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ABSTRACT

This study investigated whether a particular grade in school would prove to be critical in the development of underachievement in 100 high school students identified as intellectually gifted, where 18 of the students were identified as underachieving. Data were collected on each student, including IQ scores, age identified as gifted, gender, final grade point average (GPA) for each grade first through ninth, and number of advanced courses taken each school year. Statistical analysis was conducted on the data to determine if a relationship existed between each variable to the GPA of students who were identified as gifted. Significant main effects for gender and achievement group indicated that overall girls had higher GPAs than boys and that students labeled as achievers had significantly higher GPAs than those labeled as underachievers. Further, underachieving boys exhibited a steady decline in GPA starting in second grade. Underachieving girls maintained acceptable grades until their grades dropped sharply in sixth grade. The majority of students (90 percent) who dropped below a 3.0 GPA at some time in their academic careers went on to become underachievers. IQ, year identified as gifted, and number of advanced classes taken had no relationship to achievement level. (Contains 39 references.) (CR)

ANALYSIS OF YEAR BY YEAR GRADE POINT AVERAGES OF STUDENTS IDENTIFIED AS ACADEMICALLY GIFTED

A Thesis

Presented to the

Faculty of the Graduate School

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In Partial Fulfillment

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Master of Arts in Education

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by

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This thesis submitted by Pamela Bertozzi Goots has been approved meeting the research requirements for the Master of Arts Degree.

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Date

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Abstract

The purpose of this research was to determine if there was a grade in school which would prove to be critical in the development of underachievement in students identified as intellectually gifted. The academic records of one hundred high school students identified as gifted by West Virginia State Department of Education standards were analyzed. Of these, eighteen students were identified as "underachieving," again by West Virginia State Department of Education Standards. Data was collected on each student as to IQ, age identified as gifted, gender, final G.P.A. for each grade first through ninth, and number of honors or advanced courses taken each school year. Statistical analysis was conducted on the data to determine if there was a relationship between each variable on the G.P.A. of students identified as gifted.

A 2X2X9 (gender by achievement group by grade) repeated measures analysis of covariance (ANCOVA) using IQ scores as a covariate was used to determine if significant changes in G.P.A. occurred over time for achieving and underachieving boys and girls after controlling for intelligence. The analysis determined that G.P.A. changed significantly over time. Significant main effects for gender and achievement group indicated that overall girls had higher G.P.A.s than boys, and that students labeled as "achievers" had significantly higher G.P.A.s than those labeled as "underachievers." Further year by year analysis indicated that underachieving boys exhibited a steady decline in G.P.A. starting in second grade. Underachieving girls, while not quite as successful as the achieving group, maintained acceptable grades through fifth grade. Their grades dropped sharply in sixth grade, however, and they were at a level with underachieving boys in grades seven through nine.

IQ, year identified as gifted and number of honors or advanced classes taken had no relationship to achievement level. Analysis of the data revealed, however, that 90% of the students who dropped below a 3.0 G.P.A. at some time in their academic careers went on to become underachievers.

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Chapter 1

INTRODUCTION

Underachievement of gifted students is one of the most frustrating and confusing problems facing the educational system today. Gifted underachievers are present in almost every classroom. "They waste educational resources, try the patience of even the best teachers, manipulate their families toward chaos and destroy their own confidence and sense of personal control" (Rimm Why Bright Children 4). Failure of any student to reach his/her potential is a loss to society; however, failure of a gifted student to achieve at his/her level of ability seems to be a particularly sad and distressing loss.

For years it was assumed that gifted students were capable of learning and being successful in almost any educational environment. With the development of more programs for the gifted, more attention was focused on the individual needs and problems of these high-potential students. With that focus came the realization that some gifted students fail to be successful in school. There has always been concern over the failure of these bright, capable students to achieve. However, there appears to be more emphasis recently on the causes and treatment of what Sylvia Rimm has dubbed the "Underachievement Syndrome" (Underachievement 1). There are many theories as to why these students fail to achieve, and, certainly, there are many factors which contribute to any individual child's underachievement. This research is not an attempt to determine these contributing factors; rather, it is an attempt to determine if there is a particular age at which these gifted students become more susceptible to development of a pattern of underachievement. Many studies are currently being undertaken to determine

intervention strategies which are successful in reversing the underachievement pattern in gifted youth. These studies indicate that the earlier intervention strategies are initiated, the greater the chance they will be successful; however, early intervention success depends on early identification.

Statement of the Problem

Many students go through periods where, for whatever reason, they have a more difficult time in school. Grades may fluctuate from grading period to grading period, but often gifted students are able to compensate enough to make acceptable final grades. Even if the final grades for one year are below what would be expected, the next year's grades seem to rebound. This study focuses on gifted students who consistently receive final grades below what one would expect from students with their abilities.

This study is an attempt to determine if there is an age or stage in a student's education where the pattern of underachievement is most likely to begin; and if there is a "critical" time in a child's development where failure to achieve is more likely to lead to the onset of the "underachievement syndrome." The purpose of this study will be to determine if there is a pattern to the onset of underachievement in students identified as gifted.

Hypothesis

The hypothesis has two components. First, students identified as underachieving gifted under West Virginia Special Education standards were achieving in school at the time they were identified as gifted. Second, seventh and eighth grades will prove to be the critical years in these students' patterns of underachievement. They will have continued to achieve through elementary school and will become underachievers during their seventh and eighth grade school years. Underachievement is defined as a grade point average below a 3.0 on a 4.0 scale.

Assumptions

The following assumptions were made in this study:

1. The sample is an adequate size to obtain valid results.

2. The sample is typical of gifted students in general.

3. Grades are a valid measure of classroom achievement.

4. The instruments used to analyze the data are valid.

Limitations

This study was limited to 100 students, all enrolled in Parkersburg South High School, grades 10 - 12, during the 1996-97 school year. In addition:

1. All students included in the study were identified as gifted during elementary school by Wood County Schools according to criteria set by the West Virginia Department of Education, Office of Special Education.

2. All students in the study identified as underachieving were identified by Wood County Schools at the end of the eighth grade according to criteria and guidelines established by the West Virginia Department of Education, Office of Special Education and Wood County Schools.

Importance of the Study

Current research in the field of gifted education attempts to identify intervention techniques which reverse the pattern of underachievement in gifted students. Most of this research supports the theory that the earlier the intervention is started, the more effective it is in reversing underachievement. Dowall and Colangelo go so far as to say that it is almost impossible to reverse underachievement once a student has entered high school (183). There is the added concern that once a gifted underachiever reaches high school,

that student is more likely to drop out of school, thus removing himself/herself from any attempt to restore academic success.

Often when a student starts to underachieve, especially when he/she has a history of achieving, it is regarded as a "phase." This is particularly true when one talks about seventh and eighth grades. The problems of seventh and eighth graders are often regarded as developmental. Because of the turbulent time young people experience in these grades, a decline in G.P.A. during this period is often regarded as something a student will "outgrow." If it can be shown that a decline in academic achievement during this critical period of development more often than not indicates the onset of a more serious pattern of underachievement, then educators might implement intervention strategies sooner. Perhaps a case could be made for intervention to occur when a student demonstrates more moderate signs of underachievement. In other words, instead of waiting until a student has failed one or two courses for the year, the onset of underachievement patterns might be recognized and the problem addressed while it is still in the early stages.

It should be remembered that in West Virginia students are not actually identified as underachieving gifted until the end of eighth grade. Prior to that time, they are identified merely as "gifted." The focus of gifted education in West Virginia has always been on developing the strengths of the gifted student (WV Dept. of Education 1990). Often a student's underachievement is not dealt with as such until after he/she completes the eighth grade and is "officially" labeled as underachieving. Hopefully this study will help to demonstrate the need to intervene with these students when the signs of underachievement first appear.

Definition of Terms

IQ - The ratio of an individual's chronological age and his/her intellectual age which is used to determine an individual's intelligence in relation to others.

Gifted - A student who demonstrates an IQ of 127 or above on the Stanford - Binet Intelligence Test.

Grade Point Average - An average of the grades an individual earns in a specific period of time. Grade Point Average is determined by quality points earned in a grading period. An "A" earns 4 quality points; a "B" 3 points; a "C" 2 points; and a "D" 1 point. An "F" is not worth any quality points. The total number of quality points earned is divided by the number of credits earned to determine the G.P.A.

Gifted Achiever - An individual who has been identified as gifted and is making grades commensurate with what one would expect for a gifted student. For the purposes of this study, achieving means consistently receiving grades of 3.0 or better.

Gifted Underachiever - An individual who has been identified as gifted and is not meeting his/her potential as reflected by an academic measure of performance (e.g. grades). This lack of productivity is not caused by a diagnosed learning disability, attention disorder or behavior disorder. For the purposes of this study, grades below 3.0 are considered underachieving.

Honors Classes - Classes designated as honors or Advanced Placement in the curriculum or classes taken at least one grade ahead of a student's grade placement (ex.: taking Algebra 1 in the 7th grade or 9th grade science in the 8th grade, etc.). Classes not officially labeled as honors but which are higher level courses requiring advanced prerequisites are also counted as honors classes (ex. pre-calculus, Spanish 3, etc.).

Elementary School - Grades one through six.

Junior High School - Grades seven through nine.

Chapter 2

REVIEW OF LITERATURE

The review of literature will be divided into two sections: a review of gifted education and a review of studies dealing with underachieving gifted.

History of Gifted

Throughout history, society has recognized giftedness. Those identified as gifted were individuals extremely capable in their fields - people who excelled in an area which society valued. For example, a superior athlete was considered talented, but an outstanding scientist was considered gifted. Historically, giftedness was "determined" following an accomplishment or achievement, so that those who had achieved extraordinary feats were labeled gifted. There was much fascination and hypothesizing in the last half of the 19th century about what defined "gifted" and what determined "giftedness" (Tannenbaum 67).

In the early 1900s, Lewis Terman conducted a series of studies designed to demonstrate a developmental link between high-level potential in children and outstanding adult accomplishment. Terman and his associates set out to identify precocious elementary school aged children and then to conduct a longitudinal study of them for the remainder of their lives. His key to determining giftedness was a test of

"general intelligence" which had been developed by Binet and Simon in 1905. This test, revised by Terman and his associates at Stanford University, became known as the Stanford-Binet (Tannenbaum 68). The Stanford-Binet yields an intelligence quotient or IQ, a ratio of the individual's intellectual age and her chronological age. The IQ score is used to determine a person's intelligence in relation to others in the population. A score of 100 is considered "average." A score of 130 (2 standard deviations above the mean) occurs in 2% of the population (Witty). It is this score that is commonly accepted as denoting a gifted individual. The original Stanford-Binet has been revised but is still one of the most commonly used tests used to determine IQ.

Several items of note were revealed by Terman's studies. First, he showed that IQ tended to remain relatively constant over time. Secondly, he demonstrated that intelligence was a key factor in success, both in academics and, later, in careers (Tannenbaum 70). The result of much of Terman's work was a belief that high-potential youth became high-achieving adults. If these gifted youths could be identified at an early age, they could be nurtured, and their intelligence developed to its full potential.

The gifted child was typically considered to be a pupil whose IQ was very high. Many administrators and teachers felt that a gifted student could take care of him/herself; that a gifted student would be "O.K." no matter what the curriculum. As a result, from 1925 - 50, very few efforts were made to differentiate curriculum for the gifted (Witty 39).

After World War II, educators began to show an interest in gifted education. There was a feeling that these bright young minds were a valuable resource to the country.

Many of the early studies demonstrated the rapid learning and educational promise of bright young "gifted" children. A study by Witty, however, demonstrated that as they continued through school, many of these gifted children's performance grew less commensurate with their early promise (Witty 39). This study recommended acceleration and enrichment to keep these students achieving at the level at which they were capable. Witty's study served as the basis for much of the argument in favor of gifted education in the 1950s. In an attempt to meet the needs of gifted students, elementary schools started special classes, partial segregation and acceleration. Secondary schools developed "honors" classes and "honors schools". The National Merit Scholarship Corporation was formed and began to award scholarships to superior students (Witty 40).

As programs for the gifted grew, a broader concept of the gifted developed. It became obvious that there were children who possessed gifts and talents not identifiable by an IQ test. As the concept of giftedness expanded, there began a search for new ways to identify a greater number of different kinds of gifted children (Torrence 47). Of special interest were those children who were creatively gifted. This group, however, posed a special problem when it came to identification. There have been many attempts to devise a test to measure "creativity"; however, none of these tests have experienced marked success (Witty 42). Consequently, although there is much talk and debate about types of giftedness other than general intellectual giftedness, many gifted programs still rely on the results of an IQ test for qualification purposes (Parke 5).

Today, while intelligence is still a matter of much discussion, it is not a simple concept. Many researchers since Terman, have struggled with trying to develop a definition of gifted. The identification of these individuals is dependent on the definition

being utilized. Attempts to generate a precise, agreed upon definition of giftedness have been elusive. That high intelligence exists is not debatable; how one measures that intelligence is. Many experts do not even agree as to what IQ score denotes "gifted" (Torrence 48), although most researchers recognize that there are many ways in which giftedness may be expressed. Many lists of "Characteristics of Gifted Children" have been compiled (Webb 45). The purpose of these lists is to provide an additional screening tool when students are reevaluated for placement in gifted programs. Most researchers strongly recommend utilizing more than an IQ score when determining whether or not a student is gifted (Parke 5, Dickson, Frasier 16); however, there is not much agreement on what information to use and how to use it. There is a fear among many researchers that in the adoption of a theoretical definition of gifted, many bright, talented students who exhibit a different type of intellectual giftedness will be excluded (Torrence 50). Feldhusen argues that identification of giftedness is, at best, an inexact science. He finds fault with many methods utilized to identify gifted youth because he feels too often that, "practitioners search for the gifted *child*, not for *signs* of giftedness, of potential" (7).

In 1978, Joseph Renzulli published a new functional "definition" of giftedness. He also published a programming model based on his definition. This model became quite popular in the early 1980s when many school systems were implementing programs for the gifted. Renzulli's work explained how to identify gifted and how to best serve them programmatically. For many school systems, it served as a "cookbook" for gifted education. Renzulli defines giftedness using a trifocal model. He believes that a student must exhibit above average ability, high creativity and high task commitment in order to be identified as gifted. Renzulli requires a student to demonstrate all three behaviors and

have an IQ in the top twenty percent of the population to qualify as gifted (183 - 184). Under his definition extremely high task commitment is more imperative than extremely high IQ.

Dickson, too, feels there is too much emphasis on IQ as a qualifying factor for gifted programs. He argues that IQ tests fail to identify students who are culturally different or those who are simply not motivated to do well in school. Dickson feels that gifted placement should be based on multiple assessment scores, not just IQ. Most experts agree that gifted children represent a very diverse group. In particular, Webb feels that they are a more intellectually diverse group than average children (45). It is this very diversity and a lack of a common definition that make "gifted children" a group difficult to identify.

In practical terms, much of the identification of gifted children hinges on classroom teacher evaluations. In most school systems, students are usually considered for placement in a gifted program after referral by a classroom teacher (Battin). School personnel typically assume that children who achieve in the 90th percentile or above might be gifted and those who perform below that level are not. This is not always true. Many gifted children are not motivated to demonstrate their abilities in the standardized format of achievement tests (Webb 47). A 1971 study by Jacobs found that identifying gifted children on the basis of teacher referral correctly identified less than half of the students who later qualified on individual IQ tests (Webb 46).

Federal Definition and Policy on Gifted Education

In 1970, the United States Congress passed a mandate that added Section 806, "Provisions Related to Gifted and Talented Children," to the Elementary and Secondary Educational Amendments of 1969 (Public Law 91-230). This act allowed gifted students to be included with those receiving help from Titles III and V of the Elementary and Secondary Education Act and the Teacher Fellowship Provisions of the Higher Education Act of 1956. The law also ordered a study on the identification, needs and education of gifted students. As a result of this legislation, the then Education Commissioner Sidney Marland, Jr., developed a Federal definition of gifted which identified six categorizes of giftedness: general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, visual and performing arts, and psychomotor ability. This act targeted the top 3 - 5% of school-aged children who showed outstanding promise in at least one of the six categorizes of giftedness (Tannenbaum 34 - 35).

In 1972, the Federal Government passed Policy 94-142 which made special education mandatory in all public school systems. It required school systems to provide free special education services for all students who qualified as exceptional. Gifted students were not included in the Federal definition of exceptionalities in PL 94-142. As a result, gifted education is not mandated by Federal law.

Although not required by Federal law, twenty-six states have mandated programs for the gifted; 21 more have permissive legislation. Of the 47 states which have or permit gifted education, only 19 offer teacher certification to assure that these students have specially trained teachers (Parke 5).

West Virginia Definition and Policy on Gifted Education

In response to PL 94-142, West Virginia developed Policy 2419: Regulations for the Education of Exceptional Students. Policy 2419 provides "the framework for implementing free, appropriate public education for all eligible students with exceptionalities in WV" (Policy 2419 foreword). In addition, Policy 2419 defines and establishes guidelines for all areas of exceptionalities covered under Federal and West Virginia law.

In 1978, West Virginia added "gifted" to the list of programs included in special education services. West Virginia chose to limit their gifted program to intellectually gifted, as opposed to including any of the other areas of gifted defined in Federal law. By including gifted education in Policy 2419, West Virginia afforded all of the special education rights of other exceptionalities to the gifted. Therefore, gifted education is special education in West Virginia, but it is not a federally recognized or funded special education program.

The West Virginia State Board of Education has defined giftedness as "exceptional intellectual abilities that are evidence of outstanding capability, and require specially designed instruction and/or services beyond those normally provided by the regular school program" (Policy 2419 9). The state of West Virginia then developed criteria for the gifted program, seeking to identify students with a general intellectual ability in the top 2% of the population and a need for special education services (WV Dept. of Ed. 1989).

The criteria they established are:

"For gifted students, grades one (1) through eight (8), documentation that a student meets both of the following:

1) Intellectual Ability

   a) General Intellectual ability, 2.0 or more standard deviations above the mean on a full scale comprehensive test of intellectual ability, with consideration of 1.0 standard error of measurement, or

   b) Intellectual functioning 2.0 or more standard deviations above the mean, with consideration of 1.0 standard error of measurement at the 68% confidence interval on a verbal or nonverbal scale of a comprehensive test of intellectual ability, if the student is disabled or economically disadvantaged, or if the student's primary language is other than English; and

2) Achievement/Performance

   a) At least one area of academic achievement as measured by an individual standardized achievement test, indicating that the student requires specially designed instruction, or

   b) At least one area of classroom performance, as determined during the multidisciplinary evaluation, indicating that the student requires specially designed instruction"

(WV Dept. of Education 1995)

In implementing Policy 2419, Wood County Schools utilizes the Stanford-Binet Intelligence Test to determine intellectual ability. A student must attain a score of 127 or above on the Stanford-Binet to qualify as gifted (Battin).

Underachieving Gifted

Gifted students account for two and one-half to three percent of the school population (Webb 3), but according to a study by Lajoie and Shore, students in the superior range of abilities account for 10 to 20% of high school dropouts (139). Many gifted students do achieve, but some do not. The term "underachieving gifted" has come to represent the growing number of high-potential students who are simply not performing well in school.

Part of the challenge of working with underachieving gifted comes from the lack of a clear definition of underachieving. Is a student underachieving if he/she possesses an IQ of 132 and has a "C" grade point average? What if he/she has a "B" average? What if his/her IQ is 140 with a "B" average? What if a student is identified as mathematically gifted and has good grades except for a "D" in math? Many educators feel that a child is not gifted if he/she is not achieving in all areas. It is not uncommon for classroom teachers to feel that a child should not attend gifted classes if he/she is not achieving in the regular class. Renzulli defined a gifted student as one who has the combined characteristics of above-average intelligence, creativity, and task commitment (184). Under his definition, then, if a student is not achieving, that child is not gifted.

Many researchers use discrepancy between ability and performance to define underachieving gifted. Ability is usually determined by intelligence test scores, while performance might be determined by standardized achievement test scores (Gowan 99; Ohlsen et. al 78) or by grades (Fine 51; Hishinuma 30; Dickson). Rimm identifies underachievement as three consecutive years of declining test scores and grades (Why Bright Kids 397-398). Some definitions are very exact. Saurenman and Michael define an underachieving gifted student as one who has a Standard -Binet IQ of 132 or above and a percentile ranking of 75 or below on the CTBS tests (CA Test of Basic Skills) (81). Others allow for more flexibility and, consequently, more confusion. For example, Ziv describes an underachieving gifted student as one who has a high IQ and low grades in school (Dowall et. al 180). Whitmore says it is a student who demonstrates exceptionally high capacity for academic achievement but is not performing satisfactorily for his/her level on daily academic tasks and achievement tests. Kowitz and Armstrong define "lower than expected grades" as a "C" or below (347), whereas Fine defines the underachiever as a student not performing in the top third of his class (Dowall et. al 180).

Obviously, identification of underachieving gifted is directly tied to the definition one uses. It should be noted that many researchers currently studying intervention methods for underachieving gifted students do not explicitly define their target group. Baum merely identifies the students she worked with as students previously identified as gifted but who were currently underachieving in their school performance (1995 227). It is interesting to note that Renzulli has co-authored two papers with Baum (1994, 1995) on intervention strategies for underachieving gifted. This marks a significant deviation from his earlier writings when non-achievers were not considered gifted. Like Baum, Emerick (141) and Lemley (40) identify the students they worked with as gifted students who

were not achieving in school. Hishinuma feels that in many cases underachieving gifted are also under-identified because the giftedness may be masked by grade-level performance (32).

Lack of a specific functional definition of underachieving may be caused by the very diverse nature of this group. Many researchers are recognizing that there are as many reasons and ways to underachieve as there are underachieving students. The focus is shifting away from developing a concrete definition or criteria and toward developing strategies to reverse the underachievement. The underachiever is an anomaly; he/she is hard to describe, but not necessarily hard to recognize.

Most research in the field of underachieving gifted stresses that the underachiever cannot be considered in isolation from home, school and social settings (Rimm Why Bring Children xvii, Hishinuma 31). Sylvia Rimm, who runs The Family Achievement Clinic in Cleveland, OH, feels that for intervention to work, all adults must present a "united front." Rimm says all underachieving gifted are unconsciously manipulative and feels most of their problems are in some way "control" related (1989).
Fine and Pitts studies support the theory that many gifted underachievers lack a sense of control in their lives (53). All three researchers have found success in working with gifted underachievers when educational expectations, guidelines, responsibilities and consequences are discussed, spelled out and agreed to by all parties involved ahead of time. All three researchers felt agreement on the intervention strategies and shared ownership contributed significantly to the success of the process (Rimm 1989, Fine and Pitts 53 - 54). Most of the research which documents success stories in reversing the underachievement process supports a shared control approach. First, all underachieving

students are permitted some control in the content and/or approach to their studies. In addition, guidelines and expectations are clearly established at the outset. Along with some measure of control, the underachieving gifted student assumes more direct responsibility for his/her studies. Independent studies, individual research projects, self-guided studies, and mentoring programs have all been shown to reverse the underachievement pattern in gifted youth (Emerick 144 - 145, Baum et. al. 1995 228 - 229, Lemley 41 - 42). Acceleration has also been shown to reverse or prevent underachievement in some students (Rimm and Lovance 103 - 105, Fearn 122 - 124).

Almost all of the research on reversing the pattern of gifted underachievers cites the importance of selecting the right teacher to work with the student (Emerick 144, Baum et. al. 233, Rimm 203 - 204). Most of the successful work done with gifted underachievers stresses respecting the student as a person and listening to his/her opinions while providing the structure and guidelines that the student needs. Having everyone involved "buy into" the agreement prior to its implementation also seems to increase the chance of success. Instead of trying to make the student fit into a predetermined mold, the educator who respects the student's strengths and abilities, provides the needed structure, and listens to his/her thoughts and ideas has a greater chance of being successful with the underachiever. Structuring the intervention so that the student is an active participant and not just a recipient of the intervention seems to be the key to its success. Remediating a student's weaknesses or skills as needed and providing a consistent support network have also been shown to contribute to the success of intervention strategies (Rimm 1993, Lemley 41, Dickson, Baum et. al. 1994 50 - 52, Baum et. al. 1995 231 - 235, Fine and Pitts 53 - 55).

West Virginia Definition of Gifted Underachiever

In 1989, the West Virginia Legislature redefined the parameters of gifted education but did not alter the definition of gifted. Rather, they changed the type of service available to identified gifted students. Students identified as gifted receive special education services through eighth grade. At that time, a four-year academic plan is written for them. The plan addresses individual academic strengths and educational needs through the four years of high school. Individual gifted services continue past the eighth grade only for students who meet specific criteria which identify them as still in need of specialized services. These students continue in special education and this program is called "exceptional gifted" to distinguish it from the gifted program offered to students prior to the ninth grade year. In order for a child to be identified as exceptional gifted, there must be "documentation that a student meets all of the following:

1) the eligibility criteria for gifted; and
2) the eligibility criteria for one or more of the disabilities as defined in this section, (3.0) and/or
3) the definition for economically disadvantaged in the Glossary of these regulations, and/or
4) underachieving which takes into consideration the students' ability level, educational performance and achievement levels and/ or
5) psychological adjustment disordered as documented by a comprehensive psychological evaluation" (Policy 2419 9).

Program areas identified in section 3.0 of Policy 2419 (and which meet criteria #2 above) include autism, behavior disorders, blind and partially sighted, deaf-blind, deaf and hard of hearing, orthopedically impaired, other health impaired, specific learning disabilities, speech/language impairments and traumatic brain injury (Policy 2419 5 - 17).

Economically disadvantaged "is defined by one or more of the following criteria: family income at or below the national poverty level; participant, or parents/guardians of the participant are unemployed; participant, or parent of the participant, is the recipient of public assistance; or participant is institutionalized or under state guardianship" (Policy 2419 52).

The criteria for underachieving gifted are a little more difficult to articulate. As mentioned previously, data which indicates underachievement for one student might not indicate underachievement for another student. In an attempt to facilitate the identification and appropriate placement of gifted underachievers, Wood County Schools developed more extensive eligibility guidelines for determining placement of students as underachieving gifted. Wood County reiterates state qualifications for exceptional gifted but expands the description of underachieving.

"Underachieving, which takes into consideration the student's performance in relationship to his/her intellectual ability, includes but is not limited to:

a. failure to meet the "expected score" for his/her intellectual ability on one or more subtests of an individualized standardized achievement test, or

b. failure to earn promotion to the next grade level, or

c. a below average grade point average, or

d. failure to earn above average grades in area(s) of academic strengths, or

e. an anomalous grade distribution (e.g. extremely high grades in one or more subjects and extremely low grades in one or more other subjects) (Wood Co. Schools 1)

Gifted Education programs in the state of West Virginia follow the Special Education model. Special Education services are provided to students who have an educational need beyond what can be provided in a regular classroom (Simmons). The Special Education program deals with the student's special need. For example, if a student has a diagnosed learning disability in written language skills, the special education teacher works with the student on written language skills; however, the special education teacher would not work with the student on math skills, for example, even if that student were having trouble in math. Under the special education model, a special educator only deals with a student in the area which qualified him/her as needing special services (Simmons). When applied to gifted education prior to ninth grade, that means a teacher of the gifted would only deal with the aspects of a gifted student which qualified him/her as gifted. If the Individualized Educational Plan (IEP) identifies a strength area in reading and language then all goals and objectives must deal with those strength areas. If the student is failing three subjects because of a lack of organizational skills or motivational problems, those areas may not be addressed on an IEP (Simmons). Only areas which resulted in a student being identified as gifted may be included in an IEP. If a student is identified as underachieving at the end of eighth grade, his/her IEP may include goals

which would attempt to remediate the underachievement which was the basis for special education placement.

Summary

Almost all programs for the gifted depend on an IQ score for qualification purposes. One of the problems with conventional methods of identifying gifted students is the inability to identify gifted who are disadvantaged or underachieving (Feldhusen 7). A survey of all 50 state departments of education found that the predominant tools used for identifying gifted students were standardized achievement tests and tests of intelligence (Yorborough et. al 137). Most researchers and theorists agree that multiple measures should be used in identifying gifted, but research shows that even when multiple tests and measures are used to identify the gifted, this data is often just added up to identify the "all purpose" gifted child (Feldhusen 6). A common complaint is that gifted programs tend to identify achieving gifted students but do not identify underachieving or underprivileged gifted (Dickson).

In addition, most gifted programs rely on teacher referrals and/or performance on group achievement tests. These procedures tend to favor students who are willing and able to display their giftedness (Webb et. al 10). In West Virginia, since the criteria for gifted requires demonstration of high intelligence, school personnel, obviously, refer for testing those students who exhibit high intelligence. In a school setting, ability is often equated with achievement. Therefore, those students who achieve at a high level tend to be referred for testing for gifted. Because the definition requires a clear expression of

giftedness, many gifted children are overlooked who, for whatever reason, are unable or unwilling to demonstrate their abilities in the ways they are being measured. As this demonstrates, even the process which is used for referral for testing tends to select achieving gifted.

To be referred for gifted screening, then, a student usually has to achieve at some point in his/her academic career; students who have never achieved in school tend not to be identified as gifted. According to Gary Battin, school psychologist for Wood County Schools and gifted education specialist, over the past 15 years less than 1% of elementary age students referred for gifted education services in Wood County have had below average grades or grades which would not be categorized as good (Battin).

West Virginia tends to identify achieving gifted students for placement in the gifted program in grades one through eight. When identifying exceptional gifted, though, underachievement is one of the criteria by which a student is eligible for continued special education services. These factors would indicate that students in West Virginia who are placed as underachieving gifted have begun to underachieve at some point in their academic career.

Underachievement of high ability students is a growing problem in schools. There is much debate and there are many differing opinions over the exact measures that should be used to identify underachieving gifted students; however, there is no disagreement over the existence of the underachiever and the need to address the challenge of re-engaging these students in the educational system. Current research emphasizes the importance of early intervention in dealing with underachieving gifted students, if that intervention is to

be successful. Early intervention is dependent on early identification and early identification is dependent on recognizing signs which seem to indicate the onset of the "underachievement syndrome."

Chapter 3

PROCEDURES

Selection of Subjects

All subjects were enrolled in Parkersburg South High School, in grades 10 - 12, at the start of the 1996 - 97 school year. All were identified as gifted according to the criteria developed by the West Virginia Department of Education, Office of Special Education; that is, all had an IQ score of at least 127 as measured by the Stanford-Binet intelligence test and had at least one area of academic achievement or classroom performance which indicated their need for specialized instruction. Students who were identified as having a disability which might impact on their school performance , such as a learning disability, behavior disorder or attention deficit disorder, according to West Virginia State Department of Education criteria, were not included in the study. Only students who had available records of their grades, for grades one through nine were included in the study. (Some students had moved to Wood County and their permanent records did not include grades for their early elementary school years.)

There were 118 students identified as gifted enrolled at Parkersburg South. Eighteen of these were excluded from the study because of a disability or incomplete records. Of the 100 students - 49 girls and 51 boys - included in the study, 18 were identified as underachieving gifted (UAG) according to the guidelines established by the West Virginia Department of Education, Office of Special Education and as defined by the guidelines of Wood County Schools. Of the 18 identified as underachieving, six were

girls and 12 were boys. The remaining 82 students - 43 girls and 39 boys - comprise the group labeled "achieving gifted" (AG).

Experimental Design

Data was collected on all students identified as gifted. The 82 gifted students not identified as underachieving were labeled "achieving" and served as the control group for the study. All analyses were done by comparing the underachieving group to the "expected" as defined by the achieving gifted students.

Grades were recorded for each student for each school year from first through ninth grades. Since all of the underachieving students had been identified as such prior to ninth grade, it was felt that analyzing grades beyond this point would not help determine when these students had begun to underachieve. Additional information which might impact on a student's grades was gathered to determine if there was a relationship between achievement level and any of these factors.

For each student the following information was gathered:

1) IQ
2) Grade identified as gifted
3) Gender
4) G.P.A. for each academic year starting with first grade and continuing through ninth grade. G.P.A. was computed on a 4.0 scale using final grades received in a subject. G.P.A. was rounded to one decimal point.

5) Number of honors or advanced classes taken in each academic year.

6) Identification of the student as gifted or underachieving gifted.

Treatment of Data

A 2X2X9 (gender by achievement group by grade) repeated measures analysis of covariance (ANCOVA) was utilized. IQ scores as a covariate were used to determine if significant changes in grade-point average occurred over time for achieving and underachieving boys and girls after controlling for intelligence. Additionally, individual, independent 2X2 (gender by gifted group) ANCOVA's were utilized, controlling for IQ, for grade 1 to 9 G.P.A.s.

Separate, independent analyses were utilized to determine the effect of taking honors or advanced courses on G.P.A. and to determine if there was a relationship between IQ and achievement.

Chapter 4

ANALYSIS OF DATA

The purpose of this research was to determine if there was a grade in school which would prove to be critical in the development of underachievement in students identified as intellectually gifted. The academic records of one hundred high school students identified as gifted by West Virginia State Department of Education standards were analyzed. Of these, eighteen students were identified as "underachieving," again by West Virginia State Department of Education Standards and Wood County Schools guidelines. The 82 students not identified as underachieving were labeled "achieving" and served as the control group. All results were obtained by comparing the underachieving group to the "expected" as defined by the achieving gifted students. Data was collected on each student as to IQ, age identified as gifted, gender, final G.P.A. for each grade first through ninth, and number of honors or advanced courses taken each school year. Statistical analysis was conducted on the data to determine if there was a relationship between each variable on the G.P.A. of students identified as gifted.

A 2X2X9 (gender by achievement group by grade) repeated measures analysis of covariance (ANCOVA) using IQ scores as a covariate was used to determine if significant changes in G.P.A. occurred over time for achieving and underachieving boys and girls after controlling for intelligence.

All 100 students identified as gifted had a G.P.A. over 3.0 at the time they were referred for testing for the gifted program; additionally, none of the students had ever received below a 3.0 in any year prior to being identified as gifted. Therefore, using a G.P.A. below 3.0 as the determination for underachievement, all of the subjects were achieving at the time they were identified gifted. Table 1, which lists the raw data collected on each subject, confirms the grade point average of all of the subjects at the time of their identification as gifted. The achieving and the underachieving groups have been separated into individual lists for easier reference when discussing later results.

TABLE 1

RAW DATA - ACHIEVING GIFTED

Subject #	Gender	IQ	Grade Ident. GT
1	F	142	1
2	M	149	2
3	F	132	2
4	F	137	1
5	F	144	1
6	F	134	3
7	M	129	3
8	M	129	1
9	F	133	4
10	F	127	2
11	M	142	1
12	F	130	2
13	M	130	1
14	M	131	1
15	M	127	5
16	F	130	K
17	F	127	K
18	F	135	1
19	F	128	1

Subject #	Gender	IQ	Grade Ident. GT
42	F	131	1
43	F	128	1
44	F	127	1
45	F	134	5
46	M	129	1
47	M	133	1
48	M	139	K
49	M	127	5
50	F	144	2
51	F	128	1
52	F	145	1
53	M	127	1
54	F	132	K
55	M	127	K
56	M	136	2
57	M	133	4
58	F	134	2
59	M	129	1
60	F	128	K

20	M	127	2
21	M	137	1
22	M	132	4
23	M	134	1
24	F	143	K
25	F	131	K
26	F	132	K
27	F	129	K
28	M	133	1
29	F	131	K
30	F	132	K
31	M	139	3
32	F	130	3
33	F	138	K
34	M	132	K
35	M	132	2
36	F	131	1
37	M	132	3
38	F	130	1
39	M	129	4
40	F	130	3
41	M	138	6
61	F	136	2
62	M	140	K
63	M	127	4
64	F	132	1
65	M	127	2
66	M	129	2
67	M	139	4
68	F	135	4
69	F	135	1
70	M	140	1
71	F	130	2
72	F	138	1
73	F	129	K
74	M	136	1
75	M	139	2
76	M	127	K
77	M	127	K
78	F	142	K
79	M	139	3
80	F	132	3
81	F	129	4
82	M	130	K

RAW DATA - Achieving Gifted, continued

Subject #	Grade 1 GPA	Grade 2 GPA	Grade 3 GPA	Grade 4 GPA	Grade 5 GPA	Grade 6 GPA	Grade 7 GPA	#	Grade 8 GPA	#	Grade 9 GPA	#
1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	2
3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	1	4.0	2
4	4.0	4.0	4.0	4.0	4.0	4.0	3.9	1	3.9	1	3.9	2
5	4.0	4.0	3.9	4.0	4.0	4.0	4.0	0	3.7	0	3.6	1
6	4.0	4.0	4.0	4.0	4.0	2.6	3.9	0	3.9	0	3.9	1
7	4.0	4.0	4.0	4.0	4.0	3.7	3.9	0	3.9	0	4.0	1
8	4.0	4.0	3.7	3.1	2.9	2.4	2.9	0	3.3	0	3.1	1
9	4.0	4.0	4.0	4.0	3.9	3.9	4.0	0	4.0	0	4.0	1
10	3.8	4.0	4.0	4.0	3.9	3.6	3.6	0	3.9	0	3.4	1
11	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	3
12	4.0	4.0	4.0	3.7	3.7	3.9	4.0	0	3.9	0	3.9	1
13	3.5	3.5	3.4	4.0	3.0	3.4	3.6	0	3.4	0	3.1	0
14	4.0	3.8	3.7	4.0	4.0	3.9	3.8	0	3.7	0	4.0	0

TABLE 1 (continued)

Raw Data - Achieving Gifted, continued

Subject #	Grade 1 GPA	Grade 2 GPA	Grade 3 GPA	Grade 4 GPA	Grade 5 GPA	Grade 6 GPA	Grade 7 GPA	#	Grade 8 GPA	#	Grade 9 GPA	#
15	4.0	4.0	3.7	3.4	3.7	3.6	3.7	0	3.7	0	3.3	1
16	4.0	4.0	4.0	3.7	4.0	3.7	3.7	0	4.0	0	4.0	1
17	4.0	4.0	4.0	4.0	3.6	3.1	3.3	0	3.4	0	3.2	1
18	3.8	4.0	3.9	4.0	3.6	2.6	4.0	0	4.0	0	4.0	1
19	4.0	4.0	4.0	4.0	3.9	4.0	4.0	0	4.0	0	2.9	1
20	3.8	3.0	3.0	2.6	3.0	3.4	3.5	0	2.9	0	3.9	0
21	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	2	4.0	3
22	4.0	4.0	4.0	3.7	4.0	3.9	3.3	0	3.9	0	2.7	0
23	3.2	3.0	3.9	3.1	3.6	3.4	3.3	0	3.6	0	3.4	0
24	4.0	4.0	4.0	3.1	4.0	3.4	3.3	0	3.9	0	3.9	1
25	4.0	4.0	4.0	3.6	4.0	3.6	3.7	0	3.9	0	3.9	1
26	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
27	4.0	4.0	3.9	4.0	3.7	3.6	3.7	0	3.6	0	3.4	1
28	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	2	4.0	2
29	4.0	4.0	3.9	4.0	3.7	3.6	3.7	0	3.6	0	3.4	1
30	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	3.6	1
31	3.5	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
32	3.8	4.0	4.0	4.0	4.0	4.0	4.0	0	3.7	0	3.8	1
33	4.0	4.0	4.0	3.9	3.7	3.6	4.0	0	3.9	0	3.5	1
34	3.8	3.5	3.9	4.0	3.7	3.6	3.4	0	4.0	0	4.0	1
35	4.0	4.0	4.0	3.9	3.9	4.0	3.7	0	3.4	0	3.3	0
36	3.3	3.5	3.9	3.9	3.7	3.9	3.5	0	3.6	0	3.7	1
37	4.0	4.0	4.0	4.0	4.0	4.0	3.9	0	4.0	0	3.9	1
38	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	3.8	0	3.9	1
39	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	3.9	0	4.0	1
40	4.0	4.0	4.0	3.9	4.0	3.9	4.0	0	4.0	0	4.0	1
41	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
42	4.0	4.0	3.9	4.0	3.9	3.4	3.4	0	3.4	0	3.3	1
43	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	3.7	0	3.1	1
44	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
45	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
46	4.0	4.0	4.0	4.0	4.0	4.0	3.9	0	4.0	0	4.0	1
47	4.0	3.5	3.6	3.99	3.6	3.9	3.9	0	4.0	0	3.9	1
48	4.0	4.0	4.0	4.0	4.0	4.0	3.8	0	3.9	0	3.7	0
49	4.0	4.0	3.7	3.4	3.6	2.7	3.1	0	3.0	0	3.6	0
50	4.0	4.0	4.0	4.0	4.0	4.0	3.9	0	3.9	0	3.9	1
51	4.0	4.0	4.0	3.9	4.0	4.0	4.0	0	4.0	1	3.8	3

TABLE 1 (continued)

Raw Data - Achieving Gifted, continued

Subject #	Grade 1 GPA	Grade 2 GPA	Grade 3 GPA	Grade 4 GPA	Grade 5 GPA	Grade 6 GPA	Grade 7 GPA	#	Grade 8 GPA	#	Grade 9 GPA	#
52	3.8	3.5	3.3	3.0	3.3	3.7	3.4	0	3.7	0	4.0	1
53	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	3.9	1
54	4.0	4.0	4.0	3.7	3.9	3.4	3.8	0	3.7	0	3.9	1
55	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
56	4.0	3.8	3.9	3.7	3.3	3.4	4.0	1	3.7	1	3.6	2
57	4.0	4.0	3.9	4.0	4.0	4.0	3.6	0	3.9	0	3.9	1
58	3.3	3.8	3.1	3.1	3.1	2.6	2.8	0	3.1	0	3.8	1
59	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	4	4.0	4
60	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
61	4.0	4.0	4.0	3.6	3.6	3.6	3.9	0	3.9	0	3.6	1
62	4.0	4.0	4.0	4.0	3.9	3.9	3.7	0	3.7	0	3.6	1
63	3.8	3.5	3.4	3.6	3.1	3.6	3.6	0	3.1	0	3.4	1
64	3.5	3.5	3.7	3.6	3.4	3.7	4.0	0	3.5	0	3.4	1
65	4.0	4.0	3.9	3.1	3.3	4.0	3.8	0	4.0	0	3.8	1
66	3.3	3.5	3.7	3.0	3.7	3.6	3.4	0	3.4	0	3.8	0
67	4.0	4.0	4.0	4.0	4.0	4.0	3.9	0	3.7	0	3.5	1
68	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
69	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
70	4.0	3.5	4.0	4.0	3.4	3.0	3.3	0	3.4	0	3.2	1
71	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
72	4.0	4.0	4.0	4.0	4.0	3.9	3.9	0	3.7	0	3.4	1
73	4.0	3.8	3.3	4.0	3.9	4.0	4.0	0	4.0	0	4.0	1
74	4.0	3.8	4.0	4.0	4.0	3.8	3.9	0	3.9	0	3.7	1
75	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
76	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
77	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
78	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
79	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
80	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1	4.0	1	4.0	2
81	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1
82	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	0	4.0	1

TABLE 1(continued)

Raw Data - Underachieving Gifted

Subject #	Gender	IQ	Grade Ident. GT
1	F	134	1
2	M	149	1
3	M	127	1
4	F	129	2
5	F	132	K
6	M	132	1
7	M	142	1
8	M	134	3
9	M	131	2

Subject #	Gender	IQ	Grade Ident. GT
10	M	134	3
11	M	143	1
12	M	131	K
13	M	132	K
14	F	128	1
15	M	133	1
16	M	134	1
17	F	129	1
18	F	148	1

Subject #	Grade 1 GPA	Grade 2 GPA	Grade 3 GPA	Grade 4 GPA	Grade 5 GPA	Grade 6 GPA	Grade 7 GPA	#	Grade 8 GPA	#	Grade 9 GPA	#
1	4.0	4.0	3.7	3.4	3.9	3.9	3.1	0	2.4	0	2.8	1
2	4.0	4.0	3.7	3.4	3.9	3.9	3.7	1	2.9	1	2.4	4
3	3.0	2.3	2.1	1.4	3.0	2.7	2.2	0	2.3	0	2.8	0
4	4.0	3.5	3.9	3.4	3.7	2.9	3.0	0	2.6	0	2.4	0
5	3.8	4.0	3.7	3.4	3.7	3.2	3.4	0	2.6	0	2.9	1
6	4.0	3.0	2.9	2.9	2.1	1.9	2.0	0	2.0	0	2.0	0
7	3.9	3.8	4.0	3.4	3.3	3.4	3.2	0	2.0	0	1.2	0
8	3.8	3.0	3.7	2.9	3.0	2.6	3.0	0	1.1	0	1.3	0
9	3.0	3.5	3.0	3.0	2.9	2.9	3.1	0	2.6	0	3.2	0
10	4.0	3.8	4.0	3.4	3.4	3.1	2.6	0	2.8	0	1.9	0
11	4.0	4.0	4.0	3.6	3.3	3.0	2.2	0	2.0	0	1.0	0
12	4.0	4.0	4.0	4.0	3.9	3.0	3.6	0	2.8	0	2.7	0
13	4.0	3.9	3.5	3.2	1.9	2.6	2.4	0	2.3	0	2.9	0
14	3.5	3.5	2.9	2.7	3.1	2.6	0.6	0	1.4	0	1.6	0
15	3.8	3.3	3.4	3.7	2.3	1.9	1.9	0	1.7	0	2.0	0
16	4.0	3.5	3.3	3.1	2.6	3.1	3.4	0	2.9	0	2.1	0
17	3.5	3.0	3.6	3.4	4.0	3.4	2.7	0	1.3	0	0.8	0
18	4.0	4.0	4.0	4.0	4.0	4.0	3.7	0	2.9	0	3.7	1

Among students identified as gifted, 23.5 per cent of boys and 12.2 per cent of girls later qualified as underachieving. While the greater number of boys labeled as

underachieving looks meaningful, this difference was not statistically significant, χ (n = 100) = 2.16, $p > .05$. Table 2 demonstrates the relationship between gender and achievement.

TABLE 2

ANALYSIS OF RELATIONSHIP BETWEEN GENDER AND UNDERACHIEVEMENT

GENDER by UORA (UNDERACHIEVING OR ACHIEVING GIFTED)

	UORA		
Count Row Pct. Column Pct. Total Pct.	UNDER- ACHIEV. GIFTED 1.00	ACHIEV- ING GIFTED 2.00	Row Total
GENDER			
1.00 FEMALE 12.2	6 87.8 33.3 6.0	43 49.0 52.4 43.0	49
2.0 MALE	12 23.5 66.7 12.0	39 76.5 47.6 39.0	51 51.0
Column Total	18 18.0	82 82.0	100 100.0

Chi-Square	Value	DF	Significance
Pearson	2.15598	1	.14202
Continuity Correction	1.45923	1	.22705
Likelihood Ratio	2.19399	1	.13855
Linear-by-Linear Association	2.13442	1	.14402
Fisher's Exact Test:			
One-Tail			.11316
Two-Tail			.19419

Minimum Expected Frequency - 8.820

Number of missing observations: 0

The above standard tests of stasticial analysis were run on the data using a .05 level of signifance. If the signifance had been at .05 or below that would have indicated a direct relationship between the two factors being tested; in this case, gender and achievement level. The above tests indicate that no direct relationship exists between gender and whether or not a student becomes an underachiever.

In a similar fashion, IQ was found to have no bearing on whether or not a student became an underachiever. The mean IQ for each of the four groups, 9 achieving girls, achieving boys, underachieving girls and underachieving boys 0, is listed in Table 3. The difference in IQ was not significant.

TABLE 3

VARIABLE .... IQ

AG - Achieving Gifted
UAG - Underachieving Gifted

GENDER		MEAN IQ
FEMALE	AG	133.16327
	UAG	133.23643
MALE	AG	133.41176
	UAG	134.01923

Students with relatively higher IQs were much more likely to take honors or advanced courses, $F(1, 95) = 6.25$, $p < .05$. After controlling for IQ, underachieving gifted were less likely to take honors or advanced courses, $F(1, 95) = 8.59$, $p < .01$. Table 4 demonstrates this and indicates that taking honors or advanced courses was not a factor which contributed to the lower grades of the underachieving group. Taking harder courses did not negatively impact on the grades of either group. Rather, the higher the G.P.A. a student had, the more likely he/she was to take advanced courses.

TABLE 4

ANALYSIS OF RELATIONSHIP BETWEEN G.P.A. AND NUMBER OF HONORS OR ADVANCED CLASSES TAKEN

HONORS CLASSES TAKEN IN GRADES 1 - 9 by GENDER by ACHIEVING OR UNDERACHIEVING GIFTED (UORA) with IQ

TOTAL POPULATION
1.37 mean number of honors classes taken
(100) number of students

GENDER		UORA	
FEMALE	MALE	UNDERACHIEVING GIFTED (UAG)	ACHIEVING GIFTED (AG)
1.33	1.41	.56	1.55
(49)	(51)	(18)	(82)

	UORA 1 (UAG)	2 (AG)
GENDER		
1 (FEMALE)	.50 (6)	1.44 (43)
2 (MALE)	.58 (18)	1.67 (39)

HIERARCHICAL sums of squares, Covariates entered FIRST

Source of Variation	SS	DF	MS	F	Sign. of F
Covariates IQ	13.720	1	13.720	6.257	.014
Main Effects	18.961	2	9.481	4.323	.016
GENDER	.117	1	.117	.053	.818
UORA	18.844	1	18.844	8.594	.004
2-Way Interactions	.308	1	.308	.140	.709
GENDER UORA	.308	1	.308	.140	.709

Explained	32.989	4	8.247	3.761	.007
Residual	208.321	95	2.193		
Total	241.310	99	2.437		

Again, using a .05 level of signifance any signifance of F where $p < .05$ demonstrates a direct relationship between the two factors being tested. According to the above chart IQ and achievement level, or grades, are related to number of honors or advanced courses taken.

A 2X2X9 (gender by achievement group by grade) repeated measures analysis of covariance (ANCOVA) using IQ scores as a covariate was used to determine if significant changes in G.P.A. occurred over time for achieving and underachieving boys and girls after controlling for intelligence. Analysis of the data indicated that G.P A. changed significantly over time, $F(8, 89) = 40.49$, $p < .001$. Significant main effects for gender and achievement group, F's $(1, 95) = 6.13$ and 124.54, p's $< .01$ and .001 respectively, indicated that overall girls had higher G.P.A.s than boys and that students labeled as achievers had higher G.P.A.s than underachievers. Table 5 shows, however, a significant three-way interaction effect, $F(8, 768) = 3.68$, $p < .001$, which indicates that for grades 1 through 9, G.P.A. changed differentially for underachieving and achieving boys and girls. In order to clarify the nature of the interaction over the nine grades, independent 2X2 (gender by gifted group) ANCOVA's controlling for IQ were calculated individually for grade 1 to 9 G.P.A.s. These are also reported in Table 5.

TABLE 5

ANALYSIS OF VARIANCE

Tests involving GPA over Time (GPA_TIME) Within-Subject Effect.

UROA - Underachieving or achieving gifted

AVERAGED Tests of Significance for GPA using UNIQUE sums of squares

Source of Variation	SS	DF	MS	F	Sign. of F
WITHIN + RESIDUAL	56.23	768	.07		
GPA_TIME	42.19	8	5.27	72.03	.000
GENDER BY GPA_TIME	1.71	8	.21	2.91	.003
UORA BY GPA_TIME	29.70	8	3.71	50.71	.000
GENDER BY UORA BY GPA_TIME	2.16	8	.27	3.68	.000

Tests of Between-Subjects Effects

Tests of Significance for T1 using UNIQUE sums of squares

Source of Variation	SS	DF	MS	F	Sign. of F
WITHIN + RESIDUAL	50.37	95	.53		
REGRESSION	8.66	1	8.66	16.34	.000
GENDER	3.25	1	3.25	6.13	.015
UORA	66.03	1	66.03	124.54	.000
GENDER BY UORA	.98	1	.98	1.84	.178

Results indicated after first grade and through sixth grade, underachieving girls consistently did better than underachieving boys. More specifically, underachieving boys demonstrated a steady decline in G.P.A. from second grade through ninth grade. The mean G.P.A. for underachieving boys did not drop below a 3.0, the measure used in this study to denote underachievement, until fifth grade . The largest drop in G.P.A., for this group, occurred in eighth grade when there was a .50 point drop. Statistically, however, the steady decrease in G.P.A. was shown to be significant with underachieving boys earning G.P.A.s significantly below achieving boys from second grade through ninth grade. Table 6 lists the year by year mean grade point average of all four groups.

TABLE 6

MEAN G.P.A. BY GENDER BY ACHIEVEMENT GROUP

AG - Achieving Gifted
UAG - Underachieving Gifted

Variable .... GPA 1st grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.97	43
	UAG	3.80	6
MALE	AG	3.88	39
	UAG	3.79	12

Variable .... GPA 2nd grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.94	43
	UAG	3.67	6
MALE	AG	3.86	39
	UAG	3.51	12

Variable .... GPA 3rd grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.95	43
	UAG	3.68	6
MALE	AG	3.84	39
	UAG	3.49	12

Variable .... GPA 4th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.89	43
	UAG	3.48	6
MALE	AG	3.78	39
	UAG	3.22	12

Variable .... GPA 5th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.88	43
	UAG	3.73	6
MALE	AG	3.78	39
	UAG	2.97	12

Variable .... GPA 6th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.77	43
	UAG	3.33	6
MALE	AG	3.78	39
	UAG	2.85	12

Variable .... GPA 7th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.84	43
	UAG	2.75	6
MALE	AG	3.75	39
	UAG	2.78	12

Variable .... GPA 8th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.85	43
	UAG	2.20	6
MALE	AG	3.74	39
	UAG	2.28	12

Variable .... GPA 9th grade

GENDER		Mean GPA	Valid Number
FEMALE	AG	3.77	43
	UAG	2.37	6
MALE	AG	3.74	39
	UAG	2.13	12

Underachieving girls maintained grades that looked reasonably good in elementary school; however, after first grade, their G.P.A.s were significantly below the G.P.A.s of achieving girls. The G.P.A.'s of underachieving girls dropped sharply in sixth grade; a drop of .50. They experienced their greatest drop, .58, in seventh grade and they dropped another .55 in eighth grade. All told, the G.P.A.'s of underachieving girls dropped 1.53 points from fifth grade through eighth grade. The G.P.A.'s of underachieving girls were at a level with underachieving boys in grades seven through nine. Table 7 lists the year by year mean grade point average for each of the four groups along with the standard measure of error and the degree of significance. Table 8 graphs the mean grade point average of all four groups over time. Both tables serve to more graphically demonstrate the results.

Mean Grade-Point Average and Standard Error of Measurement (SEM) for Underachieving and Achieving Boys and Girls.

GRADE	UNDER-ACHIEVING GIRLS	ACHIEVING GIRLS	UNDER-ACHIEVING BOYS	ACHIEVING BOYS
1	3.80 (.10)	3.97 (.01)	3.79 (.11)	3.88 (.04) [a,b]
2	3.67 (.17)	3.94 (.02)	3.51 (.15)	3.86 (.04) [a,b]
3	3.68 (.17)	3.95 (.02)	3.49 (.17)	3.84 (.05) [a,b]
4	3.48 (.20)	3.89 (.04)	3.22 (.20)	3.78 (.06) [a,b]
5	3.73 (.14)	3.88 (.03)	2.97 (.97)	3.78 (.06) [a,b,c]
6	3.33 (.22)	3.77 (.06)	2.85 (.17)	3.78 (.06) [a,b,c]
7	2.75 (.45)	3.84 (.04)	2.78 (.18)	3.75 (.07) [a,b]
8	2.20 (.28)	3.85 (.03)	2.28 (.16)	3.74 (.06) [a,b]
9	2.37 (.42)	3.77 (.05)	2.13 (.20)	3.74 (.06) [a,b]

a = gender difference $p < .05$
b = achievment group difference, $p < .05$
c = gender by group interaction, $p < .05$

Table 7

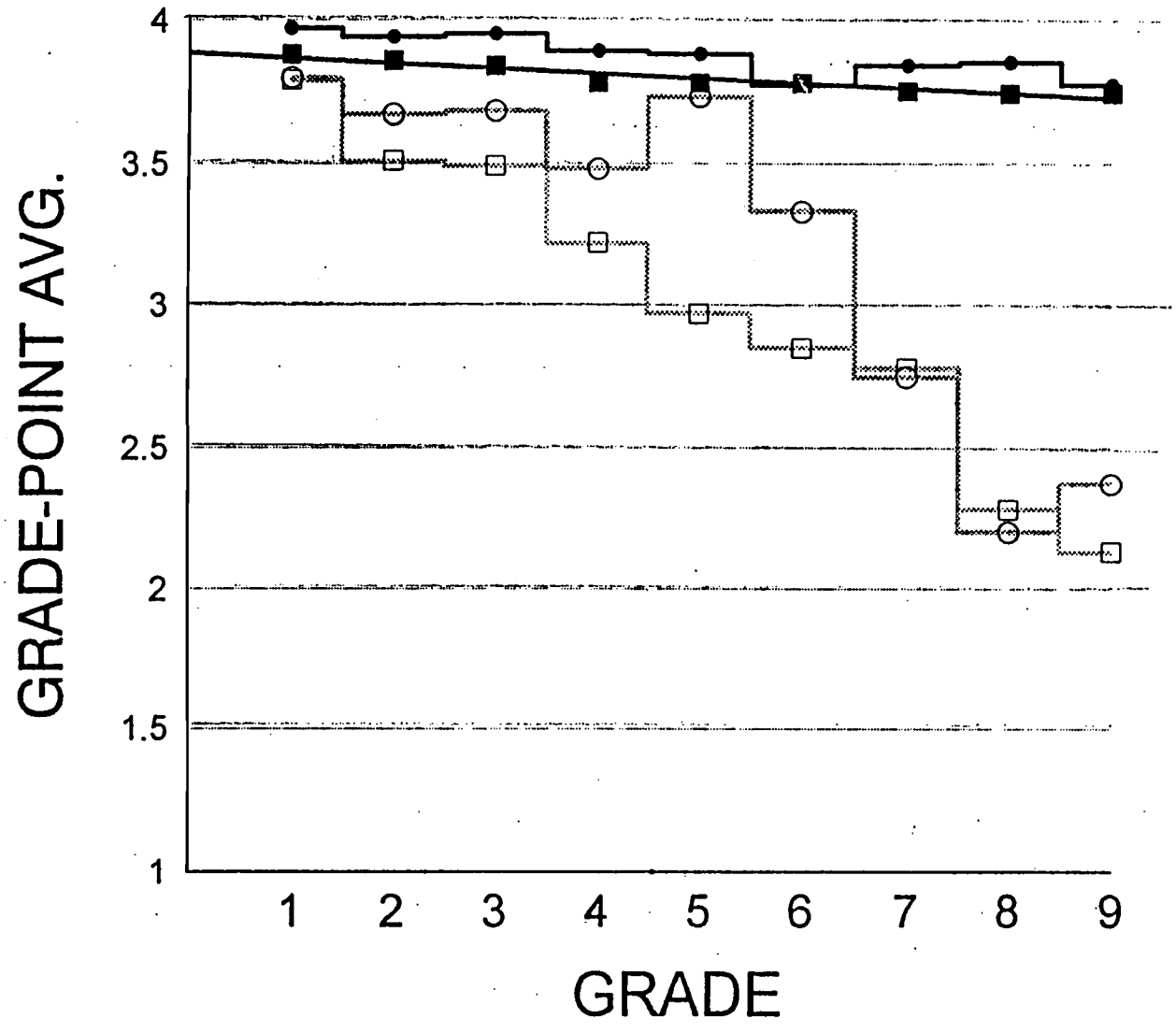

Table 8

UA = Underachieving

A = Achieving

Gifted students labeled as underachieving were far more likely than achieving gifted to have received at least one G.P.A. below a 3.0 prior to ninth grade, 100 per cent and 9.8 per cent respectively, x (n=100) = 62.48, p < .001. Table 9 shows this relationship.

TABLE 9

ANALYSIS OF THE RELATIONSHIP BETWEEN G.P.A. BELOW 3.0 AND ACHIEVEMENT LEVEL

UORA (UNDERACHIEVING OR ACHIEVING GIFTED) **by GPA_ANY3** (ANY GPA < 3.0 ? (+ = YES))

	GPA_ANY3 GPA < 3.0?		
Count Row Pct. Column Pct. Total Pct.	NO .00	YES 1.00	Row Total
UORA			
1.0 Underachieving Gifted		18 100.0 69.2 18.0	18 18.0
2.0 Achieving Gifted	74 90.2 100.0 74.0	8 9.8 30.8 8.0	82 82.0
Column Total	74 74.0	26 26.0	100 100.0

Chi-Square	Value	DF	Significance
Pearson	62.47655	1	.00000
Continuity Correction	57.87415	1	.00000
Likelihood Ratio	62.18213	1	.00000
Linear-by-Linear Association	61.85178	1	.00000
Fisher's Exact Test:			
One-Tail			.00000
Two-Tail			.00000

Minimum Expected Frequency - 4.680
Cells with Expected Frequency < 5 - 1 of 4 (25%)
Number of missing observations: 0

While it was, obviously, not surprising that all of the underachievers had received final grades below a 3.0, the data revealed an interesting fact. Fewer than 10 per cent of students classified as achieving gifted had ever received below a 3.0 G.P.A.. This would indicate that dropping below a 3.0 is a significant event for students identified as gifted. Over 90 per cent of the students who dropped below a 3.0 continued to underachieve and eventually were labeled as underachieving. Even if the student's grades increase above a 3.0 the next year, these statistics indicate there is a good chance the student will end up becoming an underachiever. Of the 18 identified underachievers, six (33 per cent) received a G.P.A. above a 3.0 after a year in which they received below a 3.0. The remaining 12 underachievers (67 per cent) never again achieved above a 3.0 once they had fallen below that level. Only two of the eight achievers who had fallen below a 3.0 had done so two years in a row. For gifted students, dropping below a 3.0 would certainly seem to be a "red flag" in identifying an early sign of underachievement.

It is interesting to note that there were no cases where a student consistently underachieved in elementary school and then became an "achiever" in junior high; there

were no students who exhibited a reversal of the underachievement pattern. As stated, only eight of the 82 students in the achieving group ever received below a 3.0 in first through ninth grades. Of those eight, four had received below a 3.0 twice, but only one had received below a 3.0 twice in elementary school.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to demonstrate that students identified as underachieving gifted by the West Virginia State Department, Office of Special Education standards, have developed the pattern of underachievement at some point in their academic careers and to try to identify a critical time in their development when underachievement begins.

One of the aims of this study was to show that students identified as gifted by West Virginia Department of Education standards were achieving, as reflected by G.P.A., at the time they were identified as gifted. The second part of the study dealt with the development of the pattern of underachievement in these same, previously achieving, gifted students. Given that the school system is identifying achieving students for the gifted program and is identifying approximately 18% of these same gifted students as underachieving at the end of eighth grade, again by West Virginia Department of Education standards, these students have, obviously, "become" underachievers at some point in their academic careers. The study attempted to identify a critical time or grade when these achievers were most likely to develop into underachievers.

The data supported the contention that students identified as gifted were achieving when they were identified; none of the 100 students had ever received a G.P.A. below 3.0 prior to being identified as gifted. This information is important for two reasons. First, it seems to indicate that the system is not identifying as gifted those students who are underachievers. If a student has always underachieved in school, it is not likely that this student will be identified as gifted. Secondly, it is crucial to the second part of the study to establish the fact that all of the students in the study were achieving at some point in their academic careers.

Analysis of the data indicated that there was no relationship between IQ and underachievement; the mean IQ of all four groups was within .86 points of each other. Analysis also discounted any relationship between decline in G.P.A. and the difficulty of courses taken. G.P.A., however, was affected by gender; girls consistently made better grades than boys. Achievers consistently made better grades than underachievers. This was true for all nine grades, even before the underachievers were identified as such. Although underachievers had G.P.A.'s below achievers, gender did influence when and how underachievement patterns were developed in the sample group. Underachieving boys seemed to experience a gradual, steady, decrease in G.P.A. starting in second grade and continuing through ninth grade. Underachieving girls, while not receiving G.P.A.'s as high as the achieving group, maintained relatively good grades through fifth grade. Their G.P.A.'s dropped dramatically for the next three years and were on a par with underachieving boys from seventh grade through ninth grade.

Fewer than ten per cent of gifted students not labeled as underachievers ever received below a 3.0 for their year end grades. That means that 90 per cent of gifted students

whose final G.P.A. fell below a 3.0 in one year eventually went on to underachieve and were labeled as underachieving, regardless of whether or not their grades rebounded above a 3.0 in a subsequent year.

It was hypothesized that seventh and eighth grade would prove to be the critical period for the onset of underachievement in gifted students. The data generated in this study does not support that hypothesis. Even though the G.P.A.'s of underachievers did make their most significant drop in the seventh and eighth grades, it is obvious that the patterns of underachievement were started at an earlier time. The real purpose of this study, though, was to determine when the onset of underachievement was most likely to begin, in hopes that it could be recognized in the early stages and intervention techniques could be implemented as early as possible. While the hypothesis was not supported, the study does seem to provide some insight into the development of underachievement patterns.

For girls, sixth grade would appear to be most critical. A significant drop in grades during sixth grade should alert teachers to the distinct possibility of grave achievement problems. Boys who seem to do a little worse each school year should be monitored closely. Often a drop in G.P.A. of .2 or .3, while distressing, is not viewed as significant. This study suggests that teachers need to look at the larger picture of grades over time, and not just grades earned in a particular school year. Monitoring of gifted students should focus on a pattern of achievement and changes within that pattern.

Conclusions

The following conclusions are based on this study.

1. Only achieving students are identified as gifted.

2. Gifted girls usually have better grades than gifted boys.

3. Students who eventually are labeled as underachieving gifted seem to begin their patterns of underachievement in elementary school.

4. Gifted students who are not doing quite as well in elementary school as expected often end up as full-fledged underachievers.

5. Sixth grade seems to be a critical time for the onset of underachievement in girls, although this is usually prefaced with grades somewhat below what we would expect for a gifted girl.

6. Underachieving boys exhibit a gradual, steady decline in grades through elementary school and junior high.

7. Dropping below a 3.0 G.P.A. in elementary school is a significant indicator of future underachievement.

8. There is no statistical difference in the percentage of gifted boys and gifted girls identified as underachieving.

9. Monitoring of gifted students should focus on a pattern of achievement and changes within that pattern, rather than on specific grades for a year.

10. IQ is not related to underachievement.

11. For the gifted student, more challenging coursework does not result in a lower G.P.A.

Recommendations

This study could be replicated with a broader base of students to see if these same results would be obtained by including students from other school systems. The limitations of this study make it difficult to apply the results to all gifted students without evaluating data from gifted students in various school settings. Additionally, it would be interesting to conduct further study on these same students into and through the high school years. There were a few students in the "achieving" group whose grades had dropped dramatically in junior high; however, they were not identified as underachieving. Further study might reveal whether or not additional gifted students start to underachieve throughout the remaining three years of school, or if everyone who continued to achieve through the turbulent junior high years remained achieving. As more honors and

advanced courses became available in the high school years, further analysis as to their effect on G.P.A. could be conducted.

It would be interesting to interview the eight achieving students who had dropped below a 3.0 G.P.A. at least one time in elementary school but had rebounded and remained achievers. Their opinions as to what contributed to the drop in G.P.A. and how the next school was different for them could be very insightful. It is the rare gifted student who reverses his/her pattern of underachievement. Collecting data on these students and gathering their opinions as to the causes of both the underachievement and the subsequent achievement would make an interesting and valuable study.

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