and absence of inferiority feelings. This led Terman and Oden to conclude that the successful participants were influenced by a family background that encouraged education. They also concluded that this encouragement contributed to the personality traits of leadership qualities, social and emotional adjustment, and professional success.

In an attempt to further differentiate the essential intrapersonal components that contribute to an individual's success, Zuo and Cramond (2001) utilized the databases from Terman's (1925) longitudinal study of individuals with gifts and talents. The databases contained follow-up interviews from 1936 and 1940 when the participants were in late adolescence or early adulthood. In the original study, Terman (1925) asked the participants for information concerning their occupational decision and the factors that influenced their vocational choice to determine their commitment to the choice and the processes they used to make their decision.

Zuo and Cramond (2001) analyzed Terman and Oden (1947) group (a subsample of 300) to investigate the factors that contribute to the drive and motivation of the
participants to succeed. They also looked at the life accomplishments of the participants. Zuo and Cramond believed that the occupational aspect of identity is considered the most essential component of a person’s identity. Each participant was assigned an identity status using Erikson’s Identity Theory (Erikson, 1968).

To examine whether the distribution of identity status in successful and unsuccessful groups corresponded, the association between identity and occupational success was examined using cross-tabulation. The association between identity status and occupational success was statistically significant. The results indicated that the pattern of association indicated that the occupational aspect of identity is the most essential component of a person’s identity. The association found in this study between identity formation and occupational achievement provides initial data to explain the intrapersonal domain in terms of an individuals’ occupational success (Zuo and Cramond, 2001). Zuo and Cramond also found that members of the successful group were largely Identity Achievers who knew their goals and directions in life, whereas members of the least successful group were Identity Diffusers who drifted aimlessly through their lives.

Zuo and Cramond (2001) concluded that the achievement of an individual with gifts and talents is related to many internal and external factors was similar to that of Terman and Oden (1947). Among the factors identified were parental and family antecedents, significant influences, social environment, and educational attainment. This study also demonstrated the association between identity formation and vocational success indicating that for this population maturity contributed to identity development in career success. Zuo and Cramond believe that motivation, goal orientation, perseverance, drive, and force of character may be viewed as indicators of a deeper construct that they labeled.
the sense of self-identity. They maintained that this sense of identity or interpersonal intelligence keeps an individual focused and motivated to achieve. They also believe that the process of developing self-knowledge involves self-analysis in order to clarify values, interests, strengths, and weaknesses (intrapersonal development).

In a study to examine the relationship between the perceptions of students with gifts and talents and the perceptions of their parents, Judson (1994) attempted to identify the impact of environmental influences (e.g., family) on the development of the self-concepts of students with gifts and talents. Judson maintained that the formation of a positive self-concept, is imperative for students with gifts and talents to develop to their fullest potential. He believed that the view of self is constructed through experiences and interaction with others and is modified according to feedback received.

Seventy-one students (47 girls and 24 boys) who attended an urban private school for students with gifts and talents or were in a pull-out program for students with gifts and talents in a rural public school district participated in the study. The students ranged in age from 9- to 11-years old. One hundred and forty-two parents also participated in the study (71 mothers, 71 fathers). The intelligence test scores of the students ranged from 113 to 161 and their achievement test scores ranged from the 62nd percentile to the 99th percentile.

The students completed the Self-Perception Profile for Children (Harter, 1985) and the parents completed the Self-Perception Profile for Adults (Messer & Harter, 1986). Additionally, the students and parents completed a 32-item, forced-choice questionnaire dealing with their perceptions of gifted characteristics.
Five domains were assessed using the data from the Self-Perception Profile for Children (Harter, 1985) and the Self-Perception Profile for Adults (Messer & Harter, 1986). The profiles measured an individual's judgment of his or her competence in specific domains as well as an evaluation of overall self-worth. The subscales from the profiles that were used were: scholastic competence or intelligence, social acceptance or sociability, athletic competence, physical appearance, behavioral conduct or morality, and global self-worth.

The characteristics of giftedness were assessed on the 32-item questionnaire. Questions were grouped into categories that included: (a) advanced cognitive development, (b) persistence and motivation, (c) standards of excellence, (d) perspective, (e) mental processing ability, (f) social-emotional qualities, and (g) perceptions of giftedness. Response rates were calculated for each group and comparisons were made. A positive response rate (e.g., characteristic present) of 70% to 84% was considered to be moderate and one greater than 85% was considered to be high. Follow-up interviews were conducted with five families. Parents were interviewed together and the student was interviewed separately. Questions focused on school life and experiences, family, and daily life.

Relationships between the self-perception of students and parents were analyzed. On the characteristics of giftedness questionnaire, statements were grouped into categories, using descriptive statistics procedures, for the purpose of comparison. Demographic information was included so that gender profiles could be included in the comparison. Self-concepts of students and parents were correlated for each item on the questionnaire. Spearman’s rho and trend analyses were conducted on the data from the interviews.
The results of the nonparametric analysis (means and standard deviations) of the Self-Perception Profile for Children (Harter, 1985) and the Self-Perception Profile for Adults (Messer and Harter, 1986) found a significant difference between genders in the profiles for the students and the parents. The perceptions of both parents and students indicated that females were significantly higher on the behavior conduct or morality subscale and males were significantly higher on the athletic competence subscales.

The results of the characteristics of giftedness questionnaire completed by the students and the parents indicated similarities in their perspectives. Both the students and parents reported enjoying the challenge of solving complex problems and math. They both also reported high energy levels, the ability to concentrate, an orientation toward success, making plans for continuing education or a desire to have more education, a good sense of humor, and good listening skills. Students and parents also indicated that they memorized quickly, learned rapidly, possessed many interests, and sometimes just sat and thought. Ninety-eight percent of the female students stated that they learned rapidly while 100% of the male students indicated they learned rapidly. The same high rate of agreement between students was found in the area of social-emotional qualities, particularly for the statement that they liked to try new things.

In the area of self-perception of giftedness, the students had a high rate of agreement. Ninety-six percent of the girls and 92% of the boys reported that they thought they were smart. Approximately 50% of the parents reported being smart.

In the family interviews, a common theme emerged that involved the composition of giftedness. Some parents were uncomfortable with the use of the term gifts and talents and preferred to use the term smart when talking about their child. Another theme
involved the role of hard work. Many parents stressed that they did not think their child was smarter than other children, but they believed their child worked harder. Parents also discussed family expectations and the setting of high academic standards. They identified their responsibility as parents to provide intellectual stimulation and encouragement for their child.

Judson (1994) concluded that students with gifts and talents were much like their parents and that the parental influence played an important part in the lives of the children with gifts and talents. Judson maintained that family expectations, high academic standards, positive self-concepts, and a supportive environment were important to the development of students with gifts and talents.

Current Services for Students with Gifts and Talents

Several factors effect the availability of special programs for students with gifts and talents and programs for children with gifts and talents vary by state, age, and available funding (Archambault et al., 1993; Gentry et al., 2001; Torrance & Sisk, 2001). Within gifted programs, typical instructional techniques currently include ability grouping, enrichment activities, and acceleration of instruction (Gallagher & Gallagher, 1994; Gallagher, Harradine, & Coleman, 1997; Feldhusen, VanTassel-Baska, & Seeley, 1989; Westberg & Archambault, 1997). With the current emphasis in federal guidelines emphasizing the equality of educational opportunity and the inclusion of all students in the general education classroom (e.g., IDEA-1997), the instruction of students with gifts and talents is being absorbed into general education (Renzulli & Reis, 1991). Because all
students, including students with gifts and talents, have a right to achieve to their full potential the diverse academic and emotional needs of all students are being reviewed (Slavin, 1990).

General Education

The services provided in general education for students with gifts and talents have not been addressed widely in the research literature (Archambault, et al., 1993). Problems in the education of students with gifts and talents in the general education environment have been identified as a mismatch between educational environments (Archambault et al., 1993) and a lack of understanding of the needs of this student population (Torrance & Sisk, 2001). This can result in a educational climate in which the academic and emotional needs of these students are not met (Webb, Meckstroth, & Tolan, 1982).

Two major research projects were conducted by the National Research Center for Gifted and Talented (NRC/GT) in 1993 to investigate the type of instructional practices being used in the general education classroom for students with gifts and talents. The first study focused on the extent to which students with gifts and talents received a differentiated education in the general education classroom (Archambault et al., 1993). One thousand and sixty-six teachers from public schools and private schools participated in this study. All of the teachers taught either third or fourth grade and taught in schools with high concentrations of ethnically diverse students.

Data were collected concerning the type of general education classroom services that were provided for the students with gifts and talents and for typical learners. Data were also collected on the modifications used to meet the needs of students with gifts and talents. Teacher demographic information was collected (e.g., gender, ethnicity, teaching
experience, level of education) as well as the policies and procedures of the schools and districts concerning the education of students with gifts and talents and classroom instructional practices used with both students gifts and talents and typical students.

The participating teachers completed a thirty-nine item questionnaire. The items were divided into six factors: (a) questioning and thinking, (b) providing challenges and choices, (c) reading and written assignments, (d) curriculum modifications, (e) enrichment centers, and (f) seatwork.

Teachers responded to each item considering students with gifts and talents first and then considering students with typical abilities. They ranked each item using never, a few times a month, daily, once a month or less, a few times a week, or more than once a day. The teachers then were asked to identify the classroom modifications they provided for gifted and typical learners. This was done to provide an indication of the extent to which students with gifts and talents received enriched or differentiated educational experiences.

Data were analyzed using descriptive statistical procedures (e.g., frequency distributions, means, standard deviations) as well as a repeated measures multivariate analysis of variance (MANOVA). Descriptive analyses was performed for each item on the questionnaire and a MANOVA with repeated measures were performed at the scale level. Analyses for region of the country and type of community were conducted for the public school sample of teachers. Repeated measure MANOVAs with type of student (average vs. gifted) as the within subjects independent variable, the six factors as dependent variables, and the region of the country and type of community as between subjects independent variables were conducted. Separate analyses were run for each.
Hotelling's t squared and Wilk's Lambda criteria were used to determine statistical
significance and univariate F-tests were performed to follow-up significant MANOVA
results.

Data from the public school sample were also analyzed to determine whether there
were differences in the services received by students with gifts and talents in schools with
formal gifted programs and schools without formal gifted programs in which the general
education teachers reported that they provided services for students with gifts and talents.
A multivariate analysis of variance (MANOVA) with repeated measures with the type of
student (students with average ability vs. students with gifts and talents) as a within-
subjects independent variable, class composition (formally identified vs. teacher
identified) as a between subjects independent variable and the six factor scores as
dependent variables was conducted. This same model was used to determine whether
there were any student and program differences for private schools and schools with high
concentrations of ethnic minorities.

Results of the study indicated that the third- and fourth- grade teachers made only
minor modifications in the general education classroom to meet the needs of the students
with gifts and talents. This result held true across all six factors (e.g., questioning and
thinking, providing challenges and choices, reading and written assignments, curriculum
modifications, enrichment centers, and seatwork) in the various parts of the country and
in communities of different sizes. Additionally, the modifications that were made in
instructional practices were in the area of advanced readings, independent projects,
enrichment worksheets, and written reports. These modifications were considered by
Archambault et al. (1993) to be minor in nature.
Some teachers did attempt to eliminate mastered materials, provide for more advanced level work, give students with gifts and talents input into the allocation of classroom time, and expose the students to higher level thinking skills. However, only minor modifications were made and students with gifts and talents were given no more opportunity than their typical peers to work in common interest groups, pursue self-selected topics, or work in locations other than the general education classroom. Students with gifts and talents were given the opportunity to participate in these educational activities only a few times or less each month.

Analyses also indicated that the general education classroom services provided to the students with gifts and talents in schools with formal gifted programs were similar to those provided in schools without formal programs. In schools without formal programs the classroom teachers identified students with gifts and talents and made provisions for them in the classroom.

Archambault et al. (1993) concluded that students with gifts and talents received few services that addressed their unique characteristics and academic needs in the elementary classroom setting. Many of the strategies that could have been used to differentiate the general education classroom instruction were used infrequently, often less than once a month. While some differentiated strategies were used more often, they were rarely used on a daily basis and no strategies were used more than once a day.

The Classroom Practices Observation Study (Westberg, et al., 1993) was a follow up to the Archambault et al. (1993) study and attempted to determine the methods by which classroom teachers meet the needs of students with gifts and talents in the general education classroom. This study conducted classroom observations to verify and extend
the information collected by Archambault et al. (1993). This study attempted to identify the curricular and instructional practices used in general education classrooms with students with gifts and talents and the impact of gifted programs on general education classroom practices for these students. For the purpose of this study the Classroom Practices Record (CPR) was developed to document the extent to which students with gifts and talents received differentiated instruction in six areas: (a) identification information, (b) classroom environment, (c) curricular activities, (d) verbal interactions, (e) teacher interview record, and (f) daily summary.

School districts from four regions of the country and districts in rural, suburban, and urban communities participated in the study. Structured observations were conducted in 46 third- and fourth- grade classrooms in schools that provided formal gifted education programs and that did not have formal gifted programs.

Two students in each classroom (one with gifts and talents and one typical student) were selected as the target students for each observation day. A qualitative research design was used to collect observational data. The Classroom Practices Record (CPR) was used to document the instructional and curricula experiences of the target students. Seventeen trained observers spent two days in each classroom observing the target students each day. A total of 92 target students with gifts and talents and 92 typical students were observed. By observing two target students each day, it was possible to collect information that allowed for a comparison of the curriculum and instruction provided to each student in the same general education classroom. A profile of each target student was logged and codes were used to record who was involved in verbal interaction, the type of interaction, and the existence of wait time associated with
questions. Semistructured teacher interviews were scheduled to discuss, clarify, or elaborate on the information recorded in the classroom observation.

The data were analyzed through nonparametric statistical procedures. Descriptive and inferential statistical procedures were used to analyze the quantitative data collected. Descriptive statistical procedures were used to compute the frequencies for all variables (e.g., identification information, physical environment inventory, curricular activities, verbal interactions, teacher interview record, and daily summary) and to address the types of instructional activities, grouping arrangements, and differentiation of instruction experienced by the two target students. Cross tabulation procedures were used to produce contingency tables, chi-square statistics, and phi or contingency coefficients for the verbal interaction data collected. In addition to the quantitative analyses, a content analysis procedure was used to analyze anecdotal information collected from daily summaries.

Fourteen types of instructional activities were coded across all five subject areas for the observation days. A content analysis on the daily summaries recorded by the observers indicated similarities across observations. Four observers described classroom situations that were not conducive to differentiation of instruction. The result of the content analysis of the daily observation summaries corroborated the findings from the descriptive and chi-square statistical procedures. That is, a limited amount of differentiation (instructional or curricular) occurred in the general education classroom for the students with gifts and talents.

Westberg et al., (1993) drew several conclusions from the results of this study: (a) students with gifts and talents were heterogeneously grouped 74% of the time, (b) little
differentiation in the instructional and curricular practices was provided to students with gifts and talents in the general education classroom, (c) few opportunities were provided to the students with gifts and talents to respond to higher-level thinking questions, and (d) less wait time was provided for these students. However, the general education teachers reported feeling that the needs of these students were being met in the gifted programs.

The authors concluded that students with gifts and talents experienced little differentiated curriculum and instruction in their general education classrooms and that the majority of the students with gifts and talents were not provided with instructional and curricular experiences commensurate with their abilities.

Greene and Hong (2001e) conducted a study similar to Archambault et al. (1993) and Westberg et al. (1993) to examine the differentiated instructional practices provided in general education for students with gifts and talents. The instructional practices of general education teachers in third-, fourth-, and fifth-grade were examined in three domains: (a) cognitive, (b) interpersonal, and (c) intrapersonal.

A self-report teacher questionnaire, the Instructional Practices Survey, was developed to assess the instructional practices used by general education classroom teachers to teach students with gifts and talents. The questionnaire items were based on the curriculum guide for the gifted and talented education program for the participating school district and the Classroom Practices Survey designed by Archambault et al., (1993). Specifically, the questionnaire asked general education teachers to report the modifications they made to instructional practices and curricular materials in the cognitive, interpersonal, and intrapersonal domains to meet the needs of students with gifts and talents within general education. Teachers also were asked to identify the
domain that was the focus of instruction in their general education classroom. Additional information was collected on the educational background, teaching experience, and gender of the teachers to determine if these variables contributed to their instructional practices and curricular modifications. A case study component also was utilized in which three teachers were selected for interviews and classroom observations to explore the instructional practices specific to general education settings. The case studies were intended to supplement the quantitative data collected.

The Instructional Practices Survey (Greene & Hong, 2001) included 29 items. Twelve items addressed the instructional classroom practices and curricular modifications in the cognitive domain, 10 items focused on the instructional classroom practices and curricular modifications in the interpersonal domain, and 6 items dealt with the instructional classroom practices and curricular modifications in the intrapersonal domain. Teachers responded to each item using a four-point Likert scale (rarely, sometimes, often, and almost always). The reports of the teachers concerning their own teaching behavior provided a measure of the extent to which students with gifts and talents received differentiated educational experiences in their general education classroom.

Ninety-seven teachers (19 males and 78 females) from 12 public schools in a large western school district participated in the study. Forty teachers taught third grade, 28 teachers taught fourth grade, and 29 teachers taught fifth grade. Sixty teachers held a Bachelor's degree and 37 teachers had a Master's degree. Of the 97 teachers, 43 had been teaching from 1 to 4 years, 23 from 5 to 9 years, 13 from 10 to 14 years, and 18 from 15 years and over.
Analysis of the teacher responses specific to teacher modifications to instructional practices and curricular materials in the cognitive, interpersonal, and intrapersonal domains was conducted using a repeated measures analysis of variance (ANOVA) with the domain as a within-subject variable. A statistically significant difference was found among the mean instructional practices scores of the three domains. The mean scores were contrasted to determine whether there were differences among the pairs of the mean domain scores. The differences between the pairs were all statistically significant. The result of this analysis indicated that the general education teachers reported modifying their instructional practices for students with gifts and talents mostly in the cognitive domain, followed by the interpersonal domain. The intrapersonal domain was the least area used by the teachers.

A repeated measures analysis of variance (ANOVA) was used to ascertain the effects of the general education teachers' educational background, teaching experience, and gender with the specific domain (cognitive, interpersonal, and intrapersonal) as the within-subject variable. There were no statistically significant differences between teachers in terms of differing education levels in the three domains. The gender differences also were not statistically significant. Both male and female teachers reported similar instructional practices and curricular modifications. A statistically significant difference was found in the mean instructional practice scores between the teachers having more experience. General education teachers with more experience (five years and over) reported using instructional practices and curriculum modifications more often in the cognitive domain than teachers with less years of teaching experience (one to four years).
Case studies were conducted at one of the public schools participating in the quantitative portion of the study. Three teachers, one from each grade level (third, fourth, fifth), were selected for observations and interviews. Each teacher had a Master's degree in education and had seven or more years of teaching experience. Two 25-minute observations were made in each classroom. Semi-structured interviews were conducted with each classroom teacher following the observation. Each interview lasted approximately 10 minutes and the entire interview was tape-recorded.

The data collected from each interview were coded to indicate whether the verbal interactions that transpired between the teacher and students were in the cognitive (C), interpersonal (IE), or intrapersonal (IA) domain. In addition to C, IE, IA codes, other codes were used to record the person involved in the interaction (T for teacher and S for student). Verbal interactions in the form of questions/answers were coded using K for knowledge-level questions and H for higher than knowledge-level questions. The coding from the case study was analyzed to determine the degree of differentiation used by the teacher.

Descriptive statistical procedures were used to compute the frequencies for all variables (e.g., identification information, classroom environment, curricular activities, and verbal interactions) and to address the types of instructional activities, grouping arrangements, and differentiation of instruction experienced by all students. Additionally, a content analysis procedure was used to analyze anecdotal information collected from the general education teacher's informal interviews.

Greene and Hong (2001) reported five major findings from the analyses of the classroom observations and interviews with the general education teachers. A frequency
distribution revealed that classroom interactions were mostly in the cognitive domain (81%) compared to the interpersonal domain (15%) and intrapersonal domain (4%).

Classroom questions focused on the knowledge level (60%) more often than on higher order thinking (40%) and the teachers tended to dominate the lessons being taught. That is, the majority of verbal interactions were initiated and maintained by the teachers (79% teachers vs. 21% students). The data indicated that the classroom observations did not provide evidence to support the types of differentiated instructional activities reported by the teachers in their interviews. When interviewed, the teachers expressed the difficulties they encountered in differentiating their curriculum and instruction to meet the needs of students with gifts and talents within the classroom.

Greene and Hong (2001e) concluded that the most frequent modification of instructional practices made by general education classroom teachers was in the cognitive domain. Unlike the quantitative findings in which some differentiated instruction was reported as being used by the teachers, the limited classroom observations indicated otherwise. While some curricular modifications appeared to be practiced, especially in the cognitive domain, students with gifts and talents received few of the services typically identified as being crucial to address their unique characteristics and academic needs.

Gifted Education

The need for programs and services to meet the needs of students with gifts and talents has created controversy in the field of education for many decades. In 1991, Renzulli and Reis articulated the philosophical principles that were contributing to the demise of public school gifted programs (e.g., lack of funding, inclusion). Much of the research to date has focused on characteristics and needs of students with gifts and talents.
with a large amount of the literature documenting the presence, strength, and structure of state policies (Baker, 2001). Programs and services to meet the unique needs of this population have been recommended by the leaders in the field of gifted education (e.g., Gallagher, Renzulli, Reis, Torrance), and researchers who are affiliated with the National Research Center on the Gifted and Talented (NRC/GT). Actual research conducted to evaluate existing gifted education programs is meager.

Delcourt, McIntire, and Evans (1993) conducted a nationwide study designed to investigate the characteristics of and instruction in gifted programs classified as exemplary and the key variables in the four program types. Four types of program arrangements were investigated: (a) within-class programs, (b) pull-out programs, (c) separate classes, and (d) separate schools. These programs were selected for study because they were the types of programs typically used nationwide.

Twelve school districts participated in this study. One exemplary program from each program type was selected using the following a three-step process: (a) the completeness of the goals, objectives, program identification procedures, curriculum plans, evaluation strategies, and provisions for students from culturally diverse and low economic backgrounds; (b) scores from students enrolled in the programs were analyzed to compare the relationship between the program’s goals, objectives and assessments of academic to the affective learning outcomes (e.g., student achievement, attitudes toward learning processes, self-perception, and self-motivation); and (c) program satisfaction questionnaires completed by program coordinators, administrators, teachers, parents, and students.
The schools and/or programs ultimately selected as research sites included three special schools, four separate classroom programs, four pull-out programs, and four within-class programs. One class at two different grade levels per site was randomly selected for a three-day, on-site visitation that included classroom observations and interviews with teachers, parents, and students.

A multiple-case, qualitative analysis was conducted utilizing triangulation of data (e.g., document analysis, interviews, and observations) and sources (e.g., teachers, students, and parents). This technique provided checks for both reliability and validity of the data collected.

A content analysis was conducted on the data collected from questionnaires, observations, and interviews to identify common patterns and themes in the gifted programs selected as exemplary. Field notes, interviews, and classroom observations were analyzed for patterns, themes, and issues related to curricula and environment for each type of gifted program. In order to investigate the consistency of responses, all data sources and methods were compared and triangulated. Descriptions of the four exemplary programs that were selected were organized using the five variables of leadership, atmosphere, communication, curriculum, and attention to student needs.

In each of the exemplary gifted education programs (e.g., pull-out, within-class, special class, special school) the leadership was strong, consistent, and supportive of the program for students with gifts and talents. The atmosphere of the gifted and talented program was warm, inviting, and all personnel involved in the program were friendly and accommodating. The third characteristic of the exemplary models was that communication with parents was done often. The parents whose children participated in
these programs reported receiving adequate information about the program. In the exemplary programs, the teachers were the instructional leaders for their classrooms and made the decisions concerning the scope and pacing of instructional content and attempted to match the curricular pacing with student needs. The teachers reported that the most important teaching quality was flexibility and the provision of supplementary activities for students. Findings of the study also indicated that in exemplary programs, student goals and objectives for the program were clearly defined.

Delcourt, McIntire, and Evans (1993) concluded that key variables were consistent across all four program types. These key variables were a strong administrative voice to represent and implement the program, long-term goals and objectives were developed and communicated to everyone involved, thorough and consistent documentation were present, an inviting atmosphere was present, staff members were provided adequate time and materials to create appropriate instruction, communication was clear and frequent, and students were comfortable yet challenged within the educational environment.

In a Delphi Study designed to investigate educational issues impacting the field of gifted education, 29 experts participated in a Policy Delphi (Cramer, 1991). A Policy Delphi does not attempt to produce consensus among the experts, but instead is intended to define a range of answers or alternatives to a current or anticipated policy problem (Strauss & Zeigler, 1975).

The experts in this study represented the field of gifted education at the national, state, and local levels. They were identified for inclusion in this study because they were: (a) at a university in the field of educational psychology, research, or teacher education for the gifted, (b) in an administrative position in a public or independent school having a
gifted program. (c) in a leadership position in an organization (local, state, or national), or (d) an author of books and/or articles in the field of gifted education.

Initially, the Delphi panel of 29 experts was asked to rate twelve issues related to the education of students with gifts and talents on a priority scale of 1 to 3 (1 as most important to 3 as least important). The issues they rated were: (a) selection and training of teachers of students with gifts and talents, (b) procedures for identifying children for gifted programs, (c) goals of gifted programs, (d) special populations of individuals with gifts and talents (e.g., having a disability, women, diverse populations, underachievers, preschoolers, highly gifted), (e) counseling for individuals with gifts and talents, (f) curriculum for individuals with gifts and talents, (g) definition of the term gifted, (h) public attitudes toward and support for individuals with gifts and talents, (i) funding for gifted programs, (j) evaluation of gifted programs, (k) advocacy efforts for children with gifts and talents, and (l) administrative structure of gifted programs.

The experts were asked to rank the 12 issues as very important (VI), important (I), slightly important (SI), and of little importance (LI). The rating scores were weighted, summed, and divided by 28 to obtain a mean weighted score. Mean weighted scores indicated that the panelists believed all issues were important. The narrow range (1.32 to 2.21) made it difficult to differentiate the issues in terms of importance.

The expert panel then was asked to use the priority scale ranking (1 to 3) to rank the 12 issues. They ranked their top three priorities. The scores were summed and then weighted. Six of the issues were eliminated from the subsequent Delphi rounds. The experts then ranked three of the six remaining issues in priority order. The same procedure was followed for summing and weighting the scores. The results of the final
scoring and weighting indicated that the experts considered the most important issues in
gifted education to be, in rank order: (a) curriculum for the gifted, (b) procedures for
identifying children for gifted programs, (c) selection and training of teachers of students
with gifts and talents, (d) special populations of individuals with gifts and talents (e.g.,
disabilities, women, diverse populations, underachievers, preschoolers, highly gifted), (e)
goals of gifted programs, and (f) definition for the term gifted.

Cramer (1991) concluded that curricula for students with gifts and talents should be
made a priority at the federal, state, and local levels. He maintained that all educators
should receive basic education concerning the needs and characteristics of students with
gifts and talents. And, that this education should include information on the best
practices concerning the education of these students in general education and gifted
education. Cramer also maintained that students with gifts and talents require
differentiated curricula in all environments in which they are educated.

A national report entitled Prisoners of Time (Jones, 1994) highlighted the inefficient
use of time within the school setting as a major deterrent to more effective instruction.
The report was issued after a study that included visits to 19 schools and testimony from
more than 150 teachers, administrators, parents, students, and experts. In his report,
Jones stated that teachers in the United States spend more time in front of the students
providing instruction and less time in planning, thinking, and coordinating efforts with
other teachers to modify the instructional practices and curricular materials in order to
meet the individual needs of students. The report concluded that, based on the evidence
presented, students with gifts and talents are not performing up to their potential and are
not performing competitively with students with high-ability from other countries.
Recommendations included establishing high standards to permit American students to match or exceed the performance of students in other countries; investing in science and technology to increase productivity; enhancing student achievement; increasing learning time; providing teachers with the professional preparation time; and creating a better use of instructional time during the academic day.

Differentiated Instruction

Differentiated instruction alters the content of what is taught, the learning processes utilized, the products that students create and the learning environment (Moon, Swift, & Shallenberger, 2002). A differentiated curriculum enables students with gifts and talents to explore content, ideas, problems, or themes in greater breadth and depth than is possible through the typical curriculum and also affords students an opportunity to use resources typically not available within the general education classroom and/or school at large (Archambault et al., 1993; Renzulli, Reis, & Smith, 1981; Tomlinson, 1999; Westberg et al., 1993). Tomlinson (1995) identifies differentiated instruction as being focused, flexible, active, and assessment driven.

Perceptions of Differentiated Instruction

General Education Classroom Teachers. In order for students with gifts and talents to be provided with differentiated educational opportunities, changes must take place in the general education classroom. In an effort to document barriers that exist to higher order thinking skills instruction, Onosko (1991) analyzed interview data from teachers and administrators and conducted classroom observations. Fifty-six general education teachers from 16 social studies departments participated in this study. Approximately
500 classroom observations were conducted. In addition, the principal, department chair, and staff developers from the schools were interviewed.

The teacher participants completed questionnaires that dealt with the barriers they felt interfered with their efforts to promote student thinking and the obstacles they encountered when attempting to make classroom activities more intellectually challenging. Based upon the observations, teacher interviews, and questionnaire data, Onosko compiled a list of six barriers to the promotion of higher order thinking: (a) the tradition of instruction as knowledge transmission, (b) the need to cover broad curriculum, (c) low expectations of student abilities, (d) large numbers of students, (e) lack of planning time, and (f) a culture of teacher isolation.

Teachers of Resource Rooms for Students with Gifts and Talents. Teachers need special skills and understanding if they are to facilitate the personal, social, and academic development of students with gifts and talents (Feldhusen, 1997). Whitlock and DuCette (1989) investigated the characteristics of ideal gifted resource room teachers. The study was designed to identify and rank characteristics of outstanding gifted resource room teachers as well as to compare elementary gifted resource room teachers who had been identified as outstanding to a sample of elementary gifted resource room teachers identified as average.

An eight-member panel consisting of gifted education experts participated in this study. The panel developed a questionnaire that incorporated characteristics of outstanding teachers of students with gifts and talents. The questionnaire, consisting of 63 items, was mailed to 65 elementary gifted resource room teachers who taught in the same geographic region as the panel. The teachers rated the 63 items on the importance
of each competency for superior performance as a gifted resource room teacher. A four point Likert scale was used in which the participating 65 teachers rated each competency from 1 (unimportant) to 4 (very important). The competency model developed from the questionnaire identified 12 characteristics of outstanding teachers of students with gifts and talents: (a) enthusiasm, (b) personal flexibility, (c) self-confidence, (d) empathy, (e) openness, (f) ability to motivate students, (g) facilitator role, (h) program support, (i) advocacy, (j) knowledge, (k) achievement orientation, and (l) commitment to serve students with gifts and talents.

The panel then selected the outstanding gifted resource room teachers from the population of 65 teachers. To be selected as an outstanding, the candidates had to be nominated by at least one of the panel members and receive an unanimous vote from the panel. A total of 15 elementary teachers were designated as outstanding. The remaining 50 gifted resource room teachers were categorized as average. Ten teachers from each group (outstanding and average) were randomly selected to be interviewed. All interviews were tape-recorded and transcribed for analysis. The 20 transcripts were systematically coded.

Demographic data (age, years teaching, highest degree earned, private vs. public preservice teacher training, and other vocational experiences) were analyzed. A Pearson Correlation compared the demographic data to the competency scores for the combined sample of outstanding and average teachers. Of the 120 correlations computed, only 10 were significant. The results of this analysis indicated that teachers from private colleges and teachers who had experienced a vocation other that teaching had higher competency
scores. The remaining demographic data, age, type and extent of teaching experience, and highest degree earned, were not significant.

To ascertain the extent to which the outstanding gifted resource room teachers differed from the average teachers, uncorrelated t-tests and Mann-Whitney U tests were computed on each competency. The means and standard deviations for both groups indicated that the outstanding teachers had significantly higher means on six competencies: (a) enthusiasm, (b) self-confidence, (c) facilitator role, (d) knowledge, (e) achievement orientation, and (f) commitment than did the average teachers. Whitlock and DuCette (1989) concluded that outstanding teachers of students with gifts and talents significantly differ from average teachers of students with gifts and talents.

In a similar study designed to investigate the importance of teacher competencies, Nelson and Prindle (1992) surveyed two groups (80 principals and 36 gifted resource room teachers) from 40 school districts in a midwestern state. The purpose of the study was to compare the responses of both groups to ascertain their perceptions of the professional skills needed for teaching students with gifts and talents.

A questionnaire was mailed to all participants. The questionnaire contained 24-competency items considered to be essential for gifted resource room teachers. The participants were asked to rank each item using a scale of 1 (not essential) to 5 (essential).

A two-group, quasi-experimental design was used to analyze the questionnaire data. The mean responses for the two groups surveyed (principals and gifted resource room teachers) were compared on an item basis using a two-tailed t-test. Group means for all items were compared for significance and used to provide a rank ordering of the 24
competencies listed in the questionnaire. Group means for all items were compared for significance and used to provide a rank ordering of the 24 competencies.

Nelson and Prindle (1992) identified eight competencies that were essential instructional competencies in gifted programming: (a) promotion of thinking skills, (b) development of creative problem solving, (c) selection of appropriate methods and materials, (d) knowledge of affective needs, (e) facilitation of independent research, (f) awareness of the nature of students with gifts and talents, (g) counseling skills, and (h) advocacy skills.

Other findings also indicated that both principals and teachers agreed on most of the items, however there was a significant difference between principal and teacher responses to the questionnaire items concerning counseling and advocacy skills. The 36 teachers who provided services directly to students with gifts and talents rated counseling and advocacy skills more highly than did the principals. Additionally, the 36 teachers identified several other skills that they considered higher in importance than did the principals: (a) group process, (b) presentation of career education and professional options, (c) individual student counseling, and (d) philosophy and methods in gifted education.

Based on the results of analysis, Nelson and Prindle (1992) concluded that gifted resource room teachers perceive counseling skills (individual and career counseling) as a more essential competency skill for gifted resource room teachers than principals. Additionally, the authors concluded that universities should provide coursework that supports all eight of the essential competencies identified in the study.
While some research exists (Feldhusen, 1997; Nelson and Prindle, 1992; Whitlock and DuCette, 1989) concerning the characteristics of teachers who work with students who have gifts and talents, only one research study (Olenchak & Castle, 1997) evaluated the effectiveness of the gifted resource program from the perception of the student, parents, teachers, and administrators. No other studies reflecting the perceptions of consumers of the gifted resource room and differentiated instruction were located through an extensive ERIC search conducted in the fall of 2001 and spring of 2002.

Olenchak and Castle (1997) conducted a state wide survey in Mississippi to evaluate the effectiveness of the State's mandated Gifted Education Program. The study was constructed as a three-year assessment project to evaluate the perceptions of students who were enrolled in programs, their parents, and school personnel concerning learning and attitudes.

The student survey collected demographic information as well as assessed the perceptions of the students concerning the actual learning in the program when compared to learning criteria established by the state. The state criteria were: (a) problem identification, (b) recognition of similarities and differences, (c) examination of information for purposeful application, (d) separation of fact from opinion, (e) group leadership, (f) presentation of data, (g) teamwork, (h) supporting one's beliefs, (i) locating necessary information, and (j) improvement of solutions and projects. The adult survey addressed the attitudes and perceptions among school personnel and parents concerning gifted programs across the domains of communication, curriculum, identification, and instruction.
Two hundred twenty-four students with gifts and talents (122 males and 102 females), 303 teachers (general education and gifted resource room), 119 parents, and 25 administrators participated in the study. Semi-structured interviews were conducted with 24 teachers and 3 administrators who had been randomly selected from the participating teachers and administrators. These participants were asked questions that dealt with their perception of the most positive and the least positive features of the gifted program and to provide an explanation of their perceptions. Additionally, they were asked if they believed that the state's gifted program outcomes and goals were meeting the needs of the students with gifts and talents and what, if any, curricular changes should be made.

The responses to the interview questions were categorized based on key themes and issues that emerged for the data. The results of the qualitative data analysis indicated that 93% of the teachers and administrators who had been interviewed agreed that the gifted program in Mississippi was effective in meeting the needs of student with gifts and talents.

The quantitative data collected from the student questionnaires were analyzed using the measures of central tendency and standard deviation. The results indicated that the students perceived the gifted program met the State's competency goals. Chi Square analyses were used to ascertain gender differences for both the adults and students. No significant differences among any responses were found to be related to gender for either adults or the students. Olenchak and Castle concluded that males and females (adults and students) felt equally comfortable with the learning and teaching of important skills in the gifted education program and that the State's gifted program was perceived by all participants as a highly positive, productive, and purposeful program.
Student Perception. Gentry, Rizza, and Gable (2001) investigated the differences in attitudes toward classroom activities among rural, urban, and suburban students with gifts and talents in elementary and middle schools. The study included 3,744 diverse students from 24 schools in seven states. Approximately one third of the students attended either rural, urban, and suburban schools. One thousand eight hundred and seventy eight students with gifts and talents who were identified and receiving services from their schools comprised the subsample of students with gifts and talents. The elementary subsample included 1,206 third, fourth, fifth, and sixth grade students. The middle school sample included 672 sixth, seventh, and eighth grade students with gifts and talents.

The perceptions of students with gifts and talents from elementary and middle schools were compared to the perceptions of their typical learning peers. Additionally, student perceptions from the differing communities (rural, suburban, and urban) were compared. Students completed a validated questionnaire concerning their attitudes on four dimensions of general education classroom activities: interest, challenge, choice, and enjoyment. These dimensions were identified and used originally in the Archambault et al. (1993) and Westberg et al. (1993) studies. Enjoyment was defined as the degree to which a student liked or enjoyed their class and the activities that were conducted in the class. Interest was described as the degree to which a general education classroom met a student's personal interests as well as the degree to which a student perceived their general education classroom activities and topics as interesting. Choice involved the degree to which a student was allowed to choose the people, the activity, and the manner (e.g., independent study, research paper, class presentation) in which they worked.
Challenge involved the degree to which a class challenged a student both in terms of materials used and activities conducted.

Teachers from the participating schools were asked to order their students into achievement level groups. The authors designated categories to be used for achievement identification as low achieving, low average, average, above average, and high achieving. One hundred thirteen (7%) of the students were categorized as low achieving, 227 (18%) as low average, 568 (38%) as average, 376 (25%) as above average, and 173 (11%) as high achieving across all grade levels. Analyses of variance (ANOVA) were conducted to determine if achievement influenced student perception in terms of their interest, enjoyment, choice, and/or challenge.

The results of the analysis indicated that while elementary students (both students with gifts and talents and typical students) perceived that they enjoyed their classroom activities, a significant difference was found between the perception of elementary students with gifts and talents in the rural areas. Rural elementary school students with gifts and talents perceived their classrooms significantly less interesting, challenging, and less enjoyable than did their urban and suburban peers and their typical peers. Additionally, rural middle school students with gifts and talents reported less enjoyment and fewer opportunities for challenge than did students with gifts and talents from suburban and urban areas. Choice was consistently scored the lowest of all by all groups of students (students with gifts and talents and typical learners in elementary and middle schools) and from the various communities (rural, suburban, urban). Students with gifts and talents in rural school settings also perceived less interest than their suburban and urban peers and typical learners. However, no significant differences were found
between elementary and middle school students with gifts and talents with regard to the interest dimension.

Gentry et al. (2001) expressed concern for the middle school students with gifts and talents who participated in this study. The results suggested that these middle school students with gifts and talents may be at risk for lower achievement, motivation, and interest in school. Gentry et al. concluded that rural schools need to pay attention to the needs of their students with gifts and talents who perceived less challenge, interest, and in some cases, less enjoyment than their urban and suburban peers. Additionally, when considering the perceptions of students with gifts and talents concerning challenges, interests, and enjoyment, Gentry et al. concluded that the cognitive and affective needs of students with gifts and talents are not being met. These results corroborate the finding of the national studies conducted by Archambault et al. (1993) and Westberg et al. (1993).

Vaughn, Schumm, and Kouzekanani (1993) conducted a national study to investigate the perceptions of mainstreamed students with learning disabilities (LD), students considered to be low achieving (LA), and students considered to be average/high achieving (A/HA) regarding the instructional and curricular modifications (e.g., altering tests, homework, assignments, instruction) made by general education teachers. Responses were collected from the students using the Students’ Perceptions of Teachers Scale (SPT) (Vaughn et al., 1993). The SPT was designed to elicit student perceptions of teacher instructional and curricular modifications on teaching methods and behaviors. Items on the scale assess the extent to which students feel that teachers should make modifications with respect to key instructional areas (e.g., grouping, homework, lectures, textbooks, tests, instructional routines, and meeting the needs of individual students).
The results of a multivariate analysis of variance (MANOVA) indicated that although the participating students preferred the teacher who made modifications, the achievement groups (LD, LA, and A/AH) differed somewhat on the types of modifications preferred. As a whole, students with LD differed from their LA and A/AH peers on items that addressed modifications in tests, homework, textbooks, and grouping. Students' with LD who were mainstreamed in the general education classroom for more than 50% of the school day preferred the general education teacher who made adaptations to accommodate their learning needs, but preferred to be grouped with the same student groups using the same books, same tests, same homework, and same textbooks. The LA and A/AH students preferred the teacher who made adaptations, but seemed to be more flexible in the use of grouping, homework, textbooks, and tests. Students who were average/high achieving (A/AH) preferred to work with all students in class. Results indicated that students of all abilities preferred teachers who made modifications to their instructional styles to accommodate students. Vaughn et al. concluded that students classified as A/AH were eager to be challenged in the general education classroom and preferred teachers who provided them with instructional and curricular modifications commensurate with their abilities.

Curricula for students with gifts and talents must incorporate higher cognitive concept development, as well as opportunities for students to develop socially (interpersonal development) and to develop a strong sense of self worth (intrapersonal development). Renzulli (1977) explains that, while cognitive and affective skills are appropriate for all students, students with gifts and talents have abilities beyond what is
usually provided for all students. When these students are appropriately challenged they excel as consumers of artistic, scientific, and creative products as well as creators of these products.

Positive Effects of Providing Instructional Differentiation for Students with Gifts and Talents

Cognitive scientists have begun to formulate the argument that considerable exposure to domain-specific content is an essential component of human competence (Glaser & Chi, 1988). The belief is that exposure to domain-specific knowledge has an important impact on the development of automaticity, which in turn contributes to the development of coding and chunking abilities (Glaser & Chi, 1988). Thus, the development of an efficient and effective learner involves exposure to situations that create and maintain motivation for learning (Glaser & Chi, 1988).

For the gifted learner this type of curriculum means exposure to a differentiated educational environment that is challenging and assists in developing his/her full potential.

Moon, Swift, and Shallenberger (2002) conducted a qualitative case study to investigate the effectiveness of a self-contained classroom that used a curricula differentiated for highly intellectual students with gifts and talents. The purpose of the study was to assess the perceptions of administrators, teachers, students, and parents concerning a differentiated, self-contained classroom that was created to enhance the cognitive, social, and emotional development of students with high levels of intellectual giftedness. Specifically targeted were the perceptions of the social and emotional effects of the self contained classroom in which the students were grouped homogeneously for
instruction throughout the school day. The self-contained class was developed because the existing pullout program appeared to be inadequate to meet the cognitive, affective, and social needs of students with IQs greater than 145. Goals for the self-contained program were to: (a) provide a challenging and nurturing classroom climate, (b) provide students differentiated instruction, (c) develop learning skills, (d) provide the opportunity to develop social relationships, and (e) build healthy self-concepts. The teacher selected to teach the class was certified in gifted education. Her responsibility was to ensure that the curriculum was differentiated by content, process, product, and environment and was both accelerated and enriched.

Classroom observations were conducted to examine the reciprocal relationships that occurred in terms of social, emotional, and educational outcomes and the effects of the program on the students outside of school, as well as in the school setting. In order to address talent development, the cognitive development in the academic areas of language arts, mathematics, social studies, and science were studied.

Twenty-four students (18 boys and 6 girls) participated in this study. The students who participated in this study had levels of intellectual giftedness in the high (I.Q. > 145) to extreme (I.Q. > 165) range as measured by Gagne's rubric (Gagne, 1998). In addition to the students, 24 sets of parents, three administrators, and the teacher participated in this study. Data were collected through observations, interviews, comparison essays, and goal scaling.

Classroom observations were conducted 16 times during a five-month period. Each observation period lasted from one-to-two hours. In conjunction with each observation, the observers recorded field notes. The students were interviewed midway through the
school year with a protocol that included open-ended questions, a matrix with categories labeled educational, social, and emotional, and general questions concerning the program. The students were prompted to discuss the advantages and disadvantages of the special class in each of the three categories (educational, social, emotional).

Interviews with the program administrators, the teacher, and the parents were conducted toward the end of the school year using a parallel version of the student protocol. The program administrators, the teacher, and the parents also completed a Goal Attainment Scale (GAS) developed by Moon et al. (2002). The GAS had five items corresponding to the five goals of the program (challenge, differentiation, learning, peer relationships, and self-concept). The participants ranked the extent to which they felt the self-contained class met each goal using a five-point Likert scale ranging from 1 (not at all) to 5 (completely). At the end of the year, the students wrote anonymous essays comparing their experiences in the self-contained class with their experiences in previous classes.

Data were analyzed in two phases. The first phase of data analysis occurred simultaneously with the observations. During each observation, the observer used a form to record both factual observations and their interpretations of those observations. After each observation, the observer wrote a memo that contained their reflections of the observations and comparisons with previous observations. The second phase of analysis occurred after all data were collected. Case and cross-case analyses were conducted on: (a) observation field notes, (b) interview transcripts from students, parents, the teacher, and administrators, and (c) student essays. The techniques of open, axial, selective
coding, peer debriefing, and data displays were used. In addition, descriptive statistics were computed for the Goal Attainment Scale (GAS).

The results of the analyses indicated that the self-contained classroom was differentiated for the learning needs of students with high to extreme levels of intellectual gifts and talents. The administrators stated that they felt the class provided strong educational advantages for most of the students and that the teacher had done an excellent job of differentiating the curriculum for the students with gifts and talents.

The teacher reported that she felt the class provided a greater learning challenge, more opportunities for student input, more chances for the development of problem-solving skills, accelerated and enriched learning, and improved time-management. Specific educational strengths of the class as perceived by the parents included challenge, instruction at the appropriate level and pace, more in-depth learning and research opportunities, greater freedom and independence, more interesting work, more homework, more project orientation, and more emphasis on teamwork. Most parents believed that the class challenged their child. The students listed the following educational advantages of the class: (a) greater challenge, (b) increased learning, (c) work at their levels, (d) classmates at their level, (e) more choices, (f) more interesting work, (g) more projects and experiments, and (h) less reliance on textbooks.

All sources of information indicated that the educational benefits of the class were due, in part, to the intellectual stimulation that resulted from being grouped with peers with similar interests and abilities. Administrators, the teacher, and parents rated the program as successful in accomplishing this goal. The parents also reported that their
child had a heightened self-perception because the program made him/her feel special, accepted, and recognized for their accomplishments.

Moon, Swift, and Shallenberger (2002) concluded that students with gifts and talents need differentiated instruction to maximize their learning potential. The authors maintained that placing students with high to extreme levels of intellectual gifts and talents in full-time special programs may provide more positive emotions and more healthy self concepts.

VanTassel-Baska, Zuo, Avery, and Little (2002) conducted a study to explore curriculum efficacy as it relates to the nature of the learner, the type of grouping model used, and the strength of a curricular treatment that emphasized literacy analysis, interpretation, and persuasive writing. The purpose of the study was to assess learning outcomes for students with gifts and talents as a result of using a specially designed language arts curriculum that incorporated standard teaching techniques with differentiated curriculum features. The study compared the achievement of students with gifts and talents who used the differentiated curriculum to those who did not use the curriculum.

A quasi-experimental design was used to demonstrate the effects of particular units of study on students with gifts and talents at primary, intermediate, and middle school levels. Each unit was organized using the Integrated Curriculum Model (ICM) (VanTassel-Baska, 1995). ICM is a differentiated integrated approach that uses advanced literature combined with a reasoning model.

Forty-six schools participated in this national study. Two thousand-one hundred-eighty-nine students identified with gifts and talents in grades 2 through 8 participated in
this study. The students were randomly placed in either the treatment group or the comparison group for this study (those who used the ICM and those who did not).

Four units were selected for use as the curriculum materials in this study. The units were part of the six-unit curriculum (ICM). The curriculum framework for all of the units addressed advanced content, higher level processing, and abstract concepts. The goals of the units were to develop: (a) analytical and interpretive skills, (b) persuasive writing skills, (c) linguistic competency, (d) listening/oral communication skills, (e) reasoning skills, and (f) understanding the concept of change.

Pre and post unit assessments of the literature and writing used in each of the four units were used to measure the students' abilities in literature analysis and persuasive writing. In each phase of the study, the students read and responded to a different advanced literature selection.

An analysis of covariance (ANCOVA) was used in the comparisons across groups to ascertain if the treatment and comparison groups were significantly different in their posttest performance, whether males and females were significantly different in their posttest performance, grouping models for students with gifts and talents impacted student posttest difference, and students from high or low socioeconomic groups were significantly different in their posttest performance. A paired samples t-test was used for comparison within each group and t-tests were used to investigate in-group improvement in performance after curriculum intervention. Descriptive statistics also were used for item analyses to determine student strengths and weaknesses after using the differentiated curriculum.
The results from the comparison between treatment and comparison students showed that there was a statistically significant difference between the experimental and comparison groups on the posttest with the group who participated in the differentiated instruction significantly outperforming the comparison group. The results from the gender comparison indicated that there were no differences in males and females for literature, but a statistically significant difference was found between males and females for persuasive writing. Females scored higher than males for writing. However, the difference was found to be of little practical importance when effect size was computed. This suggests that boys and girls benefited relatively equally from their exposure to the curriculum.

The variable of grouping model was coded based on four alternative ways of grouping students with gifts and talents for language arts instruction: (a) self-contained, (b) pullout, (c) cluster grouping in the heterogeneous classroom, and (e) language arts block. Schools participating in the study selected the best fit for their situation. Results from the comparisons based on grouping showed significant and important gains in both literary analysis and persuasive writing, regardless of the grouping model used. The fact that students showed important gains across grouping models attests to the importance of the curriculum as opposed to the particular grouping approach employed, meaning that how we teach is more important than where we teach. Finally, results from comparison of high and low economic groups showed no significant difference between groups, suggesting that both low and high economic groups can improve significantly from a differentiated curricular intervention.
Van Tassel-Baska et al. (2002) concluded that the ICM differentiated curriculum produced both significant and important learning outcomes for students with gifts and talents. They maintained that the use of differentiated instructional models such as ICM, promotes student automacity in thinking and writing and appears to have a positive effect on student learning.

In a study designed to assess the effects of differentiated curricular training on general education teachers' use of differentiated instruction with students with gifts and talents, Johnsen, Heansly, Ryser, and Ford (2002) conducted a three-year study. This study attempted to define and to examine the factors that influence classroom changes.

Six elementary schools located in six school districts, (one urban and five rural school districts) participated in this study. Of these schools, only one school contained a pull-out program for students with gifts and talents. The remaining schools served the students with gifts and talents in the general education classroom.

Seven mentor teachers were selected for training by the researchers during the first year of the program's implementation and an additional 10 mentor teachers were selected for training the second year. Both groups of mentors had an average of 11 years of teaching experience, and only one teacher reported any experience working with gifted and talented students. The job of the mentor was to collaborate with the cohort teams and support individual teacher goals.

Two cohort teams of five to seven teachers at each site were selected for training during the first and second year of the project. Similar to the mentors, only two of the cohort teachers reported having any experience working with gifted and talented students. The total number of cohort teachers who participated in the training was 71.
The principal at each site selected two community representatives for training the first year for a total of 12. The following year, four of the sites sent two additional representatives. The community members acted as liaisons with the community and supported the teachers in making changes.

Administrators, community representatives, and mentor teachers participated in a three-day training session during the spring of the first and second years of the grant. They focused primarily on the units that examined learner differences, particularly characteristics of gifted and talented students and follow-up methods for assisting teachers. At the end of this training session, all of the participants identified goals that would support teachers during the change process. Mentor teachers also identified changes that they wanted to make in their own classroom practices.

The training curricula included 22 units that covered the general topics of learner differences, differentiated curriculum, assessment, managing the learning environment, learning strategies, teacher facilitation, acceleration, mentoring, peer coaching, collaboration, support, and change. Each of the units provided information in a variety of formats (e.g., teacher-directed instruction, games, self-paced instruction). Teachers were allowed to use the format that best suited their teaching style.

Qualitative and quantitative data were collected throughout the pretraining, training, and posttraining stages of the project. Qualitative data were collected through the use of field notes, systematic and narrative observations, informal and open-ended structured interviews, and the final survey evaluation.

Project personnel made approximately 400 on-site visits. During each site visit and observation, research assistants systematically addressed questions that targeted
information concerning teacher methods for adapting to a differentiated curriculum and
the methods teachers used to meet the needs of individual learners. Research assistants
also questioned teachers concerning administrative support and/or nonsupport they
received and the support received from mentor teachers. During baseline observations,
research assistants conducted interviews with students in both the cohort and mentor
teacher classrooms to gain insight into their daily classroom practices.

Data were collected using the Classroom Instructional Practices Scale (CIPS)
(Johnsen, 1982) designed to measure classroom organization for adapting for learner
differences in four areas: content, rate, preference, and environment. Descriptors were
used to describe teacher organization, sequencing of skills, concepts, strategies, and
generalizations within and across each of the four areas.

One teacher and two students from each classroom were interviewed to verify
classroom observations. To accurately assess a teacher’s classroom practices, each
teacher was observed a minimum of three times during baseline. Research assistants then
observed the teachers who participated during the first year of the project in the
classroom three times (the spring before training, the first spring after training, and the
second spring after training during the follow-up and support phase of the project).
Cohort and mentor teachers who participated in the second year of the project were
observed twice (the fall before training and the first spring after training).

At the end of the third year, each teacher was sent a final survey designed to assess
the value of the staff development and support activities (e.g., curriculum units, staff
development days, summer training, etc.) during the project. The participants rated the
items on a Likert scale from 1 (not at all beneficial) to 5 (extremely beneficial).
A nonparametric statistical test for ordinal-scaled variables compared ratings from the spring before training to the spring after training for all participating teachers in the project in four areas (content, rate, preference, and environment). Field notes, observations, and interviews were analyzed across all six school sites to determine factors that influenced change. Data obtained from the qualitative instruments were entered in a software package called HyperQual(R) that assisted in finding trends and patterns among sites.

All observations were analyzed and discussed by the project staff and an external project evaluator at monthly project meetings throughout the two years of implementation. Those factors that reached 90% agreement among the project staff and were verified by mentors and administrators were considered influential. The final survey results were also summarized descriptively using percentages and triangulated with the project staff, administrator, and mentor perceptions.

Results indicated that, prior to training, 45% of the teachers used the book to organize their curriculum indicating that the classrooms could be described as teacher controlled. During the two years of program implementation, 73 teachers made 249 changes and moved higher on the CIPS as measured by formal classroom observations, interviews with the teachers, and interviews with the students.

After training, no teachers asked students to simply wait or put their heads on their desk while others finished. By the end of the second year, 57% of the teachers were using assessments to recycle, compact the curriculum, provide enrichment, or allow students to pursue topics of interest to them. Seventy-seven percent of teachers who chose to change their math classroom practices also chose to accelerate instruction.
Seventy-one percent of the teachers began offering a variety of learning activities that varied format and responses, as opposed to 13% prior to training. By the end of the second year, 77% were varying the types of activities used by the students. The majority of teachers (67%) established independent areas or learning centers that were an integral part of the learning environment. By the second year of implementation, 86% of students were using learning centers within and/or outside the classroom.

Field notes, interviews, observations, and the final survey were analyzed to determine the factors that influenced changes in classroom practices. The principal, mentor, and project support played an important role in sustaining positive attitudes toward the project. The project provided a vision for all participants that was modeled in the training simulation and appeared to motivate teachers in setting and working toward their goals. One of the participating teachers reported that the project allowed her to teach to individual needs, particularly students with gifts and talents, rather than teaching the standard second grade curriculum.

Johnsen, Heansly, Ryser and Ford (2002) concluded that schools should consider incorporating these components into their professional development activities and involve all of the stakeholders (teachers, counselors, administrators, and the community) who will be affected by the change. This professional development must simulate the desired practices so that the participants will identify with the innovation and be stimulated to make changes. And, the practices to be implemented must be clearly defined so a teacher will be able to make the transfer of new practices to the classroom. An important element is providing teachers a voice in the type and the degree of change.
that they will incorporate into their classrooms. This freedom to choose goals empowers teachers and builds a positive attitude toward the change. Additionally, teachers need ongoing and consistent material and human support to make the changes. Types of support include staff-development days, peer and mentor support, leadership support, materials, and time to implement.

Summary

The needs of students with gifts and talents appear to be different from those of typical learners and recent research indicates that the general education curriculum may not be meeting these needs (Archambault, et al., 1993; Gentry et al., 2001; Greene, et al., 2001e; and Westberg, et al., 1993). The quality of a school’s curriculum are vital ingredients to the eventual realization of a child’s capacity (Van Tassel-Baska, 1997). Students with gifts and talents, like all students, need continuity in their educational experiences that exists across environments. This continuity must consider instructional methods for ensuring that students with gifts and talents perform, solve problems, interact with their learning environment (beyond reading and writing), interact socially with their peers, and value opinions (their own and others)(Greene & Hong, 2001e).

Historically, differentiated educational opportunities have been identified as being imperative for students with gifts and talents (Ward, 1961; The Marland Report, 1972; U.S. Department of Education’s Curriculum Council of the National/State Leadership Training Institute on the Gifted and Talented, 1982). Even with this historical groundwork the limited research that has been conducted appears to indicate that students with gifts and talents are not being provided differentiated learning experiences in general.
education (Archambault et al., 1993; Gentry, et al., 2001; Greene, et al., 2001e; Westberg, et al., 1993) and it is unclear as to the extent that these experiences are provided in the gifted resource room. In general education classroom settings, where many students with gifts and talents currently are educated, and in gifted resource rooms differentiated educational opportunities are an essential ingredient to ensure the best possible education for students with gifts and talents.
CHAPTER 3

METHOD

Overview

In 1993 the United States Department of Education published a national report on the status of education for students with gifts and talents entitled *National Excellence: A Case for Developing America's Talents*, that suggested that the United States was not providing appropriate programs to meet the needs and interests of many of its students, specifically students with gifts and talents. The report provided evidence that, compared with top students in other industrialized countries, American students perform poorly on standardized tests, are offered a less rigorous curriculum in school, read fewer demanding books, do less homework, and enter the work force or post secondary education less prepared. The report also revealed that students with gifts and talents are not academically competitive with students with gifts and talents from other countries (U.S. Department of Education, 1993). The need for appropriate programming for these students centers on the fact that they have the potential to become the next generation of leaders in science, politics, the arts, and humanities (Gallagher, 1997). Students with gifts and talents, like all students, need a continuity of educational experiences designed to meet their academic needs. In order for educators to help students with gifts and talents excel, the quality and make up of the school curriculum are vital ingredients (VanTassel-Baska, 1993).
Several beliefs and assumptions have guided the thinking of the most recent curricular theory in gifted education. These beliefs include the thought that all learners must be provided with curricular opportunities that allow them to attain optimum levels of learning and that learners with gifts and talents have different learning needs than typical learners (Gallagher, 1985; Maker, 1982; Passow, 1982; VanTassel-Baska, 1993). Therefore, curriculum must be adapted or designed to provide for the learning of these students. In order to achieve this goal, a differentiated educational approach is needed (Ward, 1961; Marland, 1972; Maker, 1982; Gallagher, 1997; Tomlinson; 1999). This study addressed these issues by obtaining teacher and student perceptions concerning the instructional practices in the general education classroom and the gifted resource room.

Research Questions

The perceptions of general education teachers, gifted resource room teachers, and students with gifts and talents were collected using a questionnaire that was comprised of questions focused on the cognitive, interpersonal, and intrapersonal educational domains. The research questions related to the perceptions of gifted resource room and general education classroom teachers were:

1. What is the perceived level of differentiated instruction provided by general education teachers in the general education classroom compared to the perceived level of differentiated instruction provided by teachers in the gifted resource room?

2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by general education teachers as the focus of instruction for students with gifts and talents as compared to teachers in the gifted resource room?
3. Do teachers with a higher education level (PhD/EdD, EdS, MA/MS) perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with BA/BS?

4. Do teachers with five or more years of teaching experience perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with one to four years of teaching experience?

5. Is there a difference in the perception of the general education classroom teachers in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided for students with gifts and talents?

The research questions related to the perceptions of students with gifts and talents were:

1. Do students with gifts and talents perceive that the general education classroom provides differentiated instruction as compared to the gifted resource room?

2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by students with gifts and talents as the focus of instruction in general education as compared to the gifted resource room?

3. Is there a difference in the perception of students with gifts and talents in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided by teachers (gifted resource room vs. general education)?

Participants

This study included 144 general education classroom teachers, 67 teachers from the gifted and talented education program, and 850 third, fourth, and fifth grade students who...
were identified as having gifts and talents. A total of 1,061 participants participated in this study.

*Gifted Education Teachers*

There are 102 full time teachers assigned to the gifted and talented education program in the school district in which this study was conducted. From these teachers 67 teachers agreed to participate in this study. Each gifted resource room teacher was a licensed teacher who had completed 12 graduate level university credits in gifted education. The participating school district’s gifted program is a pull-out program and these teachers work with third, fourth, and fifth grade students with gifts and talents. Each gifted resource room teacher signed an informed consent form prior to his or her participation in the study (see Appendix A). Demographic data were collected on the gifted resource room teachers (see Table 1).

**Table 1**

*Demographic Information for Gifted Resource Room Teachers*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Summary</th>
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</thead>
<tbody>
<tr>
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<td></td>
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<tr>
<td>Male</td>
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<tr>
<td>Female</td>
<td>60</td>
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<td>Ethnicity</td>
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<td>Caucasian-American</td>
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<td>Asian-American/Pacific Islander</td>
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</tr>
<tr>
<td>Native-American</td>
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</tr>
<tr>
<td>Other</td>
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<table>
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<td>MA/MS</td>
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<th>Count</th>
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</thead>
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<tr>
<td>Special Education</td>
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<tr>
<td>Other</td>
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<table>
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<tr>
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<td>5-9</td>
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<td>10-14</td>
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<tr>
<td>15-19</td>
<td>7</td>
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<tr>
<td>over 29</td>
<td>5</td>
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Other grade levels taught

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<th>Count</th>
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</thead>
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<table>
<thead>
<tr>
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<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
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Table continues
Other areas taught

<table>
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<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>50</td>
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</tbody>
</table>

Training in Gifted Education

- Courses at college/university: 65
- District in-service: 56
- Educational degree in gifted education: 16
- Workshop outside district: 34
- Endorsement in gifted education: 56

Number of years teaching gifted education

<table>
<thead>
<tr>
<th>1-5</th>
<th>35</th>
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</thead>
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<td>6-10</td>
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</tr>
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<td>16-20</td>
<td>5</td>
</tr>
<tr>
<td>21-25</td>
<td>4</td>
</tr>
</tbody>
</table>

General Education Teachers

One-hundred and forty-four general education elementary teachers participated in this study. Two general education classroom teachers from third grade (n = 48), fourth grade (n = 48) and fifth grade (n = 48) were randomly selected from each participating school. These grade levels were used because only students in these grade levels are eligible for placement in the school district’s pull-out resource program for students with

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gifts and talents. Each general education classroom teacher signed an informed consent form prior to participation in the study (see Appendix B). Demographic data were collected on the general education teachers (see Table 2).

Table 2

*Demographic Information for General Education Teachers*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Summary</th>
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<td>Male</td>
<td>27</td>
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<tr>
<td>Female</td>
<td>117</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td>Caucasian-American</td>
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<tr>
<td>Asian-American/Pacific Islander</td>
<td>4</td>
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<tr>
<td>Native-American</td>
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<tr>
<td>Other</td>
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<tr>
<td>Highest Degree Earned</td>
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<td>MA/MS</td>
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<td>Elementary</td>
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<tr>
<td>Special Education</td>
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</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Number of Years Teaching</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
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<tr>
<td>6-9</td>
<td>38</td>
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<td>10-14</td>
<td>23</td>
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<td>15-19</td>
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<td>20-24</td>
<td>7</td>
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<tr>
<td>25-29</td>
<td>7</td>
</tr>
<tr>
<td>over 29</td>
<td>12</td>
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</table>

<table>
<thead>
<tr>
<th>Other grade levels taught</th>
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<tbody>
<tr>
<td>Yes</td>
<td>105</td>
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<tr>
<td>No</td>
<td>39</td>
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</table>

<table>
<thead>
<tr>
<th>Other Areas Taught</th>
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<tbody>
<tr>
<td>Yes</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>122</td>
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Table continues
Training in gifted education

<table>
<thead>
<tr>
<th>Training</th>
<th>Number</th>
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</thead>
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<tr>
<td>None</td>
<td>95</td>
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<tr>
<td>Course(s) at college/university</td>
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<tr>
<td>District in-service</td>
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</tr>
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<td>Educational degree in area</td>
<td>2</td>
</tr>
<tr>
<td>Workshop outside district</td>
<td>10</td>
</tr>
<tr>
<td>Endorsement in gifted education</td>
<td>1</td>
</tr>
</tbody>
</table>

Students with Gifts and Talents

Students with gifts and talents are defined as students possessing gifts and talents in one or more of the following areas: (a) general intelligence, (b) academic aptitude in a specific area, (c) creative thinking, (d) productive thinking, (e) leadership, (f) the visual arts, or (g) the performing arts according to the participating school district's Gifted and Talented Education Program's Handbook (2000). This definition falls within the State of Nevada Administration Code (NAC) for Special Education Programs (1993). Unless his/her individualized educational program otherwise provides, a student identified as having gifts and talents must participate in not less than 150 minutes of differentiated educational activities each week during the school year (NAC by the Board of Education, 1993).

In the participating school district, the assessment instrument used for initial evaluation of students believed to have gifts and talents is the Naglieri Non-verbal Ability Test (NNAT) (Naglieri, 1996). A student is eligible for placement in the gifted and
talented education program if he/she scores at or above the 98th percentile on the NNAT or scores at or above the 90th percentile on NNAT and the Test of Nonverbal Intelligence (Toni-3) (Brown, Sherbenou, & Johnsen, 1997). The Toni 3 is used to determine eligibility if a student scores at or above the 84th percentile on the NNAT.

Eight-hundred and fifty students with gifts and talents from third, fourth, and fifth grades participated in this study. One-hundred and forty-four third graders, 306 fourth graders, and 400 fifth graders participated. A packet was sent home to the parents of the children that contained an informed consent form for the parents to review and sign (see Appendix C) and a child assent form for the student to review and sign (see Appendix D). Only students who signed a child assent form and returned a signed parent informed consent form participated in this study. Demographic data collected on the students are contained in Table 3.

Table 3

Demographic Information for Students with Gifts and Talents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
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<td>Male</td>
<td>404</td>
</tr>
<tr>
<td>Female</td>
<td>446</td>
</tr>
<tr>
<td>Ethnicity</td>
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<tr>
<td>Hispanic-American</td>
<td>91</td>
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<tr>
<td>Caucasian-American</td>
<td>558</td>
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</tbody>
</table>

Table continues
<table>
<thead>
<tr>
<th>African-American</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian-American/Pacific Islander</td>
<td>112</td>
</tr>
<tr>
<td>Native-American</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>144</td>
</tr>
<tr>
<td>4</td>
<td>306</td>
</tr>
<tr>
<td>5</td>
<td>400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of years in GATE</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>0.5</td>
<td>46</td>
</tr>
<tr>
<td>1</td>
<td>177</td>
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<tr>
<td>2.5</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>214</td>
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<table>
<thead>
<tr>
<th>Number of years in preschool</th>
<th>Number of students</th>
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</thead>
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<tr>
<td>1</td>
<td>301</td>
</tr>
<tr>
<td>1.5</td>
<td>3</td>
</tr>
</tbody>
</table>

Table continues
This study was conducted in a large southwestern metropolitan school district. The enrollment for the 2001/2002 school year was 246,289 students. The school district is the 6th largest district in the nation. The participating school district has an established resource pull-out program for third, fourth, and fifth grade students who are identified as having gifts and talents. Students attend gifted resource room classes for a minimum of 2
1/2 hours per week. Thirty-one elementary schools participated in this study. Seventeen are scheduled nine-month schools and 14 are scheduled year-round schools.

Instrumentation

Four instruments were used in this study. The instruments were titled: The Instructional Practices Questionnaire for Gifted Resource Room Teachers (Greene & Hong, 2001a) (see Appendix E), the Instructional Practices Questionnaire for General Education Classroom Teachers (Greene & Hong, 2001b) (see Appendix F), the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form A (Greene & Hong, 2001c) (see Appendix G), and the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form B (Greene & Hong, 2001d) (see Appendix H).

The development of these questionnaires was based on three existing sources: (a) The Challenge Curriculum Guide: Gifted and Talented Education Program (Clark County School District, 1997), (b) the Classroom Practices Survey (Archambault, Brown, Hallmark, Zhang, & Emmons, 1993), and (c) What I Learned in the Gifted Education Program (Olenchak & Castle, 1997). Written permission to use these materials was obtained from the authors (See Appendices I, J, & K, respectively). The gifted and talented curriculum guide for the participating school district was used to identify a particular skill being targeted (e.g., Students are given opportunities to develop leadership styles), the Classroom Practices Survey (Archambault et al., 1993) and the What I Learned in the Gifted Education Program (Olenchak & Castle, 1997) were used to identify specific classroom activities (e.g., I assign students to various leadership
positions, describe various leadership styles, or provide group activities where various
teaching styles can be practiced.

The Instructional Practices Questionnaire for Teachers

The Instructional Practices Questionnaire for Gifted Resource Room Teachers
(Appendix E) and the Instructional Practices Questionnaire for General Education
Classroom Teachers (Appendix F) each contain two sections: (a) teacher demographic
information, and (b) the questionnaire of items that asked the teachers to evaluate their
classroom-based instructional practices in the cognitive, interpersonal, intrapersonal
educational domains. Demographic information on the survey consisted of grade level
taught, gender, ethnicity, level of education, teaching experience, number of years as a
teacher, experience with students with gifts and talents, and other grade levels taught.
The gifted resource room teachers' demographic survey also included the number of
years teaching in the gifted program.

The Instructional Practices Questionnaire for General Education Classroom
Teachers was used in a pilot study conducted with general education classroom teachers
(Greene & Hong, 2001e). Prior to use in the pilot study, the questionnaire was
distributed to three classroom teachers (one third-grade teacher, one fourth-grade teacher,
and one fifth-grade teacher) for review. Each teacher read through the questionnaire and
provided feedback regarding the clarity, understanding, and relevance of each
questionnaire item. Revisions and modifications were made according to the feedback
provided. A Fry's Readability (Fry, 1977) evaluation was conducted on the final version
of the Instructional Practices Questionnaire for General Education Classroom Teachers.
The readability indicated a 12th-grade reading level.
The classroom-based instructional practice portion of both questionnaires was used by the general education classroom teachers and gifted resource room teachers to report their perceptions concerning the differentiated instructional practices they used with all students in their classrooms. This section of the questionnaire provided an indication of the extent to which students with gifts and talents received differentiated educational experiences in the general education classroom and in the gifted resource room. Twelve items focusing on the cognitive domain, 10 items dealing with the interpersonal domain, and 8 items concentrating on the intrapersonal domain were included in the instructional practices portion of the questionnaire. A total of 30 items were in the instructional practices portion of the teacher questionnaire. Teachers were asked to respond 1 (rarely), 2 (sometimes), 3 (often), or 4 (almost always) to each questionnaire item.

The Instructional Practices Questionnaire for Students with Gifts and Talents

The Instructional Practices Questionnaire for Students with Gifts and Talents was a modified version of the teacher questionnaire and measured the perceptions of students with gifts and talents concerning their differentiated educational experiences in both the general education classroom and in the gifted resource room. Demographic information concerning the grade level, gender, ethnicity, number of years in school (including preschool), and the number of years in the gifted program of students was also collected.

The classroom-based instructional practices portion was modified from the teacher questionnaire by eliminating the items that identified a particular skill being targeted. Of the three sample activities that were listed in the teacher's questionnaire for each item, two were selected for use in the student questionnaire. A total of 60 items were included in the instructional practices portion of the student questionnaire. A Fry's Readability
(Fry, 1997) evaluation was conducted on the student version of the *Instructional Practices Questionnaire for Students with Gifts and Talents*. The readability of the student questionnaire was the 3rd-grade reading level.

The student questionnaire was field tested in two elementary schools, one representing a neighborhood in a low economic area and one representing a middle-economic neighborhood. Sixty students with gifts and talents (20 third-grade students, 20 fourth-grade students, and 20 fifth-grade students) from each school site reviewed the survey. The students read the questionnaires and provided feedback concerning the clarity and/or their understanding of each item. Revisions and modifications were made according to student feedback.

Reliability of Instruments

Internal consistency (Coefficient alpha) is a descriptive statistic modeled after the SPSS reliability subprogram and is recommended for use with research data that is only administered once to a subject (i.e., a survey or a questionnaire). Internal consistency (Coefficient alpha) for the *Instructional Practices Questionnaire for Teachers* was .9234. The Internal consistency (Coefficient alpha) for the *Instructional Practices Questionnaire for the Students* was .9188.

Design and Procedures

This study was conducted in five phases. A time line of the phases is contained in Appendix L.
Phase One

Ellen Sloane, Gifted Education Coordinator of the participating school district, Dr. Francis X. Archambault, University of Connecticut, and Dr. Conrad Castle, Mississippi State Department of Education, were contacted and written permission was obtained to use materials created by them in this study. Copies of the signed consent forms are in Appendix I, J, and K, respectively.

Phase Two

During the first gifted resource room teacher inservice for the 2001/2002 school year, the purpose of this study was explained to the teachers. At this time, the gifted resource room teachers who agreed to participate in the study signed an informed consent form (see Appendix A). These teachers were sent an *Instructional Practices Questionnaire for Gifted Resource Room Teachers* to complete and return via the United States Postal Service. Only teachers who signed a consent form participated in the study.

Phase Three

The gifted resource room teachers who volunteered to provide assistance in this study attended a two-hour training session. These teachers assisted in the distribution and collection of the informed consent forms and the questionnaires from the randomly selected general education teachers, the distribution and collection of the child assent form and the parental/guardian informed consent forms, and the administration of the *Instructional Practices Questionnaire for Students with Gifts and Talents* to their students with gifts and talents. Additionally, the assisting gifted resource room teachers were
provided a script to follow while administering the student questionnaire (see Appendix M) and they were given a copy of the student questionnaire to review so that they were familiar with the items when they facilitated the student completion of the questionnaire.

At the training session, the assisting teachers provided the name of their school principal and the names of the third, fourth, and fifth grade general education teachers assigned to their school(s). From the names of the general education teachers, two third-grade, two fourth-grade, and two fifth-grade teachers were randomly selected to participate in the study from each school. In the event that one or more of the teachers declined to participate in the study, a replacement teacher was selected following the same procedure.

*Phase Four*

The principals at each of the participating schools were contacted and the study was explained. Verbal permission to use the school as a research site for this study was requested and an informed consent form was sent to the principal to sign. An example of the informed consent form is in Appendix N. Only schools in which the principal signed an informed consent form participated in this study.

*Phase Five*

Following receipt of the principal's signed consent, the gifted resource room teacher distributed an informed consent form to each randomly selected general education classroom teacher. Upon receipt of the general education teacher's informed consent form, an *Instructional Practices Questionnaire for General Education Classroom Teachers* (see Appendix F) was mailed to the participating general education teacher via the United States Postal Service. A letter accompanied the questionnaire instructing the
teachers to complete the questionnaire, place the completed questionnaire in an envelope, reseal the envelope, and deliver it to their school's gifted resource room teacher no later than November 15, 2001 (see Appendix O).

Phase Six

The gifted resource room teacher was supplied with the appropriate number of parent/guardian packets for his/her school. Each packet included an informed consent form for parents (see Appendix C) and a child assent form for the student with gifts and talents (see Appendix D). The students were instructed to read through the child assent form with their parent or guardian and to sign the form if they agreed to participate in the study. The student also was instructed to ask their parents to read through the informed consent form and to sign the form if they agreed to their child's participation in the study. The students were asked to return the signed forms to their gifted resource room teacher no later than November 22, 2001.

After the signed consent forms were returned, the assisting gifted resource room teachers distributed the student questionnaires and assisted the students with gifts and talents with the completion of the questionnaire by reading the directions with them, reviewing the instructions from the script, and being available to assist with any problems with word pronunciation. No other assistance was provided. The participating students completed two student questionnaires during their class time in the gifted resource room. The Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form A (see Appendix G) was completed to document the student's perception of the differentiated instruction provided in the gifted resource room and the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form B (see
Appendix H) was completed to document the student's perception of the differentiated instruction provided in the general education classroom.

Students were assured that their questionnaire responses would not be read by any of their teachers and they were told not to write their names on any document to ensure anonymity. After the students completed their questionnaires, they placed them in an envelope and sealed the envelope before returning the envelope to gifted resource room teacher.

Phase Seven

All documentation, including the general education classroom teacher consent forms, the completed questionnaires, the parent/guardian informed consent forms, the student child assent forms, and completed questionnaires were collected from all schools. Data from the questionnaires were entered into a database using the statistical program, SPSS (SPSS, Inc., 1999).

Treatment of Data

Data from the teacher's questionnaires were analyzed to answer the following questions:

Research Question 1. What is the perceived level of differentiated instruction provided by general education teachers in the general education classroom compared to the perceived level of differentiated instruction provided by teachers in the gifted resource room?

Analysis: Data from general education teacher questionnaires and the gifted resource room teacher questionnaires were analyzed by means of a multivariate analysis of
variance (MANOVA) followed by a univariate analysis of variance (ANOVA) to ascertain if there were any significant differences in their perceptions of the differentiated instruction in the cognitive, interpersonal, and intrapersonal domains they provide to meet the needs of students with gifts and talents. Alpha was set at .05.

Research Question 2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by general education teachers as the focus of instruction for students with gifts and talents as compared to teachers in the gifted resource room?

Analysis: A repeated measures multivariate analysis of variance (MANOVA) followed by a univariate analysis of variance (ANOVA) was performed with the domains as (cognitive, interpersonal, intrapersonal) the within-subjects variable and the type of teacher (gifted resource room vs. general education classroom) as the between-subject variable to ascertain whether there was a difference in the differentiated instruction provided among the three domains as perceived by teachers (gifted resource room vs. general education). Alpha was set at .05.

Research Question 3. Do teachers with a higher education level (PhD/EdD, EdS, MA/MS) perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with BA/BS?

Analysis: Data from the teacher questionnaires were analyzed by means of a multivariate analysis of variance (MANOVA) followed by a univariate ANOVA to ascertain if there were any significant differences in teacher perception with regard to the educational level for each sample population of teachers in each of the three domains (cognitive, interpersonal, and intrapersonal). Alpha was set at .05.
Research Question 4. Do teachers with five or more years of teaching experience perceive that they provide differentiated instruction for students with gifts and talents more often than teachers with one to four years of teaching experience?

Analysis: Data from the teacher questionnaires were analyzed by means of a multivariate analysis of variance (MANOVA) followed by a univariate ANOVA to ascertain if there were significant differences in the teachers' perceptions with regard to number of years taught for each sample population of teachers among each of the three domains (cognitive, interpersonal, and intrapersonal). Alpha was set at .05.

Research Question 5. Is there a difference in the perception of the general education classroom teachers in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided for students with gifts and talents?

Analysis: Data from the teacher questionnaires were analyzed by means of a multivariate analysis of variance (MANOVA) followed by a univariate ANOVA followed by a Tukey post hoc to ascertain if there was a significant difference in the general education classroom teachers' perceptions with regard to grade level taught among each of the three domains (cognitive, interpersonal, and intrapersonal). Alpha was set at .05.

Data from the student's questionnaires were analyzed to answer the following questions:

Research Question 1. Do students with gifts and talents perceive that the general education classroom provides differentiated instruction as compared to the gifted resource room?
Analysis: A repeated measures multivariate analysis of variance (MANOVA) followed by a univariate analysis of variance (ANOVA) was performed using the student perceptions about the two types of differentiated educational experiences (gifted resource room vs. general education classroom) as the between-subject variable and the domain means as the within subjects variable. This was done for each of the three domains (cognitive, interpersonal, and intrapersonal). Alpha was set at .01.

Research Question 2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by students with gifts and talents as the focus of instruction in general education as compared to the gifted resource room?

Analysis: A repeated measures multivariate of analysis of variance (MANOVA) followed by a univariate analysis of variance (ANOVA) was performed with the domains as (cognitive, interpersonal, intrapersonal) the within-subjects variable and the type of teacher (gifted resource room vs. general education classroom) as the between-subject variable to ascertain whether there was a difference in the differentiated instruction provided among the three domains as perceived by students with gifts and talents. Alpha was set at .05.

Research Question 3. Is there a difference in the perception of students with gifts and talents in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided by teachers (gifted resource room vs. general education)?

Analysis: Data from the student questionnaires were analyzed by means of a multivariate analysis of variance (MANOVA) followed by a univariate ANOVA followed by a Tukey post hoc test to ascertain if there was a significant difference in the students' perception with regard to grade level among each of the three domains (cognitive, interpersonal, and intrapersonal). Alpha was set at .05.
CHAPTER 4

RESULTS

This study was conducted to investigate the instructional differentiation provided students with gifts and talents in the general education classroom and the gifted resource room. The perceptions of gifted resource room teachers, general education classroom teachers, and students with gifts and talents were collected and analyzed. These perceptions were recorded using three questionnaires: (a) the Instructional Practices Questionnaire for Gifted Resource Room Teachers (Greene & Hong, 2001a) (see Appendix E), (b) the Instructional Practices Questionnaire for General Education Classroom Teachers (Greene & Hong, 2001b) (see Appendix F), (c) the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form A (Greene & Hong, 2001c) (see Appendix G), and (d) the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form B (Greene & Hong, 2001d) (see Appendix H).

The questionnaires focused on the educational domains of cognitive, interpersonal, and intrapersonal instruction. Teacher demographic information on the teacher questionnaires consisted of current grade level taught, gender, ethnicity, level of education, teaching experience, number of years teaching, experience with students gifts and talents, and grade levels taught. The gifted resource room teacher demographic questionnaire also included the number of years teaching in the gifted program (see
Tables 1 and 2, respectfully). Student demographic information included current grade level, gender, ethnicity, number of years in school (including preschool), and the number of years in the gifted program (see Table 3). Demographic data collected were analyzed using quantitative analysis.

Of the 101 questionnaires distributed to the participating GATE resource room teachers, 67 were completed and returned. This represents a return rate of 66.34%. Of the 216 questionnaires distributed to the participating general education classroom teachers, 144 were completed and returned. This represents a return rate of 66.67%. Of the 1841 questionnaires distributed to students with gifts and talents, 850 were completed and returned. This represents a return rate of 46.17%.

Internal consistency (Coefficient alpha) is a descriptive statistic modeled after the SPSS reliability subprogram. Internal consistency (Coefficient alpha) for the Instructional Practices Questionnaire for Teachers (gifted resource room and general education) was .9234. The internal consistency (Coefficient alpha) for the Instructional Practices Questionnaire for the Students Student form A and Student form B was .9188.

Items on the questionnaires with a response frequency percentage of 45% and over for either Often or Almost Always were used to determine which differentiated instructional practices were perceived by the teachers (general education and gifted resource room) as activities they provided in their classroom. Table 4 contains a frequency percentage listing of items analyzed by domains for the gifted resource room teachers. Table 5 contains a frequency percentage listing of items analyzed by domains for the general education classroom teachers.
### Table 4

**Frequency Percentage of Each Item by Domain for Gifted Resource Room Teachers**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive (C)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>6 (9.0)</td>
<td>13 (19.4)</td>
<td>26 (38.8)</td>
<td>22 (32.8)</td>
</tr>
<tr>
<td>C2</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>10 (14.9)</td>
<td>57 (85.1)*</td>
</tr>
<tr>
<td>C3</td>
<td>0 (0.0)</td>
<td>2 (3.0)</td>
<td>15 (22.4)</td>
<td>49 (73.1)*</td>
</tr>
<tr>
<td>C4</td>
<td>3 (4.5)</td>
<td>6 (9.0)</td>
<td>27 (40.3)</td>
<td>31 (46.3)*</td>
</tr>
<tr>
<td>C5</td>
<td>5 (7.5)</td>
<td>14 (20.9)</td>
<td>39 (58.2)*</td>
<td>9 (13.4)</td>
</tr>
<tr>
<td>C6</td>
<td>0 (0.0)</td>
<td>8 (11.9)</td>
<td>30 (44.8)*</td>
<td>29 (43.3)</td>
</tr>
<tr>
<td>C7</td>
<td>0 (0.0)</td>
<td>2 (3.0)</td>
<td>19 (28.4)</td>
<td>46 (68.7)*</td>
</tr>
<tr>
<td>C8</td>
<td>0 (0.0)</td>
<td>11 (16.4)</td>
<td>25 (37.3)</td>
<td>31 (46.3)*</td>
</tr>
<tr>
<td>C9</td>
<td>0 (0.0)</td>
<td>2 (3.0)</td>
<td>25 (37.3)</td>
<td>40 (59.7)*</td>
</tr>
<tr>
<td>C10</td>
<td>2 (3.0)</td>
<td>13 (19.4)</td>
<td>31 (46.3)*</td>
<td>21 (31.3)</td>
</tr>
<tr>
<td>C11</td>
<td>1 (1.5)</td>
<td>5 (7.5)</td>
<td>35 (52.2)*</td>
<td>26 (38.8)</td>
</tr>
<tr>
<td>C12</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>16 (23.9)</td>
<td>51 (76.1)*</td>
</tr>
<tr>
<td><strong>Interpersonal (IE)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IE1</td>
<td>1 (1.5)</td>
<td>7 (10.4)</td>
<td>17 (25.4)</td>
<td>42 (62.7)*</td>
</tr>
<tr>
<td>IE2</td>
<td>5 (7.5)</td>
<td>22 (32.8)</td>
<td>27 (40.3)</td>
<td>13 (19.4)</td>
</tr>
<tr>
<td>IE3</td>
<td>0 (0.0)</td>
<td>10 (14.9)</td>
<td>32 (47.8)*</td>
<td>25 (37.3)</td>
</tr>
<tr>
<td>IE4</td>
<td>0 (0.0)</td>
<td>5 (7.5)</td>
<td>23 (34.3)</td>
<td>39 (58.2)*</td>
</tr>
<tr>
<td>IE5</td>
<td>1 (1.5)</td>
<td>9 (13.4)</td>
<td>31 (46.3)*</td>
<td>26 (38.8)</td>
</tr>
</tbody>
</table>

Tables continue...

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| IE6   | 1 (1.5) | 6 (9.0) | 32 (47.8)* | 28 (41.8) |
| IE7   | 0 (0.0) | 1 (1.5) | 16 (23.9)  | 50 (74.6)* |
| IE8   | 0 (0.0) | 10 (14.9)| 26 (38.8)  | 31 (46.3)* |
| IE9   | 0 (0.0) | 7 (10.4) | 27 (40.3)  | 33 (49.3)* |
| IE10  | 0 (0.0) | 6 (9.0)  | 32 (47.8)* | 29 (43.3) |

**Intrapersonal (IA)**

| IA1   | 0 (0.0) | 18 (26.9)| 31 (46.3)* | 17 (25.4) |
| IA2   | 3 (4.5) | 16 (23.9)| 27 (40.3)  | 21 (31.3) |
| IA3   | 0 (0.0) | 17 (25.4)| 28 (41.8)  | 22 (32.8) |
| IA4   | 6 (9.0) | 25 (37.3)| 24 (35.8)  | 12 (17.9) |
| IA5   | 1 (1.5) | 6 (9.0)  | 29 (43.3)  | 31 (46.3)*|
| IA6   | 1 (1.5) | 11 (16.4)| 24 (35.8)  | 30 (44.8)*|
| IA7   | 0 (0.0) | 2 (3.0)  | 23 (34.3)  | 42 (62.7)*|
| IA8   | 4 (6.0) | 12 (17.9)| 31 (46.3)* | 20 (29.9) |

*Note.* Items with a response frequency of 45% and over for either often or almost always.

*Note.* The first number indicates the number of gifted resource room teachers selecting an item. The number in parenthesis indicates the percentage of teachers selecting an item. 

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Table 5

*Frequency Percentage of Each Item by Domain for General Education Teachers*

<table>
<thead>
<tr>
<th>Domain</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive (C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>7 (4.9)</td>
<td>33 (22.9)</td>
<td>69 (47.9)*</td>
<td>33 (22.9)</td>
</tr>
<tr>
<td>C2</td>
<td>0 (0.0)</td>
<td>17 (11.8)</td>
<td>71 (49.3)*</td>
<td>56 (38.9)</td>
</tr>
<tr>
<td>C3</td>
<td>3 (2.1)</td>
<td>52 (36.1)</td>
<td>56 (38.9)</td>
<td>33 (22.9)</td>
</tr>
<tr>
<td>C4</td>
<td>3 (2.1)</td>
<td>51 (35.4)</td>
<td>61 (42.4)</td>
<td>29 (20.1)</td>
</tr>
<tr>
<td>C5</td>
<td>3 (2.1)</td>
<td>21 (14.6)</td>
<td>64 (44.4)</td>
<td>55 (38.2)</td>
</tr>
<tr>
<td>C6</td>
<td>0 (0.0)</td>
<td>19 (13.2)</td>
<td>71 (49.3)*</td>
<td>54 (37.5)</td>
</tr>
<tr>
<td>C7</td>
<td>3 (2.1)</td>
<td>29 (20.1)</td>
<td>71 (49.3)*</td>
<td>41 (28.5)</td>
</tr>
<tr>
<td>C8</td>
<td>11 (7.6)</td>
<td>42 (29.2)</td>
<td>56 (38.9)</td>
<td>34 (23.6)</td>
</tr>
<tr>
<td>C9</td>
<td>1 (0.7)</td>
<td>14 (9.7)</td>
<td>69 (47.9)*</td>
<td>60 (41.7)</td>
</tr>
<tr>
<td>C10</td>
<td>8 (5.6)</td>
<td>33 (22.9)</td>
<td>69 (47.9)*</td>
<td>34 (23.6)</td>
</tr>
<tr>
<td>C11</td>
<td>10 (6.9)</td>
<td>47 (32.6)</td>
<td>69 (47.9)*</td>
<td>18 (12.5)</td>
</tr>
<tr>
<td>C12</td>
<td>4 (2.8)</td>
<td>44 (30.6)</td>
<td>60 (41.7)</td>
<td>36 (25.0)</td>
</tr>
</tbody>
</table>

Interpersonal (IE)

| IE1          | 9 (6.3)| 44 (30.6) | 50 (34.7) | 41 (28.5)     |
| IE2          | 3 (2.1)| 25 (17.4) | 61 (42.4) | 55 (38.2)     |
| IE3          | 8 (5.6)| 38 (26.4) | 59 (41.0) | 39 (27.1)     |
| IE4          | 2 (1.4)| 47 (32.6) | 56 (38.9) | 39 (27.1)     |
| IE5          | 13 (9.0)| 44 (30.6) | 66 (45.8)* | 21 (14.6)     |

Table continues
<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE6</td>
<td>5 (3.5)</td>
<td>25 (17.4)</td>
<td>67 (46.5)*</td>
<td>47 (32.6)</td>
</tr>
<tr>
<td>IE7</td>
<td>5 (3.5)</td>
<td>49 (34.0)</td>
<td>64 (44.4)</td>
<td>24 (16.7)</td>
</tr>
<tr>
<td>IE8</td>
<td>11 (7.6)</td>
<td>58 (40.3)</td>
<td>45 (31.3)</td>
<td>26 (18.1)</td>
</tr>
<tr>
<td>IE9</td>
<td>7 (4.9)</td>
<td>45 (31.3)</td>
<td>58 (40.3)</td>
<td>34 (23.6)</td>
</tr>
<tr>
<td>IE10</td>
<td>6 (4.2)</td>
<td>23 (16.0)</td>
<td>59 (41.0)</td>
<td>55 (38.2)</td>
</tr>
</tbody>
</table>

**Intrapersonal (IA)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA1</td>
<td>8 (5.6)</td>
<td>61 (42.4)</td>
<td>48 (33.3)</td>
</tr>
<tr>
<td>IA2</td>
<td>27 (18.8)</td>
<td>61 (42.4)</td>
<td>35 (24.3)</td>
</tr>
<tr>
<td>IA3</td>
<td>31 (21.5)</td>
<td>60 (41.7)</td>
<td>40 (27.8)</td>
</tr>
<tr>
<td>IA4</td>
<td>64 (44.4)</td>
<td>54 (37.5)</td>
<td>22 (15.3)</td>
</tr>
<tr>
<td>IA5</td>
<td>22 (15.3)</td>
<td>61 (42.4)</td>
<td>48 (33.3)</td>
</tr>
<tr>
<td>IA6</td>
<td>17 (11.8)</td>
<td>55 (38.2)</td>
<td>53 (36.8)</td>
</tr>
<tr>
<td>IA7</td>
<td>0 (0.0)</td>
<td>5 (3.5)</td>
<td>28 (19.4)</td>
</tr>
<tr>
<td>IA8</td>
<td>7 (4.9)</td>
<td>37 (25.7)</td>
<td>63 (43.8)</td>
</tr>
</tbody>
</table>

*Note.* Items with a response frequency of 45% and over for either often or almost always.

*Note.* The first number indicates the number of gifted resource room teachers selecting an item. The number in parenthesis indicates the percentage of teachers selecting an item.

Descriptive and inferential statistical procedures were applied to the research data to answer the questions in this study. A .05 level of confidence was used for the multivariate analysis of variance (MANOVA) to test for significant differences between participating groups within the three domains (cognitive, interpersonal, and intrapersonal). The results of the analyses are organized by the research questions.

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Research Question 1. What is the perceived level of differentiated instruction provided by general education teachers in the general education classroom compared to the perceived level of differentiated instruction provided by teachers in the gifted resource room?

The results of the multivariate analysis of variance (MANOVA) indicated a statistically significant difference between the responses of the gifted resource room teachers and the general education classroom teachers on the linear combination of teacher responses for the three domain means (cognitive, interpersonal, intrapersonal). \( F(3.20) = 18.38, p < .05 \). Eta Squared was .21 indicating that 21% of the variance in the teacher responses was accounted for by variance in teacher type (general education vs. gifted resource room). This indicated a weak association between teacher response scores and teacher group membership.

Results from the univariate ANOVA indicated that there was a statistically significant difference for all three domains, cognitive domain \( F = 37.4, p < .005 \), interpersonal \( F = 34.1, p < .005 \), and intrapersonal \( F = 47.9, p < .005 \). Eta squared for the cognitive domain was .152 indicating that 15% of the variance in the teacher responses was accounted for by variance in teacher type. Eta squared for the interpersonal domain was .140 indicating that 14% of the variance in the teacher responses was accounted for by variance in teacher type. Eta squared for the intrapersonal domain was .187 indicating that 18% of the variance in the teacher responses was accounted for by variance in teacher type. Eta squared for each domain indicated a weak association between teacher response scores and teacher type. The means and standard deviations by domains are reported in Table 6. The overall results of
analysis indicated that general education teachers perceived that they provided
differentiated instruction less often than gifted resource room teachers. The results of the
univariate ANOVA analyses are reported in Table 7.

Table 6

Means and Standard Deviations of Domains (cognitive, interpersonal, intrapersonal) for
Teacher Group (Gifted Resource Room Teachers vs. General Education Teachers)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Gifted Resource Room</th>
<th>General Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Cognitive (C)</td>
<td>3.3719*</td>
<td>.36994</td>
</tr>
<tr>
<td>Interpersonal (IE)</td>
<td>3.3239*</td>
<td>.45263</td>
</tr>
<tr>
<td>Intrapersonal (IA)</td>
<td>3.0970*</td>
<td>.54911</td>
</tr>
</tbody>
</table>

Note. *Significant at the $p < .05$ level.

Table 7

Summary of the Univariate ANOVA Results by Domains

<table>
<thead>
<tr>
<th>Domains</th>
<th>F</th>
<th>p</th>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive (C)</td>
<td>37.405</td>
<td>.000*</td>
<td>.152</td>
</tr>
<tr>
<td>Interpersonal (IE)</td>
<td>34.150</td>
<td>.000*</td>
<td>.14</td>
</tr>
<tr>
<td>Intrapersonal (IA)</td>
<td>47.931</td>
<td>.000*</td>
<td>.187</td>
</tr>
</tbody>
</table>

Note. *Significant at the $p < .05$ level.
Research Question 2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by general education teachers as the focus of instruction for students with gifts and talents as compared to teachers in the gifted resource room?

Results of the repeated measures MANOVA indicated a statistically significant difference among the three domains (cognitive, interpersonal, intrapersonal). \( F(2,208) = 63.9, p < .05 \). Eta squared was .381 indicating that 38% of the variance in teacher responses is explained by variance in the three educational domains (cognitive, interpersonal, intrapersonal).

Results from the repeated measures ANOVA indicated a statistically significant difference among all domains for each teacher group. (gifted resource room \( F(2,65) = 19.76, p < .05 \), general education \( F(2,142) = 65.61, p < .05 \)). Eta squared for the gifted resource room was .378 indicating that 37% of the variance in teacher responses is explained by variance in the three educational domains (cognitive, interpersonal, intrapersonal). Eta squared for the general education was .480 indicating that 48% of the variance in teacher responses is explained by variance in the three educational domains (cognitive, interpersonal, intrapersonal). The means and standard deviations by domains are reported in Table 8. The results of the repeated measures ANOVA analyses are reported in Table 9.

Pairwise comparisons based on the estimated means using Bonferroni adjustment for multiple comparisons indicated that both general education teachers and gifted resource room teachers perceive that they focus on instruction in the cognitive domain (M gifted resource room = 3.37, M general education = 2.98) and interpersonal domain (M gifted resource room = 3.32, M general education = 2.87) statistically significantly more often.
than on instruction in the intrapersonal domain (M gifted resource room = 3.09, M
general education = 2.55). Additionally, results of the pairwise comparison indicated that
general education teachers perceived that they focused on providing instruction in the
cognitive domain (M = 2.98) significantly more often than in the interpersonal domain
(M = 2.87).

Table 8

Means and Standard Deviations of Teacher Group (Gifted Resource Room Teachers vs.
General Education Teachers)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Gifted Resource Room Teachers</th>
<th></th>
<th>General Education Teachers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard</td>
<td>Mean</td>
<td>Standard</td>
</tr>
<tr>
<td>Cognitive</td>
<td>3.3719*</td>
<td>.36994</td>
<td>2.9815*</td>
<td>.45733</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>3.3239*</td>
<td>.45263</td>
<td>2.8778</td>
<td>.54304</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>3.0970</td>
<td>.54911</td>
<td>2.5547</td>
<td>.52050</td>
</tr>
</tbody>
</table>

Note. *Significant at the p < .05 level.
Table 9

Summary of the Repeated Measures ANOVA Results by Domains for Teacher Group
(Gifted Resource Room Teachers vs. General Education Teachers)

<table>
<thead>
<tr>
<th>Domain</th>
<th>F</th>
<th>p</th>
<th>Eta squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifted Resource Room Teachers</td>
<td>19.76</td>
<td>.000*</td>
<td>.378</td>
</tr>
<tr>
<td>General Education Classroom Teachers</td>
<td>65.618</td>
<td>.000*</td>
<td>.480</td>
</tr>
</tbody>
</table>

Note. *Significant at the p < .01 level.

Research Question 3. Do teachers with a higher education level (PhD/EdD, EdS, MA/MS) provide differentiated instruction for students with gifts and talents more often than teachers with BA/BS?

The results of the multivariate analysis of variance (MANOVA) indicated a statistically significant difference on the linear combination of mean domain responses based on the teacher's level of education, [F (3, 207) = 5.475, p < .05]. Eta squared was .074 which indicates that 7% of the variance in teacher responses was accounted for by variance in the teacher's level of education (PhD/EdD, EdS, MA/MS). This indicated a weak association between teacher response scores and teacher educational level.

Results from the univariate ANOVA indicated a significant difference in the cognitive domain [F = 11.385 p < .05]. Eta squared was .052 indicating that 5% of the variance in teacher responses was accounted for by variance in the teacher's level of education. This indicated a weak association between teacher response scores and teacher level of education. No significant differences were found for the interpersonal domain [F = .356, p > .05]. Eta squared was .002 indicating the 2% of the variance in...
teacher responses was accounted for by variance in the teacher's level of education. Additionally no significant differences were found for the intrapersonal domain \( F = 2.135, p > .05 \). Eta squared was .010 indicating that 1% of the variance in teacher responses was accounted for by variance in the teacher's level of education.

Demographic data collected indicated that teachers with a PhD /EdD or EdS were not part of this study. Only teachers with a BA/BS or MA/MS participated in this study. The means and standard deviations for teacher's level of education (BA/BS or MA/MS) are presented in Table 10. Results of the univariate ANOVA analysis are reported in Table 11.

Table 10

*Means and Standard Deviations of Teacher's Level of Education (BA/BS vs. MA/MS)*

<table>
<thead>
<tr>
<th>Domain</th>
<th>BA/BS</th>
<th>MA/MS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
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<tr>
<td>Cognitive</td>
<td>2.9457</td>
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</tr>
<tr>
<td>Interpersonal</td>
<td>2.9797</td>
<td>.50281</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>2.6413</td>
<td>.54986</td>
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</tbody>
</table>

*Note. p > .05*
Table 11

Summary of the Univariate ANOVA Results for Teacher Level of Education (BA/BS vs. MA/MS)

<table>
<thead>
<tr>
<th>Domain</th>
<th>F</th>
<th>p</th>
<th>Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td>11.385</td>
<td>.000*</td>
<td>.052</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>.356</td>
<td>.551</td>
<td>.002</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>2.135</td>
<td>.146</td>
<td>.010</td>
</tr>
</tbody>
</table>

Note. *Significant at the $p < .05$

Research Question 4. Do teachers with a greater number of years as a teacher (teachers with five or more years of teaching experience) provide differentiated instruction for students with gifts and talents more often than teachers with one to four years of teaching experience?

Results of the multivariate analysis of variance (MANOVA) indicated there was a statistically significant difference between teachers with one to four and those with five or more years of teaching experience on the linear combination of dependent variables, $[F (30, 176) = 2.239, p < .05]$. Eta squared was .093 indicating that 9.3% of the variance in teacher responses was accounted for by variance in the teacher's years of teaching experience. This indicated weak association between teacher response scores and years of teaching experience.

Results from the univariate ANOVA indicated that teachers with five or more years of teaching experience perceived that they provided more differentiated instruction in the cognitive domain $[F = 15.326, p < .05]$. Additionally results of the univariate ANOVA indicated that teachers with 5 or more years of teaching experience perceived that they...
provided more differentiated instruction in the intrapersonal domain \( F = 14.181, p < .05 \). Eta squared for the cognitive domain was .068 indicating that 6.8% of the variance in teacher responses was accounted for by variance in teaching experience. This indicated a weak association between teacher response scores and the number of years as a teacher. Eta squared for the intrapersonal domain was .064 indicating that 6.4% of the variance in teacher responses was accounted for by variance in teaching experience. This also indicated a weak association between teacher response scores and teaching experience. There was no significant difference indicated for the interpersonal domain \( F = 3.490, p > .05 \). Eta squared was .016 indicating that 1% of the variance in teacher responses was accounted for by variance in teaching experience. The means and standard deviations for the number of years teaching by domain are presented in Table 12. The results of univariate ANOVA analyses are reported in Table 13.

Table 12

*Means and Standard Deviations by Number of Years as a Teacher By Domain*

<table>
<thead>
<tr>
<th>Domain</th>
<th>1 to 4 years</th>
<th>5 or more years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Cognitive</td>
<td>2.8623</td>
<td>.44313</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>2.8891</td>
<td>.49854</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>2.4620</td>
<td>.47717</td>
</tr>
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</table>

*Note. *Significant at the \( p < .05 \) level*
Table 13

Summary of the Univariate ANOVA Results for Number of Years as a Teacher (1 to 4 vs. 5 or more) by Domain

<table>
<thead>
<tr>
<th>Domain</th>
<th>F</th>
<th>p</th>
<th>Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td>15.326</td>
<td>.000*</td>
<td>.068</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>3.490</td>
<td>.063</td>
<td>.016</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>14.181</td>
<td>.000*</td>
<td>.064</td>
</tr>
</tbody>
</table>

Note. *Significant at the p < .05 level.

Research Question 5. Is there a difference in the perception of the general education classroom teachers in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided for students with gifts and talents?

Results of the multivariate analysis of variance (MANOVA) indicated that there was no statistically significant difference between teachers at different grade levels on the linear combination of the mean domain scores, [F (6, 278) = .926, p > .05]. The means and standard deviations are reported in Table 14. The results of the analyses are reported in Table 15.
<table>
<thead>
<tr>
<th>Domain</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive (C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third grade</td>
<td>2.9323</td>
<td>.46815</td>
</tr>
<tr>
<td>Fourth grade</td>
<td>2.9317</td>
<td>.48611</td>
</tr>
<tr>
<td>Fifth grade</td>
<td>3.0870</td>
<td>.40214</td>
</tr>
<tr>
<td>Interpersonal (IE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third grade</td>
<td>2.8167</td>
<td>.54824</td>
</tr>
<tr>
<td>Fourth grade</td>
<td>2.8280</td>
<td>.54400</td>
</tr>
<tr>
<td>Fifth grade</td>
<td>2.9957</td>
<td>.52913</td>
</tr>
<tr>
<td>Intrapersonal (IA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third grade</td>
<td>2.4870</td>
<td>.54775</td>
</tr>
<tr>
<td>Fourth grade</td>
<td>2.5700</td>
<td>.51394</td>
</tr>
<tr>
<td>Fifth grade</td>
<td>2.6087</td>
<td>.50181</td>
</tr>
</tbody>
</table>

*Note. p > .05*
Table 15

*Summary of the Univariate ANOVA Results for Grade Level Taught by Domain*

<table>
<thead>
<tr>
<th>Domain</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td>1.818</td>
<td>.166</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>1.611</td>
<td>.203</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>.672</td>
<td>.512</td>
</tr>
</tbody>
</table>

Note. p > .05

For the student questionnaires, items with a response frequency percentage of 45% and over for either Often or Almost Always were used to determine which differentiated instructional practices were perceived by students as used by their teachers (general education and gifted resource room). Table 16 represents a frequency percentage listing of items analyzed by domains for the *Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form A* (gifted resource room teachers). Table 17 represents a frequency percentage listing of items analyzed by domains for the *Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form B* (general education classroom teachers).
Table 16

*Frequency Percentage of Each Item by Domain for Students with Gifts and Talents on Student Form A (Gifted Resource Room)*

<table>
<thead>
<tr>
<th>Domain</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive 1</td>
<td>93 (11.0)</td>
<td>267 (31.4)</td>
<td>255 (30.0)</td>
<td>235 (27.7)</td>
</tr>
<tr>
<td>2</td>
<td>56 (6.6)</td>
<td>215 (25.3)</td>
<td>291 (34.3)</td>
<td>287 (33.8)</td>
</tr>
<tr>
<td>3</td>
<td>12 (1.4)</td>
<td>79 (9.3)</td>
<td>219 (25.8)</td>
<td>538 (63.4)*</td>
</tr>
<tr>
<td>4</td>
<td>320 (37.7)</td>
<td>271 (31.9)</td>
<td>171 (20.1)</td>
<td>77 (9.1)</td>
</tr>
<tr>
<td>5</td>
<td>232 (27.3)</td>
<td>271 (31.9)</td>
<td>206 (24.3)</td>
<td>136 (16.0)</td>
</tr>
<tr>
<td>6</td>
<td>41 (4.8)</td>
<td>83 (9.8)</td>
<td>206 (24.3)</td>
<td>514 (60.5)*</td>
</tr>
<tr>
<td>7</td>
<td>67 (7.9)</td>
<td>93 (11.0)</td>
<td>191 (22.5)</td>
<td>493 (58.1)*</td>
</tr>
<tr>
<td>8</td>
<td>120 (14.1)</td>
<td>199 (23.4)</td>
<td>249 (29.3)</td>
<td>276 (32.5)</td>
</tr>
<tr>
<td>9</td>
<td>126 (14.8)</td>
<td>229 (27.0)</td>
<td>231 (27.2)</td>
<td>257 (30.3)</td>
</tr>
<tr>
<td>10</td>
<td>131 (15.4)</td>
<td>298 (35.1)</td>
<td>263 (31.0)</td>
<td>151 (17.8)</td>
</tr>
<tr>
<td>11</td>
<td>98 (11.5)</td>
<td>181 (21.3)</td>
<td>237 (27.9)</td>
<td>331 (39.0)</td>
</tr>
<tr>
<td>12</td>
<td>165 (19.4)</td>
<td>224 (26.4)</td>
<td>252 (29.7)</td>
<td>204 (24.0)</td>
</tr>
<tr>
<td>13</td>
<td>340 (40.0)</td>
<td>186 (21.9)</td>
<td>156 (18.4)</td>
<td>164 (19.3)</td>
</tr>
<tr>
<td>14</td>
<td>44 (5.2)</td>
<td>152 (17.9)</td>
<td>270 (31.8)</td>
<td>383 (45.1)*</td>
</tr>
<tr>
<td>15</td>
<td>74 (8.7)</td>
<td>106 (12.5)</td>
<td>210 (24.7)</td>
<td>458 (53.9)*</td>
</tr>
<tr>
<td>16</td>
<td>311 (36.6)</td>
<td>243 (28.6)</td>
<td>168 (19.8)</td>
<td>121 (14.3)</td>
</tr>
<tr>
<td>17</td>
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<td>209 (24.6)</td>
<td>180 (21.2)</td>
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<tr>
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<td>249 (29.3)</td>
<td>443 (52.2)*</td>
</tr>
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</table>

Table continues
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<th></th>
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</thead>
<tbody>
<tr>
<td>19</td>
<td>18 (2.1)</td>
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<td>259 (30.5)</td>
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<td>121 (14.3)</td>
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<td>254 (29.9)</td>
<td>147 (17.3)</td>
</tr>
<tr>
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<td>183 (21.6)</td>
<td>244 (28.7)</td>
<td>247 (29.1)</td>
<td>168 (19.8)</td>
</tr>
<tr>
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<td>265 (31.2)</td>
<td>265 (31.2)</td>
</tr>
<tr>
<td>24</td>
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<td>197 (23.2)</td>
<td>150 (17.7)</td>
</tr>
</tbody>
</table>

**Interpersonal**

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<th></th>
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<tbody>
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<td>511 (60.2)*</td>
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<tr>
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<td>82 (9.7)</td>
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<tr>
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<td>216 (25.4)</td>
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<td>251 (29.6)</td>
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</tr>
<tr>
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<td>452 (53.2)*</td>
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</tr>
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<td>216 (25.4)</td>
</tr>
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<td>236 (27.8)</td>
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<tr>
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<td>173 (20.4)</td>
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</table>

Table continues
<table>
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<tr>
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<th>102 (12.0)</th>
<th>178 (21.0)</th>
<th>228 (26.9)</th>
<th>337 (39.7)</th>
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<tbody>
<tr>
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<td>317 (37.3)</td>
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<tr>
<td>43</td>
<td>103 (12.1)</td>
<td>158 (18.6)</td>
<td>248 (29.2)</td>
<td>338 (39.8)</td>
</tr>
<tr>
<td>44</td>
<td>72 (8.5)</td>
<td>130 (15.3)</td>
<td>273 (32.2)</td>
<td>369 (43.5)*</td>
</tr>
</tbody>
</table>

**Intrapersonal**

<table>
<thead>
<tr>
<th></th>
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<th>175 (20.6)</th>
<th>189 (22.3)</th>
<th>344 (40.5)</th>
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<tbody>
<tr>
<td>45</td>
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<td>280 (33.0)</td>
<td>275 (32.4)</td>
</tr>
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<td>294 (34.6)</td>
</tr>
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<td>238 (28.0)</td>
<td>267 (31.4)</td>
<td>176 (20.7)</td>
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<td>190 (22.4)</td>
<td>295 (34.7)</td>
<td>308 (36.3)</td>
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<td>270 (31.8)</td>
<td>309 (36.4)</td>
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<td>53</td>
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<td>273 (32.2)</td>
<td>160 (18.8)</td>
<td>145 (17.1)</td>
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<td>356 (41.9)</td>
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<td>114 (13.4)</td>
</tr>
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<td>114 (13.4)</td>
<td>166 (19.6)</td>
<td>285 (33.6)</td>
<td>281 (33.1)</td>
</tr>
<tr>
<td>56</td>
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<td>82 (9.7)</td>
<td>217 (25.6)</td>
<td>516 (60.8)*</td>
</tr>
<tr>
<td>57</td>
<td>65 (7.7)</td>
<td>229 (27.0)</td>
<td>285 (33.6)</td>
<td>264 (31.1)</td>
</tr>
<tr>
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<td>102 (12.0)</td>
<td>175 (20.6)</td>
<td>472 (55.6)*</td>
</tr>
<tr>
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<td>93 (11.0)</td>
<td>185 (21.8)</td>
<td>284 (33.5)</td>
<td>284 (33.5)</td>
</tr>
</tbody>
</table>

*Note.* *Items with a response frequency of 45% and over for either often or almost always.*

*Note.* The first number indicates the number of students with gifts and talents selecting an item. The number in parenthesis indicates the percentage of students selecting an item.
Table 17

*Frequency Percentage of Each Item by Domain for Students with Gifts and Talents Student Form B (General Education)*

<table>
<thead>
<tr>
<th>Domain</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>164 (19.3)</td>
<td>245 (28.9)</td>
<td>213 (25.1)</td>
<td>217 (25.6)</td>
</tr>
<tr>
<td>2</td>
<td>122 (14.4)</td>
<td>274 (32.3)</td>
<td>245 (28.9)</td>
<td>196 (23.1)</td>
</tr>
<tr>
<td>3</td>
<td>49 (5.8)</td>
<td>182 (21.4)</td>
<td>274 (32.3)</td>
<td>323 (38.0)</td>
</tr>
<tr>
<td>4</td>
<td>416 (49.0)</td>
<td>223 (26.3)</td>
<td>131 (15.4)</td>
<td>66 (7.8)</td>
</tr>
<tr>
<td>5</td>
<td>35 (4.1)</td>
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<td>439 (51.7)*</td>
</tr>
<tr>
<td>6</td>
<td>67 (7.9)</td>
<td>139 (16.4)</td>
<td>221 (26.0)</td>
<td>408 (48.1)*</td>
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<td>175 (20.6)</td>
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<td>226 (26.6)</td>
<td>226 (26.6)</td>
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<td>169 (19.9)</td>
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<tr>
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<td>186 (21.9)</td>
</tr>
<tr>
<td>23</td>
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<td>275 (32.4)</td>
<td>243 (28.6)</td>
<td>161 (19.0)</td>
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<tr>
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<td>100 (11.8)</td>
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**Interpersonal**

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</tr>
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<td>208 (24.5)</td>
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<td>247 (29.1)</td>
<td>225 (26.5)</td>
</tr>
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<td>255 (30.0)</td>
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<td>182 (21.4)</td>
</tr>
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<td>191 (22.5)</td>
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</tr>
<tr>
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<td>421 (49.6)*</td>
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<tr>
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<td>190 (22.4)</td>
<td>134 (15.8)</td>
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<tr>
<td>38</td>
<td>226 (26.6)</td>
<td>230 (27.1)</td>
<td>208 (24.5)</td>
<td>170 (20.0)</td>
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<td>186 (21.9)</td>
<td>259 (30.5)</td>
<td>217 (25.6)</td>
<td>173 (20.4)</td>
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</table>

Table continues
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<tbody>
<tr>
<td><strong>40</strong></td>
<td>207 (24.4)</td>
<td>205 (24.1)</td>
<td>167 (19.7)</td>
<td>258 (30.4)</td>
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<tr>
<td><strong>41</strong></td>
<td>225 (26.5)</td>
<td>283 (33.3)</td>
<td>182 (21.4)</td>
<td>145 (17.1)</td>
</tr>
<tr>
<td><strong>42</strong></td>
<td>107 (12.6)</td>
<td>231 (27.2)</td>
<td>238 (28.0)</td>
<td>258 (30.4)</td>
</tr>
<tr>
<td><strong>43</strong></td>
<td>190 (22.4)</td>
<td>200 (23.6)</td>
<td>227 (26.7)</td>
<td>218 (25.7)</td>
</tr>
<tr>
<td><strong>44</strong></td>
<td>105 (12.4)</td>
<td>211 (24.9)</td>
<td>242 (28.5)</td>
<td>271 (31.9)</td>
</tr>
</tbody>
</table>

**Intrapersonal**

| **45** | 136 (16.0) | 192 (22.6) | 220 (25.9) | 280 (33.0) |
| **46** | 162 (19.1) | 216 (25.4) | 238 (28.0) | 214 (25.2) |
| **47** | 231 (27.2) | 239 (28.2) | 204 (24.0) | 161 (19.0) |
| **48** | 245 (28.9) | 249 (29.3) | 212 (25.0) | 119 (14.0) |
| **49** | 106 (12.5) | 244 (28.7) | 264 (31.1) | 220 (25.9) |
| **50** | 160 (18.8) | 223 (26.3) | 235 (27.7) | 217 (25.6) |
| **51** | 73 (8.6) | 176 (20.7) | 241 (28.4) | 344 (40.5) |
| **52** | 160 (18.8) | 214 (25.2) | 197 (23.2) | 270 (31.8) |
| **53** | 136 (16.0) | 275 (32.4) | 221 (26.0) | 207 (24.4) |
| **54** | 336 (39.6) | 245 (28.9) | 145 (17.1) | 110 (13.0) |
| **55** | 438 (51.6) | 177 (20.8) | 109 (12.8) | 112 (13.2) |
| **56** | 176 (20.7) | 228 (26.9) | 227 (26.7) | 209 (24.6) |
| **57** | 57 (6.7) | 168 (19.8) | 248 (29.2) | 363 (42.8) |
| **58** | 75 (8.8) | 193 (22.7) | 256 (30.2) | 309 (36.4) |

Table continues
Descriptive and inferential statistical procedures were applied to the research questions pertaining to the perceptions of students with gifts and talents. A .05 level of confidence for the multivariate analysis of variance (MANOVA) was set to test for significant differences in the perceptions of the participating students with gifts and talents from grade levels three, four, and five.

**Research Question 1.** Do students with gifts and talents perceive that the general education classroom provides differentiated instruction as compared to the gifted resource room?

The repeated measures MANOVA indicated a significant difference between student perceptions on the linear combination of student responses on all domains (cognitive, interpersonal, intrapersonal) for both teachers groups (gifted resource room vs. general education), $[F (1, 837) = 135, p < .05]$. Eta squared was .14 indicating that 14% of the variance in the student responses was accounted for by variance in teacher type (gifted resource room vs. general education). This indicated a weak association between student perception and teacher type.

Results from the repeated measures ANOVA indicated that the students perceived that the gifted resource room teachers focused statistically significantly more on the

<table>
<thead>
<tr>
<th>59</th>
<th>29 (3.4)</th>
<th>60 (7.1)</th>
<th>113 (13.3)</th>
<th>636 (74.9)*</th>
</tr>
</thead>
<tbody>
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<td>60</td>
<td>113 (13.3)</td>
<td>200 (23.6)</td>
<td>273 (32.2)</td>
<td>253 (29.8)</td>
</tr>
</tbody>
</table>

*Note.* Items with a response frequency of 45% and over for either often or almost always.

*Note.* The first number indicates the number of students with gifts and talents selecting an item. The number in parenthesis indicates the percentage of students selecting an item.
cognitive domain for gifted resource room teachers (M Student Form A = 2.73) and the
general education teachers (M Student Form B = 2.53) [F (1, 840) = 121, p < .05]. Eta
squared was .126 indicating that 12.6% of the variance in the student responses was
accounted for by variance in teacher type (gifted resource room vs. general education)
which indicated a weak association between student perception and teacher type.

A statistically significant difference was also indicated in student perception on the
interpersonal domain [M (Student Form A) = 2.84] than did the general education
teachers [M (Student Form B) = 2.64], [F (1, 840) = 117 p < .05]. Eta squared was .123
indicating that 12.3% of the variance in the student responses was accounted for by
variance in teacher type (gifted resource room vs. general education). This indicated a
weak association between student perception and teacher type.

In addition, the analysis indicated that the students perceived that the gifted resource
room teachers focus statistically significantly more on the intrapersonal domain [M
(Student Form A) = 2.81] than did the general education teachers [M (Student Form B) =
2.70], [F (1, 840) = 59.12, p < .05]. Eta squared was .066 indicating that 6.6% of the
variance in the student responses was accounted for by variance in teacher type (gifted
resource room vs. general education). This also indicated a weak association between
student perception and teacher type. The means and standard deviations are reported in
Table 18. The results of the repeated measures ANOVA analyses are reported Table 19.
Table 18

Means and Standard Deviations for Student Perception of Differentiated Instruction Provided in the Gifted Resource Room and the General Education Classroom

<table>
<thead>
<tr>
<th>Domain</th>
<th>Student Form A (SA)</th>
<th>Student Form B (SB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Cognitive</td>
<td>2.75*</td>
<td>.51821</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>2.833*</td>
<td>.57634</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>2.81*</td>
<td>.56131</td>
</tr>
</tbody>
</table>

Note. *Significant at the $p < .05$ level.

Table 19

Summary of the Repeated Measures ANOVA Results for Student Perception of Differentiated Instruction Provided in the Gifted Resource Room (SA) and the General Education Classroom (SB)

<table>
<thead>
<tr>
<th>Domain</th>
<th>F</th>
<th>p</th>
<th>Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACOG - SBCOG</td>
<td>121</td>
<td>.000*</td>
<td>.126</td>
</tr>
<tr>
<td>SAIE - SBIE</td>
<td>117</td>
<td>.000*</td>
<td>.123</td>
</tr>
<tr>
<td>SAIA - SBIA</td>
<td>59.12</td>
<td>.000*</td>
<td>.066</td>
</tr>
</tbody>
</table>

Note. *Significant at the $p < .01$ level.

Note. COG stands for cognitive domain.

IE stands for Interpersonal domain.

IA stands for Intrapersonal domain
Research Question 2. Of the cognitive, interpersonal, and intrapersonal domains, which domain(s) are perceived by students with gifts and talents as the focus of instruction in general education as compared to the gifted resource room?

The repeated measures multivariate analysis of variance (MANOVA) indicated a statistically significant difference among the linear combination of domain averages (cognitive, interpersonal, intrapersonal) for both questionnaires [Student Form A (gifted resource room)] and Student Form B (general education classroom). Eta squared was .117 indicating that 11.7% of the variance in the student responses was accounted for by the variance in domain (cognitive, interpersonal, intrapersonal). This indicated a weak association between student perception and educational domain.

The repeated measures ANOVA for the student responses on Student Form A (gifted resource room teachers) indicated that there was a statistically significant difference in the perception of students for the focus of differentiated instruction provided \( F(2, 836) = 32.18, p < .05 \). Eta squared was .071 indicating that 7.1% of the variance in the student responses was accounted for by variance in the variance in domain (cognitive, interpersonal, intrapersonal). This indicated a weak association between student perception and educational domain. According to Bonferroni pairwise comparisons, the students perceived that the gifted resource room teachers focused more on the intrapersonal domain \( M = 2.81 \) and interpersonal \( M = 2.84 \) than on cognitive \( M = 2.75 \). In addition, Bonferroni pairwise comparisons found that students perceived that the gifted resource room teachers focused more on interpersonal domain \( M = 2.84 \) than on the intrapersonal domain \( M = 2.81 \).
The results of the repeated measures analysis of variance (ANOVA) on Student Form B (general education teachers) indicated a statistically significant difference in the perception of the students concerning the focus of instruction of the general education teachers \[ F (2.837) = 42.019, p < .05 \]. Eta squared was .091 indicating that 9.1% of the variance in the student responses was accounted for by variance in the variance in domain (cognitive, interpersonal, intrapersonal) indicating a weak association between student perception and educational domain. According to Bonferroni pairwise comparisons, the students perceived that the general education classroom teachers focused more on the intrapersonal domain \( M = 2.70 \) and interpersonal \( M = 2.64 \) than on cognitive \( M = 2.53 \). In addition, Bonferroni pairwise comparisons found that students perceived that the general education classroom teachers focused more on intrapersonal domain \( M = 2.70 \) than on the interpersonal domain \( M = 2.64 \). The means and standard deviations are reported in Table 18. The results of repeated measures ANOVA analyses are reported in Table 20.

Table 20

<table>
<thead>
<tr>
<th></th>
<th>Student Form A (SA)</th>
<th>Student Form B (SB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Gifted Resource Room)</td>
<td>(General Education)</td>
</tr>
<tr>
<td>All domains</td>
<td>32.106</td>
<td>42.019</td>
</tr>
<tr>
<td></td>
<td>.000*</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Note. *Significant at the \( p < .05 \) level.
Research Question 3. Is there a difference in the perception of students with gifts and talents in different grade levels (third, fourth, or fifth) in the level of differentiated instruction provided by teachers (gifted resource room vs. general education)?

The results of the multivariate analysis of variance (MANOVA) indicated there was a statistically significant difference between students with gifts and talents in the different grade levels concerning their perception of instructional focus in the gifted resource room and the general education classroom, \( F(12,1662) = 2.231, p < .05 \). Eta squared was .021 indicating that 2.1% of the variance in the student responses was accounted for by difference in student grade level (third, fourth, fifth). This indicated a weak association between student perception and student's grade level.

Results from the univariate ANOVA indicated that a statistically significant difference was found for student's perception of instructional focus in the cognitive domain \( F = 11.66, p < .05 \), the interpersonal domain \( F = 5.82, p < .05 \), and the intrapersonal domain \( F = 7.59, p < .05 \) for the gifted resource room. Eta squared for the cognitive domain was .029 indicating that 2.9% of the variance in the student responses was accounted for by difference in student grade level (third, fourth, fifth). Eta squared for the interpersonal domain was .015 indicating that 1.5% of the variance in the student responses was accounted for by difference in student grade level. Eta squared for the intrapersonal domain was .018 indicating that 1.8% of the variance in the student responses was accounted for by difference in student grade level. Eta squared for each domain indicated a weak association between student perception and student's grade level.

Results from the univariate ANOVA indicated that a statistically significant difference was found for student's perception of instructional focus in the intrapersonal...
domain for the general education classroom \( F = 5.84, p < .05 \). Eta squared was .014 indicating that 1.4% of the variance in the student responses was accounted for by difference in student grade level (third, fourth, fifth). This indicated a weak association between student perception and student’s grade level. No statistically significant differences were found for student’s perception of instructional focus in the cognitive domain \( F = 2.312, p > .05 \) and interpersonal domain \( F = 2.285, p > .05 \) for the general education classroom. Eta squared for the cognitive domain was .006 indicating that .6% of the variance in the student responses was accounted for by difference in student grade level (third, fourth, fifth). This indicated a weak association between student perception and student’s grade level. Eta squared for the interpersonal domain was .006 indicating that .6% of the variance in the student responses was accounted for by difference in student grade level (third, fourth, fifth). This indicated a weak association between student perception and student’s grade level.

The results of the Tukey post hoc analysis for Student Form A (gifted resource room) indicated that students in grades four and five perceived significantly more differentiated instruction in the cognitive domain in the gifted resource room \( (M \text{ grade four} = 2.7365, M \text{ grade five} = 2.8048) \) than the students in grade three \( (M = 2.6048) \). Grade four and five students also perceived that they received statistically significantly more differentiated instruction in the interpersonal domain in the gifted resource room \( (M \text{ grade four} = 2.8327, M \text{ grade five} = 2.8855) \) than students in grade three \( (M = 2.7148) \). Additionally, grade four and five students perceived that they received statistically significantly more differentiated instruction in the gifted resource room in the intrapersonal domain \( (M \text{ grade four} = 2.8215, M \text{ grade five} = 2.8551) \) than students in grade three \( (M = 2.6422) \).
The results of the Tukey post hoc analysis for Student Form B (general education classroom) indicated that students in grades four and five perceived more cognitive differentiated instruction in the general education classroom (M grade four = 2.5321, M grade five = 3.034) than the students in grade three (M = 2.4812). Grade four and five students also perceived that they received more interpersonal differentiated instruction in the general education classroom (M grade four = 2.6453, M grade five = 2.6630) than students in grade three (M = 2.5562). Additionally, grade four and five students perceived that they received statistically significantly more differentiated instruction in the general education classroom in the intrapersonal domain (M grade four = 2.7442, M grade five = 2.7284) than grade three (M = 2.5271). The results of the univariate ANOVA analyses are reported in Table 21. The means and standard deviations are reported in Table 22. The results of Tukey post hoc test are reported in Table 23.

**Table 21**  
*Summary of the Univariate ANOVA Results for Grade Level Student by Domain*

<table>
<thead>
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<th>Grade Level Student</th>
<th>F</th>
<th>p</th>
<th>Eta Squared</th>
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<tbody>
<tr>
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<td>.000*</td>
<td>.029</td>
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<td>SAIE</td>
<td>5.827</td>
<td>.003*</td>
<td>.015</td>
</tr>
<tr>
<td>SAIA</td>
<td>7.596</td>
<td>.001*</td>
<td>.018</td>
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</table>

Table continues
<table>
<thead>
<tr>
<th>Grade Level Student</th>
<th>M</th>
<th>SD</th>
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<tbody>
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<td></td>
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<td>3</td>
<td>2.6048</td>
<td>.55603</td>
</tr>
<tr>
<td>4</td>
<td>2.7365*</td>
<td>.52833</td>
</tr>
<tr>
<td>5</td>
<td>2.8048*</td>
<td>.48651</td>
</tr>
<tr>
<td>SAIE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2.7148</td>
<td>.62978</td>
</tr>
<tr>
<td>4</td>
<td>2.8327*</td>
<td>.59673</td>
</tr>
<tr>
<td>5</td>
<td>2.8855*</td>
<td>.53388</td>
</tr>
</tbody>
</table>

*Significant at the $p < .05$ level.

Notes: SA stands for Gifted Resource Room Student Form.

SB stands for General Education Student Form.

COG stands for cognitive domain.

IE stands for interpersonal domain.

IA stands for intrapersonal domain.

Table 22

Means and Standard Deviations of Grade Level Student Perception by Domain and Classroom Setting
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Grade Level</th>
<th>Mean</th>
<th>Difference</th>
<th>p</th>
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<tr>
<td></td>
<td>4</td>
<td>2.8215*</td>
<td>.54761</td>
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<tr>
<td></td>
<td>5</td>
<td>2.8551*</td>
<td>.54945</td>
<td></td>
</tr>
<tr>
<td>SBCOG</td>
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<td>.59822</td>
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</tr>
<tr>
<td></td>
<td>4</td>
<td>2.5321</td>
<td>.58361</td>
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<tr>
<td></td>
<td>5</td>
<td>3.0334</td>
<td>9.35532</td>
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<tr>
<td>SBIE</td>
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<td>2.5562</td>
<td>.62641</td>
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</tr>
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<td></td>
<td>4</td>
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<td>.89817</td>
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<td></td>
<td>5</td>
<td>2.6630</td>
<td>.66289</td>
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Note. *Significant at the $p < .05$ level.

Table 23

*Summary of the Tukey post hoc test Results for Grade Level Student Perception by Domain and Classroom Setting (Gifted Resource Room vs. General Education Classroom)*

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*Significant at the $p < .05$ level.

Note. SA stands for Gifted Resource Room Student Form.

SB stands for General Education Student Form.

COG stands for cognitive domain.

IE stands for interpersonal domain.

IA stands for intrapersonal domain.
CHAPTER 5

DISCUSSION

While the education of students with gifts and talents has received attention since the 1950s, the differentiated educational opportunities provided to these students has only been a focus of gifted education for the last 20 years (Torrance & Sisk, 2001). Much of the early research in this area focused on differentiated educational opportunities in the general education classroom (Marland, 1972; U. S. Department of Education, 1993; Ward, 1961). Recent research from two national studies indicates that a major problem in the education of students with gifts and talents is the lack of challenging work provided in their general education classrooms (Archambault, Westberg, Brown, Hallmark, Emmons, & Zhang, 1993; Westberg, Archambault, Dobyns, & Salvin, 1993). It appears that these students receive few, if any, services in general education to address their unique learning characteristics and academic needs.

Research that has focused on classroom practices in general education for students with gifts and talents has found that the curriculum modifications and classroom instructional practices focus primarily on developing cognitive abilities (Archambault et al., 1993; Gentry, Rizza, & Gable, 2001; Westberg et al., 1993). This research appears to indicate that general educators are not making use of the best practice research that identifies the importance of interpersonal and intrapersonal education as well as cognitive education for the development of potential in all students (Gardner, 1993). While much
research has been conducted to evaluate the general education classroom practices for students with gifts and talents in the cognitive domain, little attention has been devoted to the interpersonal and/or intrapersonal development of these students (Greene & Hong, 2001).

The purpose of the present study was to investigate the perceptions of general education teachers, gifted resource room teachers, and third, fourth, and fifth grade students with gifts and talents concerning differentiated instruction in the cognitive, interpersonal, and intrapersonal educational domains. Teacher and student questionnaires were used to collect data. Four instruments were developed for use in this study: (1) the Instructional Practices Questionnaire for Gifted Resource Room Teachers (Greene & Hong, 2001a), (see Appendix E), (2) the Instructional Practices Questionnaire for General Education Classroom Teachers (Greene & Hong, 2001b), (see Appendix F), (3) the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form A (Greene & Hong, 2001c), (see Appendix G), and (4) the Instructional Practices Questionnaire for Students with Gifts and Talents: Student Form B (Greene & Hong, 2001d), (see Appendix H).

This study included 144 general education classroom teachers, 67 teachers from the gifted and talented education program, and 850 third, fourth, and fifth grade students with gifts and talents and who were enrolled in the gifted resource room program. A total of 1,061 participants were included in this study.
Teacher Perceptions

This portion of the study was designed to collect quantitative data concerning the perception of general education classroom teachers and gifted resource room teachers concerning the differentiated instructional opportunities that are provided to students with gifts and talents within their respective classrooms. Both groups of teachers completed the same questionnaire.

The first research question in this study compared the perceptions of the general education teachers to the perceptions of the gifted education teachers concerning the level of differentiated instruction they provided in their classrooms. Results of the multivariate analysis of variance (MANOVA) indicated a statistically significant difference between the general education classroom teachers and the gifted resource room teachers responses to items one through 30 on the Instructional Practice Questionnaire for Teachers (Gifted Resource Room and General Education). The questionnaire covered items in the three instructional domains (cognitive, interpersonal, and intrapersonal). The data indicated that the general education teachers perceived that they provided differentiated instruction less often than the gifted resource room teachers perceived that they provided differentiated instruction.

Even though the results of this analysis indicated an overall statistically significant difference between the perceptions of the general education classroom teachers and the gifted resource room teachers concerning the use of the differentiated instruction with students with gifts and talents, it was interesting to note that the comparison of some individual items on the questionnaire indicated no statistically significant difference. Specifically, for three questions in the cognitive (C) domain (C1, C6, and C10), two
questions in the interpersonal (IE) domain (IE 6, and IE 10), and two questions in the intrapersonal (IA) domain (IA 7 and IA 8) there was no difference between the perceptions of the general education teachers and the gifted resource room teachers. This may be due to the fact that the items from the cognitive domain are part of the curriculum essentials framework and standard teaching practices for all teachers in the participating school district. Item C1 addresses the development of critical reading skills (e.g., I assign advanced level reading, use advanced text, or provide advanced novels on themes discussed in class), item C6 encourages students to create figurative language (e.g., I encourage students to participate in class discussions, assign creative or expository writing projects, or encourage students to share ideas, information, and interests), and item C10 teaches students to distinguish fact and opinion (e.g., I coach students on ways to distinguish fact from opinion, provide exercise materials for students so they identify information as fact or opinion, or have students gather facts and opinions as part of homework). Because these are curricular requirements of the participating school district, it appears that both general and gifted education teachers perceive that they focus on these cognitive items.

In the interpersonal (IE) domain there were no differences between the groups of teachers on two items. Both of these items are the focus of cooperative teaching workshops provided to all teachers in the participating school district. Item IE 6 encourages students to cooperate with group members (e.g., I encourage students to listen to the suggestions of others when they participate in a group, use a reward system in which the success of the group is determined by group's efforts, or encourage students to do their best to contribute to their group), while item IE 10 provides students the
opportunity to practice group dynamics (e.g., I provide opportunities for students to
demonstrate self-discipline during small-group activities, encourage group members to
keep the group on task, or encourage group members to consider individual differences in
the way other students approach group activities). Thus, the similar responses for these
questionnaire items by general and gifted education teachers may be a reflection of the
preservice and/or inservice training received by both groups. This may indicate that the
 provision of training of differentiated instructional practices does directly impact
classroom practice for both groups of teachers.

In the intrapersonal domain both sets of teachers responded similarly to item IA 7,
demonstrates responsibility. (e.g., I help students realize every action comes with a
consequence, hold students responsible when they do not turn in homework assignments,
or encourage students to complete a given task even when it is a difficult one), and Item
IA 8 understand and expand their learning styles (e.g., I help students understand that
individuals have varied learning styles, provide homework where they may use their
preferred learning styles, or tell students to think of different ways of studying when their
way of studying does not help them learn). Teachers in the participating school district
receive behavior modification inservices concerning item IA 7 and learning styles
inservices concerning item IA 8. Once again, this may demonstrate that additional
training for educators can impact classroom practice.

The above skills are important for all students, not just students with gifts and talents,
and the results from the questionnaires indicate that both general education and gifted
resource room teachers are incorporating them into their instruction. Since gifted students
spend all but two or three hours per week in general education, they should be

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encouraged to cooperate with group members and given the opportunity to practice group
dynamics while being encouraged to demonstrate responsibility. It is also positive that
students with gifts and talents are encouraged to develop critical reading skills, create
figurative language, distinguish fact from opinion, and expand their learning styles in
both the general education classroom and the gifted resource room. These skills are
important components in differentiated instruction in both classroom environments.

The second research question in this study attempted to determine the domain area(s)
cognitive, interpersonal, and/or intrapersonal) that were perceived by general education
teachers as their focus of instruction for students with gifts and talents as compared to the
perception of teachers in the gifted resource room. The results indicated that both general
education teachers and gifted resource room teachers perceived that they primarily
focused on instruction in the cognitive domain and the interpersonal domain more often
than on instruction in the intrapersonal domain. Both groups of teachers (general
education and gifted resource room) appear to be assisting in the cognitive and social
development of students with gifts and talents, but these findings suggest that more must
be done to assist these students in developing confidence in their abilities, making
decisions, and selecting study topics of interest. The data also appear to indicate that
general education teachers perceive that they are providing instruction in the cognitive
domain more often than in the interpersonal and intrapersonal domains. This finding is
similar to those of other researchers (Archambault et al., 1993; Gentry, Rizza, & Gable,
2001; Westberg et al., 1993) who found little progress toward instructional differentiation
in all domain areas for students with gifts and talents in the general education classroom.
The third research question asked in this study attempted to ascertain if teacher educational level (BA/BS, MA/MS, PhD/EdD, EdS) was a factor in the provision of differentiated instruction for students with gifts and talents. Even though the multivariate analysis of variance (MANOVA) indicated no statistically significant difference on the linear combination of teacher responses on all questions, the Test of Between Subjects Effects identified six questionnaire items from the cognitive (C) domain and one questionnaire item from the intrapersonal (IA) domain that were significantly different indicating that teachers who held a MA/MS Degree or higher perceived that they differentiated instruction more often in these areas than teachers who held a BA/BS Degree. Interestingly, there were no teachers with a PhD/EdD, or EdS degree who participated in this study. One encouraging note is that 56 of the 67 (83%) participating gifted resource room teachers and 84 of the 144 (58%) participating general education classroom teachers held a MA/MS degree. This would indicate that over half of the teachers who participated in this study had done graduate work in education.

In relating teacher educational level to the three domains (cognitive, interpersonal, intrapersonal), significant differences were indicated for items C2 (demonstrate brainstorming skills), C3 (develop thinking skills), C7 (practice problem-solving), C8 (interpret information from various sources), C11 (determine relevance and irrelevance), and C12 (accept challenges in learning), and for the intrapersonal domain statistically significant differences were indicated for item IA 2 (demonstrate initiative). These findings may indicate that teachers who obtain higher educational levels are more apt to provide differentiated instruction for all students, including students with gifts and talents.
The impact that the number of years of teaching experience could have on the provision of differentiated instruction was the focus of the fourth research question in this study. Results indicated that teachers with five or more years of teaching experience tended to differentiate instruction more in the cognitive and intrapersonal domains. This may indicate that teacher training in interpersonal differentiated instruction is needed in both classroom environments (gifted resource room and general education classroom). Additionally, results indicate that teachers with 1 to 4 years of teaching experience need training in differentiated instruction in all domains (cognitive, interpersonal, and intrapersonal. One interesting item was revealed in the frequency distribution. That item was item 1A 2 (refine relationships with peers from general education) and the results indicated that teachers with one-to-four years of teaching experience perceived that they provided more opportunities for students with gifts and talents to refine relationships with peers from general education than did teachers with five or more years of teaching experience. It appears that the teachers with one to four years of teaching experience perceive that they make an effort to include students with gifts and talents while teachers who have taught for a longer period do not perceive that they make the same effort. Those general education teachers with five or more years of teaching experience may have either given the primary responsibility of the education of students with gifts and talents to the gifted resource room teachers or they don’t believe that providing differentiated instructional opportunities to students with gifts and talents is their responsibility at all. Conversely, the gifted resource room teachers may not have the opportunity to refine relationships with peers from general education because the gifted classroom environment is a homogeneous environment.
The last question that dealt with teacher perceptions investigated the impact of grade level on the level of differentiated instruction provided to students with gifts and talents. Results indicated that there was no statistically significant difference between teachers of different grade levels. This result indicates that the general education teachers perceived that they provide similar differentiated instructional opportunities to students with gifts and talents in each of the grade levels represented in this study.

Interestingly, when comparing the overall demographic data the only contributing factors that were statistically significant with regard to whether or not teachers (general education and gifted resource room) perceived that they provided differentiated instructional practices for students with gifts and talents were the number of years of teaching experience of the teacher and the educational level of the teachers (teachers who held a Masters Degree or higher). Teachers with five or more years of teaching experience perceived that they addressed the cognitive domain in their teaching more often than teachers with one-to-four years of teaching experience. Additionally, teachers who held a Masters Degree perceived that they provided students with gifts and talents opportunities to think and problem solve in both the general education classroom and the gifted resource room. It appears that more experience and/or training (preservice or inservice) provided the teachers (gifted resource room and general education) with the skills and knowledge needed to differentiate instruction in their respective classrooms.

Student Perceptions

The student component of this study was designed to contribute quantitative information concerning the perception of students with gifts and talents with regard to the
differentiated instructional opportunities provided within the gifted resource room and the
general education classroom. Students completed two questionnaires (Student Form A
and Student Form B). The same information was queried on each questionnaire, but
different learning environments were the focus of the questionnaires (gifted resource
room vs. general education).

The first research question in this section of the study compared the perceptions of
third, fourth, and fifth grade students with gifts and talents concerning the level of
differentiated instruction they felt was provided in the general education classroom as
compared to the gifted resource room. Results indicated that the students perceived that
both classrooms provided differentiation in the cognitive domain. However, the results
indicated that the students perceived that the gifted resource room teachers provided
differentiated instruction more often in the interpersonal and intrapersonal domains than
did the general education teachers. Additionally, students perceived that they received
differentiated instruction in the intrapersonal domain more often than in the cognitive and
interpersonal domains in the general education classroom. This result indicated that,
overall, the students with gifts and talents perceived that they received differentiated
instructional opportunities more often in the interpersonal and intrapersonal domains in
the gifted resource room and in the intrapersonal domain in the general education
classroom. This result suggests that general education classroom teachers may need
additional training in the interpersonal domain area through preservice education and/or
inservice professional development education.

The second research question dealing with student perceptions attempted to
determine the domain area(s) (cognitive, interpersonal, and intrapersonal) that students
with gifts and talents perceived were the focus of instruction in general education as compared to the gifted resource room. The data from Student Form A (gifted resource room teachers) indicated that the students perceived that the gifted teachers focused instruction on the intrapersonal and interpersonal domain more than on the cognitive domain. The data from Student Form B (general education teachers) indicated that the students perceived that the general education classroom teacher focused on the intrapersonal domain more often than the cognitive or the interpersonal domains. Additionally, students perceived that there was no significant difference in the general education teachers and the gifted resource room teachers’ focus of instruction in the cognitive domain. However, the students perceived that the gifted resource room teachers provided a more challenging educational environment in the interpersonal and intrapersonal domains. These areas are important in contributing to the development of social skills, self-confidence, and independence for these students. Because of the importance of these domains for students with gifts and talents, it is important for all teachers who interact with this student population to possess the skills to provide differentiated instruction in the interpersonal and intrapersonal domains. This skill acquisition can be provided through the inclusion of appropriate strategies in preservice education or inservice professional development activities.

The last research question in this section of the study attempted to identify the grade level in which students with gifts and talents perceived that they received differentiated instruction more often. The data from the student questionnaires for the gifted resource room (Form A) and student questionnaire for the general education classroom (Form B) indicated there was a statistically significant difference among students with gifts and
talents in differing grade levels on their perception of instructional focus in the gifted
resource room and the general education classroom. The students in grades four and five
perceived that they received significantly more differentiated instruction in the cognitive
domain than the third grade students, while grade four and five students perceived that
they received significantly more differentiated instruction in the interpersonal domain in
the gifted resource room and in the general education classroom than did grade three
students. Grade four and five students also perceived that they received more
differentiated instruction in the intrapersonal domain in the gifted resource room and the
general education classroom than did the grade three students. The overall results of this
analysis may indicate that the students perceived that the gifted resource room offered a
more challenging environment over their general education classroom at all grade levels.

The variance in the perceptions of the students from the three grade levels may be
due to the fact that third grade students are tested and identified for gifted services at the
start of the school year. They typically begin attending classes in the gifted program in
late October to early November. Thus, the third grade students who participated in this
study had not received much instruction in their gifted resource room. They may have
attended approximately three to five gifted classes, which would amount to seven to 12
hours of instruction within the gifted resource room. This lack of experience in the gifted
program may account for the difference in perception between the third grade students
and the fourth and fifth grade students in this study.
Teacher Perception vs. Student Perception

When comparing the three populations who participated in this study (teachers from the gifted resource rooms, teachers from general education classrooms, and students with gifts and talents) some obvious differences arise. Interestingly, both teacher groups (gifted resource room and general education) agreed that their focus of instruction was primarily in the cognitive and interpersonal domains. On the other hand, students perceived that the gifted resource room provided significantly more differentiated instruction in the cognitive, interpersonal and intrapersonal domains. However only the intrapersonal domain was perceived by the students to be significantly differentiated in their general education classroom and no significant difference was perceived by students in the differentiated instruction provided in the cognitive domain in either classroom environment (gifted resource room or general education).

In comparing teacher perceptions to student perceptions concerning differentiated instruction within the third, fourth, and fifth grades, there was no significant difference found between the focus of instruction as perceived by the teacher groups (gifted resource room and general education). The students (third, fourth, and fifth) indicated that they perceived a significant difference in the differentiated instruction provided in the intrapersonal domain in the general education classroom, however, the fourth and fifth grade students indicated that they perceived the gifted resource room provided more differentiated instruction opportunities in the cognitive, interpersonal, and intrapersonal domains than the third grade students.
Conclusions

Eight conclusions may be drawn from this study. These conclusions are based on the quantitative data that were collected.

1. The overall results indicated that general education teachers perceived that they provided differentiated instruction less often than gifted resource room.

2. The most frequent differentiated instructional practices that were perceived to be provided by the teachers (general education and gifted resource room) were in the cognitive and the interpersonal domain.

3. General education teachers perceived that they focused on providing instruction in the cognitive domain significantly more than in the interpersonal domain.

4. The participating students perceived that the gifted resource room teachers focused more on the interpersonal and intrapersonal domains and that the general education classroom teachers focused more on the intrapersonal domain.

5. Fourth grade students perceived that the gifted resource room teachers focused on the cognitive, interpersonal, and intrapersonal domains more often than the general education teachers.

6. Fifth grade students perceived that the gifted resource room teachers focused on the cognitive, interpersonal, and interpersonal domains more often than did the general education teachers.

7. Teachers with a higher level of education (MA/MS) perceived that they provided differentiated instruction more often than teachers with a BA/BS degree.
8. Teachers with five or more years of experience as a teacher perceived that they provided differentiated instruction more often in the cognitive and intrapersonal domains than teachers with one to four years of teaching experience.

Recommendations for Further Study

Past research indicates that students with gifts and talents have not been provided differentiated instruction in the general education classroom. However, these research studies have primarily focused on the cognitive development of students with gifts and talents. This current study included the differentiated instruction provided in general education and gifted education within the interpersonal, intrapersonal and cognitive domains.

Eight recommendations for further study are made:

1.) Research is needed concerning the collaboration between general educators and teachers of gifted resource rooms. For example, research concerning the skills and characteristics a teacher of a gifted resource room must possess to facilitate collaboration and communication with a general education teacher is needed.

2.) Research needs to be conducted concerning the extent to which general education teachers and gifted resource room teachers are trained (preservice or inservice) to meet the needs of students with gifts and talents in the interpersonal or intrapersonal domains.

3.) The extent to which general educators are trained (preservice or inservice) to collaborate and communicate with ancillary school personnel needs to be explored. For example, the extent to which general educators are trained and/or encouraged to
collaborate with gifted resource room professionals and/or others experts in the field of
gifted education in order to meet the needs of students that differ from typical learners.

4.) Research that is designed to investigate the coursework provided at the university
level and/or the district level is needed. For example, teachers (gifted resource room and
general education) must be provided with instruction (university and/or district inservice)
concerning differentiated instruction procedures and methods that meet the needs of all
students, including students with gifts and talents.

5.) Research on a larger scale (local, state, and/or national) that includes the
interpersonal and intrapersonal domains as well as the cognitive domain should be
conducted so that results can be more generalized beyond one school district.

6.) An observational or qualitative research study, similar to this study, needs to be
conducted in which the perceptions reported by teachers and students are corroborated by
classroom observations. In this manner, a stronger relationship can be established
between teacher/student perceptions and actual classroom practice.

7.) Research needs to be conducted on teacher training (preservice and inservice) to
ensure that differentiated instructional practices are incorporated in teacher training to
meet the needs of all students, including students with gifts and talents.

8.) Research needs to be conducted on the types of programs that are most effective
in producing positive cognitive, interpersonal, and intrapersonal growth for students with
gifts and talents.
Summary

This study yielded several interesting findings. Analyses indicated that both teacher groups (gifted resource room and general education) perceived that they often or almost always provided opportunities for students to demonstrate brainstorming skills, practice problem solving, demonstrate transference, and demonstrate responsibility. Additionally, both teacher groups indicated that they often or almost always provided opportunities for students to create figurative language, distinguish fact and opinion, determine relevance and irrelevance, practice decision-making within a group setting, and cooperate with group members. These are important skills for all students, especially for students with gifts and talents. The development of these skills promotes automacity in thinking and writing and appears to have a positive effect on student learning. Additionally, these activities encourage the development of leadership qualities, promote social and emotional adjustment, higher order thinking, and decision making skills that ensure students with gifts and talents are ready to succeed outside of an academic environment.

Results from the frequency distribution for the student questionnaire [Student Form A, (Gifted Resource Room), and Student Form B, (General Education)] indicated that the students perceive that teachers in both teacher groups (gifted resource room and general education) encouraged the students to be part of class discussions, make sure that they do at least one problem-solving activity each day, encourage them to cooperate with other students in the group when they are working together, and holds them responsible for homework and/or classroom assignments. Activities such as these assist students in the development of judgment, creativity, critical thinking, and decision-making. Activities
that encourage group participation assist in the development of interpersonal intelligence and a sense of identity, independent thinking, and responsible citizenship.

Additionally, the results indicated that students perceived their gifted resource room teachers focused on the cognitive, interpersonal, and intrapersonal domains more often than their general education teachers. This indicates that general education teachers should be given the opportunity to become familiar with the unique needs of students with gifts and talents through preservice training and/or inservice training.

Results from this study are unique in that the perception of the students and the perceptions of the gifted resource room teachers and general education teachers were collected. Both teacher groups (gifted resource room and general education) perceive that they provided differentiated instruction more often in the cognitive and interpersonal domains than in the intrapersonal domain. While general education teachers perceived that they provided more differentiated instruction in the cognitive domain than in the interpersonal domain. This appears to indicate that both gifted resource room teachers and general education classroom teachers need further training in order to provide differentiated instructional opportunities for these students in the interpersonal and intrapersonal domains.

However, students perceived that the gifted resource room teachers provided significantly more differentiated instruction than did the general education classroom teachers. From this information, it appears that the students perceived that the gifted resource room provided a more challenging educational environment in the interpersonal and intrapersonal domains than did the general education classroom. This suggests that every effort should be made to continue resource room gifted programs, in which
students with gifts and talents have the opportunity to interact and learn in an
environment they perceive to be more challenging.

A differentiated curriculum for students with gifts and talents implies modifying the
curriculum to meet a student’s differing learning rate, style, interests, and abilities. A
differentiated curriculum includes experiences that focus on thinking skills, abstract
concepts, advanced level content, interdisciplinary studies, and a blending of content,
process, and product. When an appropriate differentiated curriculum is implemented,
students with gifts and talents explore content, ideas, problems and themes in greater
breath and depth than is possible through the regular curriculum. The opportunity to use
resources not typically available and to develop their unique talents and interests is
imperative to the intellectual and emotional well being of students with gifts and talents.

As we move into more and more integrated educational models for all students in
education, the unique learning characteristics and needs for students with gifts and talents
cannot be negated. Differentiated instruction, specifically designed to meet these needs
and characteristics, must be provided if these students are to reach their full potential.
The goal of all education is to create a learning environment in which each individual
student is provided the opportunity to thrive.
APPENDIX A

GIFTED RESOURCE ROOM TEACHER INFORMED CONSENT
University of Nevada, Las Vegas

Department of Special Education

Gifted Resource Room Teacher Informed Consent

Information:
I am a teacher with the gifted and talented education program (GATE) for the Clark County School District. I am also a doctoral student at the University of Nevada, Las Vegas (UNLV). You are being invited to participate in a research study to be utilized as part of my dissertation.

Procedures:
If you agree to volunteer in this study, you will be asked to complete a questionnaire. It should take less than 30 minutes to complete the questionnaire. Directions are included on the form but if you should have a question, please consult with the researcher, Mary Greene.

Benefits of Participation:
Your participation will help students with gifts and talents in their classrooms and in their gifted resource rooms. Your perception of the differentiated instruction they receive in both settings will be obtained through the items in the questionnaire. Anticipated benefits of this study are to validate the existing educational opportunities for students with gifts and talents in public school and to identify ways to enhance this experience. Anticipated benefits to you may be in higher test scores for this student population.

Risks:
As with any research study some risks may be involved. However, because this study involves a self-report questionnaire, there will be only minimal risk to you. All responses will be confidential, however should you have questions while completing the questionnaire, please contact Mary Greene.

Contact:
If you have questions or concerns about the study, Mary Greene at 799-1226 or Dr. Kyle Higgins in the Special Education Department at 895-3205. For information regarding the rights of research subjects, you may contact UNLV Office for the Protection of Research Subjects at 895-2794.
Participation:
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study and you may withdraw at any time without prejudice to your relations with the school or the university. You are encouraged to ask questions about this study prior to its beginning or any time during the study. You will be given a copy of this form.

Confidentiality:
To ensure confidentiality, you name and any other identifying information will not be included in any reports generated from this research. You are instructed not to include your name on any of the questionnaires. All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked file cabinet at UNLV for at least 3 years after completion of the study.

Consent:
I have read and understand the above information and agree to participate in this study.

________________________________________
Signature of Participant                    Date

________________________________________
Signature of Researcher                    Date

Thank you for your cooperation. When you have the completed and signed this form, return it to the researcher, Mary Greene, no later than August 28, 2001. I must receive this signed informed consent form prior to your participation in the study.

Yours truly,

Mary Greene
Frank Kim Elementary School
APPENDIX B

GENERAL EDUCATION TEACHER INFORMED CONSENT
University of Nevada, Las Vegas
Department of Special Education

General Education Teacher Informed Consent

Information:
I am a teacher with the gifted and talented education program (GATE) for the Clark County School District. I am also a doctoral student at the University of Nevada, Las Vegas (UNLV). You are being invited to participate in a research study to be utilized as part of my dissertation.

Procedures:
If you agree to volunteer in this study, you will be asked to complete a questionnaire. It should take less than 30 minutes to complete the questionnaire. Directions are included on the form but if you should have a question, please consult with the GATE teacher at your school.

Benefits of Participation:
Your participation will help students with gifts and talents in their classrooms and in their gifted resource rooms. Your perception of the differentiated instruction they receive in both settings will be obtained through the items in the questionnaire. Anticipated benefits of this study are to validate the existing educational opportunities for students with gifts and talents in public school and to identify ways to enhance this experience. Anticipated benefits to you may be in higher test scores for this student population.

Risks:
As with any research study some risks may be involved. However, because this study involves a self-report questionnaire, there will be only minimal risk to you. All responses will be confidential, however should you have questions while completing the questionnaire, please contact Mary Greene.

Contact:
If you have questions or concerns about the study, Mary Greene at 799-1226 or Dr. Kyle Higgins in the Special Education Department at 895-3205. For information regarding the rights of research subjects, you may contact UNLV Office for the Protection of Research Subjects at 895-2794.
Participation:
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study and you may withdraw at any time without prejudice to your relations with the school or the university. You are encouraged to ask questions about this study prior to its beginning or any time during the study. You will be given a copy of this form.

Confidentiality:
To ensure confidentiality, you name and any other identifying information will not be included in any reports generated from this research. You are instructed not to include your name on any of the questionnaires. All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked file cabinet at UNLV for at least 3 years after completion of the study.

Consent:
I have read and understand the above information and agree to participate in this study.

________________________________________________________________________
Signature of Participant Date

________________________________________________________________________
Signature of Researcher Date

Thank you for your cooperation. When you have the completed and signed this form, return it to your school's GATE teacher, no later than September 21, 2001. I must receive this signed informed consent form prior to your participation in the study.

Yours truly,
Mary Greene
Frank Kim Elementary School
University of Nevada, Las Vegas
Department of Special Education

Parent/Guardian Informed Consent

Information:
I am a teacher with the gifted and talented education program (GATE) for the Clark County School District. I am also a doctoral student at the University of Nevada, Las Vegas (UNLV). Your child has been invited to participate in a research study as part of my dissertation.

Procedures:
If you agree to allow your child to volunteer in this study, he/she will be asked to complete two questionnaires. Your child's GATE teacher will be assisting in supervising the students throughout this process. The questionnaires will be completed during GATE class time and may involve two class periods for less than 30 minutes each time.

Benefits of Participation:
Your child's participation will help students with gifts and talents in their classrooms and in their gifted resource rooms. Your child's perception of their educational opportunities in both settings will be obtained through the items in the questionnaire. Anticipated benefits of this study are to validate the existing educational opportunities your child experiences in public school and to identify ways to enhance this experience. Anticipated benefits to your child may be increased self-esteem and higher test scores.

Risks:
As with any research study some risks may be involved. However, because this study involves a self-report questionnaire, there will be only a minimal risk to your child. Your child's responses will be confidential and will not be shared with anyone at his/her school. Your child will be encouraged to alert the GATE teacher should they feel uncomfortable when completing the questionnaire.

Contact:
If you have questions or concerns about the study, you may contact the researcher, Mary Greene at 799-1226 or Dr. Kyle Higgins in the Special Education Department at
895-3205. For information regarding the rights of research subjects, you may contact UNLV Office for the Protection of Research Subjects at 895-2794.

**Participation:**

Your child’s participation in this study is voluntary. You child may refuse to participate in this study or in any part of this study and you child may withdraw at any time without prejudice to your relations with the school or the university. You are encouraged to ask questions about this study prior to its beginning or any time during the study. You will be given a copy of this form.

**Confidentiality:**

To ensure confidentiality, you child’s name and any other identifying information will not be included in any reports generated from this research. Your child will be instructed not to include his/her name on any of the questionnaires. All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked file cabinet at UNLV for at least 3 years after completion of the study.

**Consent:**

I have read and understand the above information and agree to my child’s participation in this study.

____________________________________________________________________________

Signature of Parent/Guardian   Date

____________________________________________________________________________

Signature of Researcher   Date

Thank you for your cooperation. When you have the completed and signed this form, return it to your child’s GATE teacher no later than November 22, 2001. I must receive this signed informed consent form prior to your child’s participation in the study.

Yours truly,

Mary Greene, Frank Kim Elementary School
APPENDIX D

CHILD ASSENT
I am Mary Greene, a student at the University of Nevada, Las Vegas. I am doing research on the instruction that you receive in your classroom and in GATE. As part of the research, you will be asked to complete two questionnaires. Your GATE teacher will read the directions with you and will be available to help you with the words you do not understand.

You may feel uncomfortable sometimes during the research because of what we are talking about or what we are doing. If you do, please tell your GATE teacher right away so that he/she may help you feel better.

I hope that by your participating we will help students like you in classrooms and in gifted programs.

Before you agree to participate and sign below, I would like you to talk about it with your parents or guardians so that you know what is involved in taking part in the research. You do not have to participate in the research if you do not want to. If you decide to participate, you may stop at any time.

Your parents will be asked for their permission for you to participate also.

I will be happy to answer all your questions regarding the research.

By signing below, you are agreeing to participate in this research.

________________________________________  ____________________________
Signature of Child                           Date

________________________________________  ____________________________
Signature of Researcher                     Date
APPENDIX E

INSTRUCTIONAL PRACTICES QUESTIONNAIRE

FOR

GIFTED RESOURCE ROOM TEACHERS
Instructional Practices Questionnaire

For

Gifted Resource Room Teachers*
Dear Gifted Resource Room Teacher,

This questionnaire was designed to collect information on differentiated instructional practices that are provided in your resource room for students with gifts and talents. The information provided is confidential and will only be used for statistical information by the authors.

Participation in this study is completely voluntary.

Please complete the following information as accurately as possible:

Gender: Male_____ Female_______

Ethnicity:  
- Caucasian-American__________  - Hispanic-American__________
- African-American__________  - Native American__________
- Asian-American/Pacific Islander__________
- Other (please fill in)__________

Teacher Education: BA/BS________ MA/MS________ EdS________ EdD/PhD________

Area of Concentration (e.g., elementary, special education, etc.):

________________________________
________________________________
________________________________

Teaching Experience: Number of Years Teaching________

Other Grade Levels Taught________

Other Subjects Taught________

Other Areas Taught________

Training in Gifted Education (Check all that apply):

None______, Course(s) at college/university______, District In-service______

Educational Degree in Area______, Workshop(s) outside district______

Have endorsement in gifted education________

Number of years teaching with the GATE program________

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Instructional Practices Questionnaire for Gifted Resource Room Teachers

Directions: Read each statement and indicate how you generally think by circling 1 (rarely), 2 (sometimes), 3 (often), or 4 (almost always).

Cognitive

Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(1) develop critical reading skills (e.g., I assign advanced level reading, use advanced text, or provide advanced novels on themes discussed in class). 1 2 3 4

(2) demonstrate brainstorming skills (e.g., I ask students open-ended questions, provide advanced tasks at learning centers, or provide activities to encourage students to generate ideas). 1 2 3 4

(3) develop thinking skills (e.g., I teach units on thinking skills, use advanced computer programs, or use puzzles or word searches). 1 2 3 4

(4) utilize imagination or visualization (e.g., I provide visual material to be interpreted, engage students in visualization exercises, or assign activities in which students demonstrate visual thinking such as creative artwork or writing). 1 2 3 4

(5) develop writing skills (e.g., I assign teacher-selected creative writing projects, coach students on writing skills, or assign homework so students can practice learned writing skills on self-selected topics). 1 2 3 4

(6) create figurative language (e.g., I encourage students to participate in class discussions, assign creative or expository writing projects, or encourage students to share ideas, information, and interests). 1 2 3 4

(7) practice problem-solving (e.g., I incorporate problem-solving activities in the grade level curriculum, provide competitive problem-solving programs, or provide questions that encourage reasoning and logical thinking). 1 2 3 4

(8) interpret information from various sources (e.g., I encourage research-based reports, assign book reports, or encourage students to compare and contrast ideas from advanced materials). 1 2 3 4

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Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(9) demonstrate transference (e.g., I provide opportunities for students to use prior knowledge when solving problems, encourage students to relate facts to real life, or teach students how information in one situation can be used in another situation) .......................................................... 1 2 3 4

(10) distinguish fact and opinion (e.g., I coach students on ways to distinguish fact from opinion, provide exercise materials for students so they identify information as fact or opinion, or have students gather facts and opinions as part of homework) ........................................ 1 2 3 4

(11) determine relevance and irrelevance (e.g., I require evidence or proof, encourage students to check for accuracy, or encourage students to evaluate whether information is relevant) ........................................ 1 2 3 4

(12) accept challenges in learning (e.g., I encourage students to ask high-level questions, help students set criteria for high quality, or encourage students to tackle problems that are considered difficult for their grade level) 1 2 3 4

Interpersonal

Students are given opportunities to:

(1) refine relationships with their gifted peers (e.g., I sometimes group students by their ability level, provide opportunities for students to work with other advanced students, or encourage students to demonstrate the ability to work cooperatively as a group member of gifted peers) ........................................ 1 2 3 4

(2) refine relationships with peers from general education (e.g., I use cooperative group activities, encourage students to organize interest-based groups, or encourage students to appreciate different learning styles exhibited by other members of the group) ............ 1 2 3 4

(3) develop leadership skills (e.g., I assign students to various leadership positions, describe to students various leadership styles, or provide group activities where various leadership styles can be practiced) ............ 1 2 3 4
Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(4) practice active listening skills (e.g., I demonstrate active listening using activities such as role-play, encourage students to provide constructive feedback on their peers’ oral presentations, or use group activities where listening skills are encouraged) ................................................................. 1 2 3 4

(5) practice decision-making within a group setting (e.g., I have students establish activity groups on their own, provide group discussion that requires a group decision, or encourage students to demonstrate the ability to compromise for the good of the group) ................................................................. 1 2 3 4

(6) cooperate with group members (e.g., I encourage students to listen to the suggestions of others when they participate in a group, use a reward system in which the success of the group is determined by group's efforts, or encourage students to do their best to contribute to their group) ................................................................. 1 2 3 4

(7) experience risk-taking (e.g., I encourage advanced questions, provide competitive problem-solving activities, or assign activities and games that require high level thinking skills) ................................................................. 1 2 3 4

(8) demonstrate empathy (e.g., I design units of study in which students have to consider another person's point of view, encourage students to consider the opinion of others, or set a stage for students to recognize other students' social and emotional needs) ................................................................. 1 2 3 4

(9) demonstrate communication skills (e.g., I demonstrate oral presentation skills using activities such as role-play, coach individual students to improve communication skills whenever an opportunity arises, or provide group activities for the purpose of improving communication skills) ................................................................. 1 2 3 4

(10) practice group dynamics (e.g., I provide opportunities for students to demonstrate self-discipline during small-group activities, encourage group members to keep the group on task, or encourage group members to consider individual differences in the way other students approach group activities) ................................................................. 1 2 3 4

Intrapersonal

Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(1) pursue interests of their own (e.g., I allow in-class time for individual projects, assign writing projects on topics selected by student, or allow students to choose their own topics for research project) ................................................................. 1 2 3 4

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Students are given opportunities to:

(2) demonstrate initiative (e.g., I encourage students to establish goals, use learning centers in which students can choose their own activities, or use programmed instructional materials with which students can initiate and monitor their own learning).

(3) demonstrate decision-making for individual activities (e.g., I encourage students to select topics for independent study, allow students to choose work areas other than in class, or consider individual student’s opinions in allocating time for their projects).

(4) set goals in a self-selected interest area (e.g., I use contracts for individual projects that allow students to list their goals, encourage students to set proper-level goals for projects, or help students develop a long-term goal).

(5) demonstrate task commitment (e.g., I use enrichment activities that encourage student commitment, use self-instructional kits that contain interesting tasks, or encourage students to demonstrate the ability to keep on task).

(6) increase autonomy (e.g., provide students with projects that require their initiative, assign projects that allow students to plan and manage independently, or allow students to work by themselves).

(7) demonstrate responsibility (e.g., I help students realize every action comes with a consequence, hold students responsible when they do not turn in homework assignments, or encourage students to complete a given task even when it is a difficult one).

(8) understand and expand their learning styles (e.g., I help students understand that individuals have varied learning styles, provide homework where they may use their preferred learning styles, or tell students to think of different ways of studying when their way of studying does not help them learn).

Thank you very much for your cooperation.

* The Instructional Practice Questionnaire (Greene and Hong, 2001) is not to be copied or reproduced in any form without the written permission of the authors.
APPENDIX F

INSTRUCTIONAL PRACTICES QUESTIONNAIRE

FOR

GENERAL EDUCATION CLASSROOM TEACHERS
Instructional Practices Questionnaire

For

General Education Classroom Teachers*
Dear Teacher.

This questionnaire was designed to collect information on differentiated instructional practices that are provided in your classroom for students with gifts and talents. The information provided is confidential and will only be used for statistical information by the authors.

Participation in this study is completely voluntary.

Please complete the following information as accurately as possible:

Current Grade level: ________________

Gender: Male _______ Female _______

Ethnicity: •Caucasian-American ________ •Hispanic-American __________
•African-American __________ •Native American _________
•Asian-American/ •Other (please fill in) __________
Pacific Islander _______________

Teacher Education: BA/BS ______ MA/MS _______ EdS _______ EdD/PhD _______

Area of Concentration (e.g., elementary, special education, etc.)

____________________________________
____________________________________
____________________________________

Teaching Experience: Number of Years Teaching ________________

Other Grade Levels Taught ________________

Other Subjects Taught ________________

Other Areas Taught ________________

Training in Gifted Education (Check all that apply):

None _____, Course(s) at college/university _____, District In-service _____.

Educational Degree in Area _____, Workshop(s) outside district _____.

Have endorsement in gifted education ________________
Instructional Practices Questionnaire for General Education Classroom Teachers

Directions: Read each statement and indicate how you generally think by circling 1 (rarely), 2 (sometimes), 3 (often), or 4 (almost always).

Cognitive

Students are given opportunities to:

1 = rarely  
2 = sometimes  
3 = often  
4 = almost always

(1) develop critical reading skills (e.g., I assign advanced level reading, use advanced text, or provide advanced novels on themes discussed in class)...1 2 3 4

(2) demonstrate brainstorming skills (e.g., I ask students open-ended questions, provide advanced tasks at learning centers, or provide activities to encourage students to generate ideas)........................................1 2 3 4

(3) develop thinking skills (e.g., I teach units on thinking skills, use advanced computer programs, or use puzzles or word searches)..............1 2 3 4

(4) utilize imagination or visualization (e.g., I provide visual material to be interpreted, engage students in visualization exercises, or assign activities in which students demonstrate visual thinking such as creative artwork or writing)........................................1 2 3 4

(5) develop writing skills (e.g., I assign teacher-selected creative writing projects, coach students on writing skills, or assign homework so students can practice learned writing skills on self-selected topics)........................................1 2 3 4

(6) create figurative language (e.g., I encourage students to participate in class discussions, assign creative or expository writing projects, or encourage students to share ideas, information, and interests)...............1 2 3 4

(7) practice problem-solving (e.g., I incorporate problem-solving activities in the grade level curriculum, provide competitive problem-solving programs, or provide questions that encourage reasoning and logical thinking)...........1 2 3 4

(8) Interpret information from various sources (e.g., I encourage research-based reports, assign book reports, or encourage students to compare and contrast ideas from advanced materials).........................1 2 3 4

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Students are given opportunities to:

<table>
<thead>
<tr>
<th>1 = rarely</th>
<th>2 = sometimes</th>
<th>3 = often</th>
<th>4 = almost always</th>
</tr>
</thead>
</table>

(9) demonstrate transference (e.g., I provide opportunities for students to use prior knowledge when solving problems, encourage students to relate facts to real life, or teach students how information in one situation can be used in another situation) ...........................................................

(10) distinguish fact and opinion (e.g., I coach students on ways to distinguish fact from opinion, provide exercise materials for students so they identify information as fact or opinion, or have students gather facts and opinions as part of homework) ........................................... 1 2 3 4

(11) determine relevance and irrelevance (e.g., I require evidence or proof, encourage students to check for accuracy, or encourage students to evaluate whether information is relevant) ......................................................... 1 2 3 4

(12) accept challenges in learning (e.g., I encourage students to ask high-level questions, help students set criteria for high quality, or encourage students to tackle problems that are considered difficult for their grade level) ............... 1 2 3 4

Interpersonal

Students are given opportunities to:

(1) refine relationships with their gifted peers (e.g., I sometimes group students by their ability level, provide opportunities for students to work with other advanced students, or encourage students to demonstrate the ability to work cooperatively as a group member of gifted peers) ......................... 1 2 3 4

(2) refine relationships with peers from regular education (e.g., I use cooperative group activities, encourage students to organize interest-based groups, or encouraging students to appreciate different learning styles exhibited by other members of the group) ............ 1 2 3 4

(3) develop leadership skills (e.g., I assign students to various leadership positions, describe to students various leadership styles, or provide group activities where various leadership styles can be practiced) ....................... 1 2 3 4
Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(4) practice active listening skills (e.g., I demonstrate active listening using activities such as role-play, encourage students to provide constructive feedback on their peers' oral presentations, or use group activities where listening skills are encouraged) ......................... 1 2 3 4

(5) practice decision-making within a group setting (e.g., I have students establish activity groups on their own, provide group discussion that requires group decision, or encourage students to demonstrate the ability to compromise for the good of the group) ......................... 1 2 3 4

(6) cooperate with group members (e.g., I encourage students to listen to the suggestions of others when they participate as a member of a group, use a reward system in which the success of the group is determined by group's efforts, or encourage students to do their best to contribute to their group) ......................... 1 2 3 4

(7) experience risk-taking (e.g., I encourage advanced questions, provide competitive problem-solving activities, or assign activities and games that require high level thinking skills) ......................... 1 2 3 4

(8) demonstrate empathy (e.g., I design units of study in which students have to consider another person's point of view, encourage students to consider the opinion of others, or set a stage for students to recognize other students' social and emotional needs) ......................... 1 2 3 4

(9) demonstrate communication skills (e.g., I demonstrate oral presentation skills using activities such as role-play, coach individual students to improve communication skills whenever an opportunity arise, or provide group activities for the purpose of improving communication skills) ......................... 1 2 3 4

(10) practice group dynamics (e.g., I provide opportunities for students to demonstrate self-discipline during small-group activities, encourage group members to keep the group on task, or encourage group members to consider individual differences in the way other students approach group activities) ......................... 1 2 3 4

**Intrapersonal**

Students are given opportunities to:

(1) pursue interests of their own (e.g., I allow in-class time for individual projects, assign writing projects on topics selected by student, or allow students to choose their own topics for research project) ......................... 1 2 3 4
Students are given opportunities to:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(2) demonstrate initiative (e.g., I encourage students to establish goals, use learning centers in which students can choose their own activities, or use programmed instructional materials with which students can initiate and monitor their own learning) ................................................................. 1 2 3 4

(3) demonstrate decision-making for individual activities (e.g., I encourage students to select topics for independent study, allow students to choose work areas other than in class, or consider individual student's opinions in allocating time for their projects) ................................................................. 1 2 3 4

(4) set goals in a self-selected interest area (e.g., I use contracts for individual projects that allow students to list their goals, encourage to set proper-level goals for projects, or help students develop a long-term goal) ........ 1 2 3 4

(5) demonstrate task commitment (e.g., I use enrichment activities that encourage students' commitment, use self-instructional kits that contain interesting tasks, or encourage students to demonstrate the ability to keep on task) ................................................................. 1 2 3 4

(6) increase autonomy (e.g., provide students with projects that require their initiative, assign projects that allow students to plan and manage independently, or allow students to work by themselves) .................. 1 2 3 4

(7) demonstrate responsibility (e.g., I help students realize every action comes with a consequence, hold students responsible when they do not turn in homework assignments, or encourage students to complete a given task even when it is a difficult one) ................................................................. 1 2 3 4

(8) understand and expand their learning styles (e.g., I help students understand that individuals have varied learning styles, provide homework where they may use their preferred learning styles, or tell students to think of different ways of studying when their way of studying does not help them learn) .................. 1 2 3 4

Thank you very much for your cooperation.

* The Instructional Practice Questionnaire (Greene and Hong, 2001) is not to be copied or reproduced in any form without the written permission of the authors.
APPENDIX G

INSTRUCTIONAL PRACTICES QUESTIONNAIRE FOR

STUDENTS WITH GIFTS AND TALENTS:

STUDENT FOR M A
Instructional Practices Questionnaire for Students with Gifts and Talents*

Dear Student,

The pages that follow will help us to know how students feel about the assignments they are given in both their regular classroom and the GATE resource room.

There are no right and wrong answers to these questions.

Your teachers will not see your answers.

Participation in this research is completely voluntary. You do not have to fill out these papers if you do not want to fill them out. If you feel uncomfortable because you do not understand a word or the meaning of a word, ask your GATE teachers to help you.

Please do not put your name on any of these pages.

Thank you very much for your cooperation.
Instructional Practices Questionnaire for Students with Gifts and Talents*

Directions:
1. Fill in the blanks that immediately follow the directions (the ones that tell your age, grade, etc).
2. Read each question in the questionnaire carefully.
3. Decide for each question how much you agree with it ("1" means you rarely get to do the activity or assignment that is described; "2" means you sometimes get to do the activity or assignment; "3" means you often get to do the activity or assignment; "4" means you almost always get to do the activity or assignment that is described).
4. Circle the number that matches how much you agree with the question.

Please complete the following demographic information:

School Name ____________________________ Grade level ____________________________

Gender: Boy____ Girl_____

Ethnicity: (Check One) Hispanic-American____
Caucasian-American____
African-American____
Asian-American/____
Pacific Islander____
Native American____
Other (please fill in)____

Number of Years in School:
Preschool____
Kindergarten____
Elementary____

Number of Years in G.A.T.E.____

Please answer all the questions without skipping any questions. Circle only one of the four choices for each item. If you are not sure of your answer, mark the answer that is the closest to the way you feel. Go to the next page and continue until you are finished answering all of the questions.

Thank you.
Instructional Practices Questionnaire for Students with Gifts and Talents:
Student Form A*

Directions: Read each statement and indicate how you generally think by circling 1 (rarely), 2 (sometimes), 3 (often), or 4 (almost always).

In my GATE resource room:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(1) my GATE teacher encourages me to use reading materials that are for older children................................................................. 1 2 3 4

(2) my GATE teacher asks questions for which there are many possible correct answers.................................................... 1 2 3 4

(3) my GATE teacher uses various activities to teach me thinking skills........ 1 2 3 4

(4) my GATE teacher shows me pictures and asks me to explain what the pictures mean .................................................. 1 2 3 4

(5) my GATE teacher teaches me about good writing skills ............... 1 2 3 4

(6) my GATE teacher encourages me to be part of class discussions ...... 1 2 3 4

(7) my GATE teacher makes sure that we do at least one problem-solving activity in the GATE class each day we have GATE class........... 1 2 3 4

(8) my GATE teacher wants me to do research-based reports.............. 1 2 3 4

(9) my GATE teacher asks me to explain what I already know about a topic before I begin a lesson................................. 1 2 3 4

(10) my GATE teacher shows me ways to distinguish fact from opinion.... 1 2 3 4

(11) my GATE teacher asks me to provide evidence on what I said or to give him/her the reasons for my opinion........................ 1 2 3 4

(12) my GATE teacher encourages me to ask difficult questions........... 1 2 3 4

(13) my GATE teacher provides opportunities for me to use textbooks from a higher-grade level .................................................. 1 2 3 4

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In my GATE resource room:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>(14) my GATE teacher provides activities that require me to list as many ideas as I can.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(15) my GATE teacher has puzzles, word searches, or computer programs that teach me to think and solve problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(16) my GATE teacher guides me through activities where I visualize what he/she is saying, and when I open my eyes I get to either draw what I saw or write what I saw.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(17) my GATE teacher provides opportunities for me to use my writing skills such as writing a letter to a friend or taking notes during GATE class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(18) my GATE teacher encourages me to share my ideas, information, and interests with the rest of the class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(19) my GATE teacher asks questions that make me use reasoning and logical thinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(20) my GATE teacher gives me materials from higher-grade levels and asks me to show how the ideas in the material are alike and how they are different.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(21) my GATE teacher has class activities in which I get to demonstrate how information in one situation can be used in another situation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(22) my GATE teacher has materials for me to read or look at and decide if the information is fact or opinion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(23) my GATE teacher encourages me to evaluate information to make sure whether it is relevant or appropriate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(24) my GATE teacher asks me questions that are from a older students' textbook.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(25) my GATE teacher provides opportunities for me to work with other students who are gifted.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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In my GATE resource room:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(26) my GATE teacher uses cooperative grouping when we do activities and we invite other students from my regular classroom to be part of the group................................................................. 1  2  3  4

(27) my GATE teacher assigns me to many different leadership positions...........1  2  3  4

(28) my GATE teacher has activities in which I have to carefully listen to what my partners say................................................................. 1  2  3  4

(29) my GATE teacher gives us activities in which we have to make a decision as a group................................................................. 1  2  3  4

(30) my GATE teacher encourages me to listen to the suggestions of the other group members................................................................. 1  2  3  4

(31) my GATE teacher presents competitive problem-solving activities ..................1  2  3  4

(32) my GATE teacher has activities or units for me to study that show the importance of respecting other people................................................................. 1  2  3  4

(33) my GATE teacher gives us activities in which we have to do an oral presentation to the class................................................................. 1  2  3  4

(34) my GATE teacher encourages me to use self-discipline and show respect for others during small-group activities ................................................................. 1  2  3  4

(35) my GATE teacher encourages me to cooperate with other students in my group when we are working together................................................................. 1  2  3  4

(36) my GATE teacher encourages me to get involved in a group of students from my GATE classroom as well as regular classroom in which we share similar interests................................................................. 1  2  3  4

(37) my GATE teacher gives me the chance to practice my leadership in various group activities................................................................. 1  2  3  4

(38) my GATE teacher encourages me to give constructive feedback on other class members' oral presentations................................................................. 1  2  3  4
In my GATE resource room:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(39) my GATE teacher helps me understand when to give in for
the good of the group .............................................................. 1
2 3 4

(40) my GATE teacher gives the group a reward when we show that
we are working together and respecting each other ................. 1
2 3 4

(41) my GATE teacher assigns me difficult games or activities that
require me to try various approaches even if there are possibilities
that I might fail ................................................................. 1
2 3 4

(42) my GATE teacher encourages me try to remember that
some people have different needs than I do and
I should respect those needs ................................................ 1
2 3 4

(43) my GATE teacher coaches me on how to give an oral presentation
and helps if I have trouble .................................................... 1
2 3 4

(44) my GATE teacher challenges me and other group members
to keep the group on task ..................................................... 1
2 3 4

(45) my GATE teacher gives me time in class to work on my own project ..... 1
2 3 4

(46) my GATE teacher encourages me to set a goal and plan on my own ... 1
2 3 4

(47) my GATE teacher encourages me to decide the topic of
a project on my own ............................................................ 1
2 3 4

(48) my GATE teacher helps me list goals in my area of interest ........ 1
2 3 4

(49) my GATE teacher uses enrichment materials that encourage me
to complete what I have started ........................................... 2
2 3 4

(50) my GATE teacher gives me projects and I have to plan
how I will complete them .................................................... 1
2 3 4

(51) my GATE teacher helps me understand that every action I take
has a result that I am responsible for .................................... 1
2 3 4
In my GATE resource room:

1 = rarely
2 = sometimes
3 = often
4 = almost always

(52) my GATE teacher assigns homework and classwork that allows me to learn the way I like to learn ........................................... 1 2 3 4

(53) my GATE teacher lets me select a topic to write about ........................................... 1 2 3 4

(54) my GATE teacher has learning centers in which I can choose the activity I want to do ......................................................... 1 2 3 4

(55) my GATE teacher allows me to decide on the time to complete a project ........................................... 1 2 3 4

(56) my GATE teacher asks me to make sure the goals I have set are real and that they are goals I can achieve ........................................... 1 2 3 4

(57) my GATE teacher encourages me to keep on task and to not give up even if the task seems difficult ........................................... 1 2 3 4

(58) my GATE teacher encourages me to work alone on some projects ........................................... 1 2 3 4

(59) my GATE teacher holds me responsible for my homework and classroom assignments ........................................... 1 2 3 4

(60) my GATE teacher tells me to think of different ways to study because I need to study in different ways other than my own favorite way in order to learn ........................................... 1 2 3 4

Stop

Wait for your GATE teacher to tell you to continue to the next section
APPENDIX H

INSTRUCTIONAL PRACTICES QUESTIONNAIRE FOR

STUDENTS WITH GIFTS AND TALENTS:

STUDENTS FORM B
**Instructional Practices Questionnaire For Students with Gifts and Talents: Student Form B**

**Directions:** Read each statement and indicate how you generally think by circling 1 (rarely), 2 (sometimes), 3 (often), or 4 (almost always).

<table>
<thead>
<tr>
<th>In my classroom:</th>
<th>1 = rarely</th>
<th>2 = sometimes</th>
<th>3 = often</th>
<th>4 = almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) my classroom teacher encourages me to use reading materials that are for older children</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(2) my classroom teacher asks questions to which there are many possible correct answers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(3) my classroom teacher uses various activities to teach me thinking skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4) my classroom teacher shows me pictures and asks me to explain what the pictures mean</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(5) my classroom teacher teaches me about good writing skills</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(6) my classroom teacher encourages me to be part of class discussions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(7) my classroom teacher makes sure that we do at least one problem-solving activity in my class each day we have class</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(8) my classroom teacher wants me to do research-based reports</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(9) my classroom teacher asks me to explain what I already know about a topic before I begin a lesson</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(10) my classroom teacher shows me ways to distinguish fact from opinion</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(11) my classroom teacher asks me to provide evidence on what I said or to give him/her the reasons for my opinion</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(12) my classroom teacher encourages me to ask difficult questions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(13) my classroom teacher provides opportunities for me to use textbooks from a higher-grade level</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
In my classroom:

| (14) | my classroom teacher provides activities that require me to list as many ideas as I can. | 1 | 2 | 3 | 4 |
| (15) | my classroom teacher has puzzles, word searches, or computer programs that teach me to think and solve problems. | 1 | 2 | 3 | 4 |
| (16) | my classroom teacher guides me through activities where I visualize what he/she is saying, and when I open my eyes I get to either draw what I saw or write what I saw. | 1 | 2 | 3 | 4 |
| (17) | my classroom teacher provides opportunities for me to use my writing skills such as writing a letter to a friend or taking notes during class. | 1 | 2 | 3 | 4 |
| (18) | my classroom teacher encourages me to share my ideas, information, and interests with the rest of the class. | 1 | 2 | 3 | 4 |
| (19) | my classroom teacher asks questions that make me use reasoning and logical thinking. | 1 | 2 | 3 | 4 |
| (20) | my classroom teacher gives me materials from higher-grade levels and asks me to show how the ideas in the material are alike and how they are different. | 1 | 2 | 3 | 4 |
| (21) | my classroom teacher has class activities in which I get to demonstrate how information in one situation can be used in another situation. | 1 | 2 | 3 | 4 |
| (22) | my classroom teacher has materials for me to read or look at and decide if the information is fact or opinion. | 1 | 2 | 3 | 4 |
| (23) | my classroom teacher encourages me to evaluate information to make sure whether it is relevant or appropriate. | 1 | 2 | 3 | 4 |
| (24) | my classroom teacher asks me questions that are from a older students' textbook. | 1 | 2 | 3 | 4 |
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2 = sometimes
3 = often
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<tr>
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<tr>
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(60) my classroom teacher tells me to think of different ways to study because
I need to study in different ways other than my own favorite way
in order to learn...................................................................................... 1 2 3 4

Thank you very much for your participation in this project.

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APPENDIX I

PERMISSION LETTER FROM THE GIFTED AND TALENTED EDUCATION PROGRAM

Written Permission

Ellen Sloane, Coordinator
Gifted and Talented Education Program
Clark County School District
Gifted and Talented Education Program Handbook
Permission to Use Copyrighted Material
University of Nevada, Las Vegas

I, Ellen Sloane Coordinator, holder of copyrighted material entitled "Challenge Curric. for GATE"

Contributions by CCSD GATE Staff and Copyrighted Materials authored by GATE Program, CCSD and originally published in 1986

hereby give permission for the author to use the above-described material in total or in part for inclusion in a doctoral dissertation at the University of Nevada, Las Vegas.

I also agree that the author may execute the standard contract with University Microfilms, Inc. for microform reproduction of the completed dissertation, including the materials to which I hold copyright.

Ellen Sloane 14 June 01
Signature Date

Ellen Sloane Coordinator
Name (Typed) Title

Gifted and Talented Education Program
Representing Clark County School District.
Las Vegas, Nevada
APPENDIX J

PERMISSION LETTER FROM THE NATIONAL RESEARCH CENTER ON THE GIFTED AND TALENTED

Written Permission

E. Jean Gubbins, Associate Director

The National Research Center on the Gifted and Talented

Regular Classroom Practices with Gifted Students: Results of a National Survey

Authors: Francis X. Archambault, Jr., Karen L. Westberg, Scott W Brown, Bryan W Hallmark, Christine L Emmons, & Wanli Zhang

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Permission to Use Copyrighted Material
University of Nevada, Las Vegas

The National Research Center on the
Gifted and Talented holder of copyrighted material entitled

Regular Classroom Practices with Gifted Students: Results of a National Survey of
Classroom Teachers

authored by Francis X. Archambault, Jr., Karen L. Westberg, Scott W. Brown, Bryan W. Hallmark,
Christine L. Emmons, & Wanli Zhang and originally published in 1993

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I also agree that the author may execute the standard contract with University
Microfilms, Inc. for microform reproduction of the completed dissertation,
including the materials to which I hold copyright.

Signature Date

E. Jean Gubbins Associate Director, The National Research Center on the Gifted and Talented

Name (Typed) Title

The National Research Center on the Gifted and Talented, University of Connecticut

Representing

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APPENDIX K

PERMISSION LETTER FROM MISSISSIPPI STATE DEPARTMENT

OF EDUCATION: CONRAD CASTLE Ph. D.

Written Permission

Conrad Castle, Ph.D.

Coordinator, Gifted Education Programs

Assessing the Effectiveness of Gifted Programs Statewide

224
January 10, 2001

Ms. Mary Greene
Doctoral Student
3931 Leon Avenue
Las Vegas, NV 89130

Dear Ms. Greene:

Thank you for your request for materials relating to Gifted Education Programs in Mississippi. Enclosed you will find copies of the following documents:

- Suggested Outcomes for Intellectually Gifted Programs
- What I Learned in the Gifted Education Program
- My Views of Gifted Education Programs
- How Do You Feel About the Gifted Education Program?

All of these documents have copy rights and are owned by the Mississippi Department of Education. Limited use is hereby granted to you for the purpose of research for your doctoral dissertation. You are also granted the right to modify any or all of these documents for the purpose of your doctoral study. Additionally, you are hereby granted the right to use the above documents, or any part thereof, to gather data in your local district or the State of Nevada, above and beyond data collected for your doctoral study.

We do ask that you include appropriate citations in any and all printed materials resulting from your research. We would ask that you provide us with a summary of your research findings.

Good luck with your project.

Sincerely,

Conrad Castle, Ph.D.
Coordinator, Gifted Education Programs
APPENDIX L

TIMELINE OF STUDY
Instructional Differentiation in General Education
and the Gifted Resource Room: Teacher and Student Perceptions

Timeline of the study

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GATE teacher contacted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Description of study</em></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Consent forms distributed</em></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Consent forms collected</em></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td><em>GATE surveys distributed</em></td>
<td></td>
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<td>x</td>
<td></td>
</tr>
<tr>
<td><em>GATE surveys collected</em></td>
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<td>x</td>
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<td><em>Inservice training</em></td>
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<td><em>General education teacher lists collected</em></td>
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<td><em>Random selection of general education teachers</em></td>
<td></td>
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<td>x</td>
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<tr>
<td><em>General education teachers surveys assembled</em></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><em>Student surveys prepared</em></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Principal contacted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Phone contact</em></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td><em>Consent form distributed</em></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Consent form collected</em></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td><strong>GATE parent contacted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Parental consent forms distributed</em></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><em>Parental consent forms collected</em></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Timeline of the study continues
### Timeline of the study

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
</tr>
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<tbody>
<tr>
<td>General education classroom teacher contacted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Consent forms distribute</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Consent forms collected</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Surveys distributed</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Surveys collected</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GATE student contacted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Students surveys distributed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GATE Resource Room</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Student surveys collected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GATE Resource Room</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
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</tr>
<tr>
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</tr>
<tr>
<td>• General Education</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Demographic data from all participants entered into SPSS statistical file  
Survey data from all participants entered into SPSS statistical file  
Thank you letters sent to all participants
APPENDIX M

GIFTED RESOURCE ROOM TEACHER’S SCRIPT
Gifted Resource Room Teacher

The Script

GATE Teachers SAY:

Today you will be helping with a research study by completing a questionnaire. The questionnaire will ask you questions about the instruction you are receiving in the GATE resource room and in your classroom.

Please take your time and make sure that you understand what you are being asked. If you do not understand a word or phrase raise your hand and I will help you but I can only help you understand a word or phrase. I cannot help you decide on an answer.

Remember do not put your name on any of the pages of the questionnaire.

There are no right or wrong answers. None of your teachers will see your answers.

This is not a timed test. You may have all the time you need to finish each section.

**If this is the first day** SAY: When you see the word “STOP,” close your questionnaire and place it in the attached envelope, put your name on the envelope and seal it. Place the sealed envelope (indicate the designated area in your room). After you may work quietly at your desk until everyone has completed their questionnaires. Now read with me as I read the directions to you.

(When you have read through the first and second pages) SAY: You may begin working now, remember to stop at the word “STOP.”

**If this is the last day** Distribute the sealed envelopes to the GATE students and SAY: Open your envelopes and read with me as I read the directions to you.

(When you-GATE teachers-have read through the first and second pages) SAY: You may begin working now, remember when you have completed this last section, close your questionnaire and place it (indicate the designated area in your room). Remember do not put your name on any of the pages. Thank you for helping in this research study. GATE teachers please pick up the envelopes that have the students’ names and destroy them.
APPENDIX N

PRINCIPAL INFORMED CONSENT
University of Nevada, Las Vegas
Department of Special Education

Principal Informed Consent

Information:
I am a teacher with the gifted and talented education program (GATE) for the Clark County School District. I am also a doctoral student at the University of Nevada, Las Vegas (UNLV). Your school is being invited to participate in a research study to be utilized as part of my dissertation.

Procedures:
If you agree to volunteer your school in this study, your third, fourth, and fifth grade general education classroom teachers will be asked to complete one questionnaire. Your third, fourth, and fifth grade GATE students will be asked to complete two questionnaires. Your school’s GATE teacher will be assisting in supervising the students throughout this process and will be available to assist the participating general education teachers. The student questionnaires will be completed during GATE class time and will involve two class periods for less than 30 minutes each time. Informed consent forms will be secured from teachers and parents before the questionnaires are distributed. A child assent form will be secured from the GATE students before their questionnaires are distributed. No teacher or student will be included in this study without a signed informed consent form and/or child assent form.

Benefits of Participation:
Your school’s participation will help students with gifts and talents in their classrooms and in their gifted resource rooms. Teacher and student perceptions of their educational opportunities in both settings will be obtained through the items in the questionnaire. Anticipated benefits of this study are to validate the existing educational opportunities students with gifts and talents experience in public school and to identify ways to enhance this experience. Anticipated benefits may be in increased self-esteem and higher test scores for both populations.

Risks:
As with any research study some risks may be involved. However, because this study involves a self-report questionnaire, there is only minimal risk to the participants. The general education classroom teacher, GATE resource room teacher, and the GATE students have been advised to contact Mary Greene should any discomfort with the questionnaire arise.
Contact:
If you have questions or concerns about the study, you may contact the researcher, Mary Greene at 799-1226 or Dr. Kyle Higgins in the Special Education Department at 895-3205. For information regarding the rights of research subjects, you may contact UNLV Office for the Protection of Research Subjects at 895-2794.

Participation:
Your school’s participation in this study is voluntary. You may refuse to allow your school to participate in this study or in any part of his study and you may withdraw your school at any time without prejudice to the university. You are encouraged to ask questions about this study prior to its beginning or any time during the study. You will be given a copy of this form.

Confidentiality:
To ensure confidentiality, your school’s name and any other identifying information will not be included in any reports generated from this research. The general education teachers and GATE students will be instructed not to include their names on any of the questionnaires. All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link your school to this study. All records will be stored in a locked file cabinet at UNLV for at least 3 years after completion of the study.

Consent:
I have read and understand the above information and agree to my school’s participation in this study.

____________________________________  ______________________
Signature of Participant                  Date

____________________________________  ______________________
Signature of Researcher                   Date

Thank you for your cooperation. When you have the completed and signed this form, return it to the researcher, Mary Greene, no later than September 21, 2001. I must receive this signed informed consent form prior to your school’s participation in the study.

Yours truly,

Mary Greene, Frank Kim Elementary School
APPENDIX O

HANDLING PROCEDURES FOR GENERAL EDUCATION CLASSROOM
TEACHER’S QUESTIONNAIRES
University of Nevada, Las Vegas  
Department of Special Education  

Handling Procedures for General Education Classroom Teachers' Questionnaires

Dear Teachers,

Thank you for your participation in this study. Please complete the enclosed questionnaire and return it to your school’s GATE teacher before September 21, 2001. If you have any questions or concerns, please call me, Mary Greene, at 799-1226. Leave a message and I will return your call as soon as possible. If you have any further questions, you may call one of the numbers listed below. Once again, thank you for your participation and time. Your participation in this study is voluntary. Remember, to ensure confidentiality, do not include your name on any document.

Yours truly,

Mary Greene

For further information about this study, please contact: 
Dr. Kyle Higgins 
Department of Special Education 
University of Nevada. Las Vegas 
89154 
(702) 895-3205

For information on Rights of Research Subjects, please contact the UNLV Office for the Protection of Research Subjects 
(702) 895-2794
REFERENCES


Brown, L., Sherbenou, R. J., & Johnsen, S. K. (1997). *Test of Nonverbal Intelligence (Toni-3)*. Austin, TX: Pro-Ed.


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VITA

Graduate College
University of Nevada, Las Vegas

Mary Trombatore Greene

Home Address:
3931 Leon Avenue
Las Vegas, Nevada 89108

Degrees:
Bachelors of Arts, Elementary Education, 1976
University of New Orleans

Master of Education Curriculum and Instruction, 1990
University of Nevada, Las Vegas;

Publications:
"Research to Practice: Suggestions for Educators"
Journal-Intervention in School and Clinic
(February, 1999)

Professional Development Services:
CCSD Teacher Training, 1990
Co-Presenter
Assisted in the design of a team presentation on "Logo Writer." Our responsibilities were to learn the software and how the program works on the network, prepare teacher/student handouts, prepare an in-service to teach "network CRTs" (computer resource teachers), and serve as the "expert" on the program for other "network CRTs."

CCSD Administrative Training, 1991
Co-Presenter
Assisted in the design of a presentation entitled "Site-based Planning for Technology." This presentation was designed for site administrators and discussed the future of technology in the school/classroom.
Professional Development Services (continued):
CCSD Microcomputer Center, 1991
Presentation for new elementary teachers
Presenter
Assisted in the development of a presentation to discuss computer integration in the content areas of elementary classrooms. I was involved in the introduction of programs designed to guide students through the dangers of "Substance Abuse."

Nevada Association for the Gifted and Talented, 1993
Conference Presenter
Organized, implemented, and presented an in-service on "Marsville" for the Nevada Association for Gifted and Talented Conference. "Marsville," a program sponsored by the Challenger Center, the Desert Research Institute, and NASA is designed for grades 5 and higher. Students from various schools within the Clark County School District work cooperatively for the purpose of instilling inquiry, curiosity, problem solving, and critical and creative thinking skills. The students are involved in the design and construction of a cosmic village. They also create various life-support systems that could be used in the colonization of Mars.

Nevada Association for the Gifted and Talented, 1995
Conference Presenter
Developed, organized, implemented, and presented an in-service on "Career and Job Skill Training for Elementary Students Who are Gifted" for the Nevada Association for Gifted and Talented Conference. This unit of study was written and presented by me for the purpose of introducing elementary students to the type of job skills needed when they reached an appropriate age for the work force. It is intended as an in-depth training session that explores various skills, i.e. how to find and keep a job, how to complete a job application, how to write an effective resume, etc. Students who complete this course of study should be able to conduct themselves confidently when interviewing for positions in any situation.

Conference Co-Presenter
Assisted in the development, organization, implementation, and presentation of an in-service entitled "Twice Exceptional: Gifted and Learning Disabled." This presentation is designed to review the statistics on the incidence of the Gifted/L.D. child. Methods for classroom interventions that would be useful to the classroom teacher and/or specialist are discussed. Possible ways the specialist could assist in the identification of these students are listed.
Assisted in the development, organization, implementation, and presentation of an in-service entitled "Educational Research: How to use it in your classroom without the headache!" This presentation is designed to review the division that exist between researchers and educators and discuss possible solutions to this...
Professional Development Services (continued):
dilemma. A step-by-step formula designed to assist educators in the translation of educational research is introduced and demonstrated. This formula will provide ways for these research-based interventions to be used within the classroom.

Visions 2000
Conference Co-Presenter
Assisted in the development, organization, implementation, and presentation of an in service entitled "Twice Exceptional: Gifted and Learning Disabled." This presentation is designed to review the statistics on the incidence of the Gifted/L.D. child. Methods for classroom interventions that would be useful to the classroom teacher and/or specialist are discussed. Possible ways the specialist could assist in the identification of these students are listed.

Conference Co-Presenter
Assisted in the development, organization, implementation, and presentation of a research study entitled "Gifted students in regular classrooms: Do general education teachers meet their needs?" Presentation included the results of a pilot research study conducted in the spring of 1999 on the differentiated instruction provided in the general education classroom. The perceptions of the general education classroom teachers were collected and analyzed.

Graduate Student Research Forum
Poster Presentation
Developed, organized, implemented, and presented a poster presentation of a research study entitled “Instructional Differentiation in General Education and the Gifted Resource Room: Teacher and Student Perceptions.” Presentation included the results of a research study conducted in the fall of 2002 on the perceptions of teachers and students with gifts and talents with regard to the differentiated instruction opportunities provided in the both classroom environments (general education classroom and the gifted resource room).

Dissertation Title: Instructional Differentiation in General Education and the Gifted Resource Room: Teacher and Student Perceptions

Dissertation Examination Committee:
   Chairperson, Dr. Kyle Higgins, Ph.D.
   Committee Member, Dr. Susan Miller, Ph.D.
   Committee Member, Dr. Sherri Strawser, Ph.D.
   Graduate Faculty Representative, Dr. Eunsook Hong, Ph.D.