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THE HETEROGENEITY OF THE GIFTED

Robert McSheffrey
Carleton University
1989

In partial fulfillment of
the requirements for
a Master of Arts

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April, 1989

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ABSTRACT

A study was conducted which assessed the achievement level and variability in achievement of 308 elementary school students in an enrichment program. Measures of intelligence, self-concept, motivation and other pupil attributes were collected to determine what factors might be associated with the performance of gifted students. Considerable variability was found in both the achievement and attribute measures. Many of the personality and behavioural variables such as motivation and learning characteristics were more highly correlated with achievement than IQ and other cognitive measures. The results supported claims by researchers that the gifted are a heterogeneous population and that nonintellective characteristics are an important part of giftedness.

INTRODUCTION

The interest in providing an appropriate education for gifted children has increased dramatically in recent years. In 1971, four American states had laws or regulations in which "giftedness" was defined. By 1978, the number of states which had a definition of "giftedness" formalized by law had risen sharply to forty-two (Fox, 1981). Similar growth in the concern for the educational needs of our gifted youth has occurred in Canada, where a survey has shown that 73.9 percent of Canadian school boards have a specific policy for educating gifted and talented students (Borthwick, Dow, Levesque, & Banks, 1980). In the province of Ontario, the passing of the 1980 Education Amendment Act (Government of Ontario, 1980: Ministry of Education, 1981) mandated that an appropriate education for all exceptional children be implemented within five years. A recent survey revealed that approximately 80 percent of all Ontario school boards were identifying gifted students (Spina & Crealock, 1985).

Along with the increased public concern for the education of talented and gifted students, there has been a resurgence in the interest and critical evaluation of the research literature on the education of the gifted. Numerous theoretical and practical issues surrounding the education of our gifted and talented youth have been vigorously discussed in the literature. The discussion, for the most part, has focused on three broad,

interrelated issues: (i) the definition of giftedness (ii) the selection procedures for the gifted and (iii) programs for gifted individuals. A review of the literature surrounding these three issues is presented. For the purpose of clarity in presentation, these interrelated issues will first be discussed separately.

Following the literature review, a study is presented which explores the importance of personality and behavioural characteristics in the performance of gifted students in an enrichment program. The results of this study have important implications for the way in which giftedness is defined, how the gifted are identified and how they are educated.

DEFINING GIFTEDNESS: WHO ARE THE GIFTED?

Definitions of giftedness vary along many dimensions such as restrictiveness, the breadth or number of qualities or traits included and the nature of the qualities (cognitive, emotional, behavioural, etc.) represented (Fox, 1981; Hoge, in press). Traditionally, giftedness has been equated with intelligence and defined by a single score on an IQ test (Getzels & Jackson, 1958; Jenkins-Friedman, 1982; Juntune, 1982; Renzulli, 1982). This definition of giftedness, no doubt the legacy of Louis Terman's work (Jenkins-Friedman, 1982), has been heavily attacked on several grounds by many researchers.

Feldhusen (1982) notes that the work of numerous theorists and researchers suggests that giftedness is not a unitary concept, but a multifaceted phenomenon which is inappropriately defined by a single score on an intelligence test. The author noted that the weak, traditional definition has led to the false but widely held impression that the gifted constitute a single, homogeneous group. Juntune (1982) agrees that the view of giftedness as a unitary concept and the emphasis on a single score has created a myth that all gifted students are alike. She also points out that the research of the last twenty years has suggested that giftedness consists of a multidimensional set of characteristics which exist in varying degrees in each individual.

Traditional definitions of giftedness have also been criticized for focusing exclusively on cognitive abilities. Even thirty years ago, it was suggested that giftedness consists of other "forms of excellence", aside from intelligence (Getzels & Jackson, 1958). Recent efforts at defining giftedness have included motivational, behavioural and personality components (Hoge, in press; Livesay & Mealor, 1984).

A third ground on which researchers have criticized traditional definitions of giftedness which equated the construct with intelligence, is that it is a static or fixed view of giftedness rather than a dynamic one. Movement away from a fixed, stable, permanent and hereditary view of giftedness is seen as desirable by numerous researchers (Feldhusen, Asher & Hoover, 1984; Portes & Mas, 1987; Renzulli, 1984; Treffinger & Renzulli, 1986). The static, "you either have it or don't have it, for all time" definitions of giftedness also have negative consequences for those implicitly not labeled gifted (Sapon-Shevin, 1984).

Unfortunately, attempts at expanding the definition of giftedness often did little to advance the field. The definition of giftedness adopted by the United States Office of Education (Maryland, 1972) serves as a good example. This definition of giftedness included the following categories: intellectual abilities, creative and productive thinking, leadership ability, visual and performing arts, specific ability areas and psychomotor abilities. The definition is exemplary of many efforts to redefine the construct in that it is vague, the

categories are ambiguous and overlap and misuse and misapplication is invited by its lack of precision (Renzulli, 1978; Treffinger & Renzulli, 1986). Hoge (in press) notes that the definition adopted by the Ontario Ministry of Education in 1984, suffers from the same weaknesses.

Numerous exciting and promising theoretical advances have been made in redefining giftedness, however. Gagne (1985) has an intriguing model which suggests that one may be gifted in numerous specific ability domains. Whether a given "gift" is manifested as a specific talent depends on the forces of various catalysts which can translate an underlying gift into a talent. Catalysts which are considered by the author include environmental, personality and motivational variables. Gagne's model is an elegant one which nicely accounts for the "gifted underachiever". Gagne would suggest this individual is one for whom the influence of catalysts in transforming an area of giftedness into a talent has been insufficient.

Renzulli (1978) maintains that giftedness is comprised of three clusters of traits: above average ability, task commitment and creativity. He suggests that these three clusters are "equal partners" in determining giftedness. This equality eliminates the traditional overemphasis on intellectual ability. He stresses that only above average and not necessarily superior ability is required for giftedness. Renzulli feels that giftedness is recognized in expressed behaviours, which may be exhibited at certain times, in certain circumstances by a

relatively large proportion of the general population (Delisle & Renzulli, 1982; Treffinger & Renzulli, 1986). The author feels that gifted behaviours can and should be developed in all students. This focus on behavioural characteristics is an approach favoured by other researchers (Rim, 1984).

Renzulli (1982) also distinguishes between "schoolhouse giftedness", which is basically test-taking or lesson-learning giftedness and "creative/productive giftedness", which refers to one's success in developing influential and original material or products. He suggests it is imperative that we recognize this form of giftedness, as it is from this group of gifted individuals that many outstanding scientists, philosophers, politicians, musicians and writers will be borne.

In addition to theoretical advances in the area of defining giftedness, interesting research is being done which bears directly on the issue of definition. Hartsough, Elias and Wheeler (1983) examined the possibility of screening students for eligibility into enrichment programs using nonintellectual attributes. The scores of 536 kindergarten, first and second grade students on one intellectual measure and three affective measures were recorded. The intellectual measure was the Slossom Intelligence Test (SIT) and the other measures consisted of the Pupil Behavior Rating Scale, the Who Could This be Game (a peer rating instrument) and the Picture Game (a measurement of young children's perceptions of themselves). The authors found that 86 percent of the children whose SIT scores suggested them as candidates for the gifted program were identified by

nonintellectual assessments. The authors reported that important characteristics included the ability to follow directions, the ability to work independently and interest and enthusiasm about school. These results suggest that an appropriate definition of giftedness should include nonintellectual components.

Delisle and Renzulli (1982) examined the relationship of self-concept and locus of control to performance in a gifted program. The sample consisted of 1,121 students in grades 1 to 8. Self-concept scores from the Self Appraisal Inventory and locus of control scores from the Intellectual Assessment Responsibility Questionnaire were recorded. The results indicated that self-concept was a very important factor in the performance of students in the gifted program. The results also showed that high internal locus of control scores were related to high achievement test scores and group IQ scores. The authors conclude that,

Perhaps the most striking implication of this research is the credence it establishes for the importance of nonintellective factors which influence creative production by students.

(Delisle & Renzulli, 1982, p.94)

Advances in the area of defining giftedness tend to converge on several key points. The theoretical and quasi-experimental work reviewed above suggests that appropriate definitions of giftedness should be multidimensional, should be dynamic rather than static and should include clearly defined categories that are not intellective in nature. The result of these trends are definitions which respect the heterogeneity of the gifted. There is a definite movement away from emphasizing cognitive abilities

toward an emphasis on behavioural, motivational and personality characteristics. Definitions of giftedness are becoming less restrictive as a result of this movement. The realization that only moderate or above average intelligence may be necessary for giftedness has done much to destroy the traditional view of giftedness as a high score on an intelligence test.

IDENTIFYING THE GIFTED

Measures used to identify the gifted are numerous and varied. Hoge (1986) noted that the major categories of identification instruments include individual and group intelligence tests, achievement tests, tests of creativity and teacher-judgement measures. Peer ratings, personality inventories and biographical information are also used to identify the gifted. Despite the number and variety of instruments available, Renzulli (1984) has suggested that the gifted student movements seems to fail each time it begins to gain momentum due to ineffective identification methods. At a recent symposium on gifted education, Treffinger (1984, p.7) commented, "Stated simply if inelegantly, the present condition of identification practices is a mess. The guiding criteria seem often to be: what's quick, easy to do, cheap." Criticism of ineffective identification procedures has been largely directed toward the continued reliance on intelligence tests and "cutoff" scores. Numerous authors have launched vociferous attacks on the sole reliance on intelligence tests to select students for entry into gifted programs.

Sternberg (1982) gives a thoughtful critique of the use of IQ tests to identify the gifted by focusing on four dubious assumptions of such tests. The first dubious assumption he discusses is that "to be smart is to be fast". Sternberg points out that nearly all intelligence tests have a time limit and

require rapid information processing. He feels, however, that it is a gross overgeneralization to think intelligence means one must be quick or fast and notes that often a reflective rather than an impulsive problem-solving style is associated with successful problem-solving performance. The author asks of the reader, "how many significant problems [do] you encounter in your work or personal life that allow no more than the 15 to 60 seconds allowed for a typical test problem on a standardized test?" (Sternberg, 1982, p.157).

The second problem Sternberg discusses is the assumption that intelligence is "last year's achievement". The author maintains that virtually all intelligence tests place heavy achievement demands on the student. He notes that the contents of major intelligence tests for a given age is equivalent to that on an achievement test for a student one year younger. Sternberg feels that it is improper not to distinguish between achievement and intelligence.

A third problem with IQ tests, says Sternberg, is that they are invariably conducted under what some students consider stressful, anxiety-provoking situations. He feels it is silly to think that the test situation must be so stressful and points to the need for assessments which are fair to test-anxious students as well as others. Students who are gifted should not be penalized simply because they suffer more readily from test anxiety.

The final dubious assumption Sternberg deals with is that "precision is tantamount to validity". Sternberg notes that the

precision of a number, an IQ score, lends an aura of authenticity and validity to the assessment device. He suggests that the allure of exact-sounding numbers is completely unfounded. Noting that IQ usually accounts for between 10 and 25 percent of the variance in scholastic performance, Sternberg says it is unfortunate that many still view IQ as an accurate predictor of future academic performance.

The criticism of Wallach (1976) and Jenkins-Friedman (1982) on the practice of relying on IQ tests to identify the gifted focuses on a different aspect than those dealt with by Sternberg (1982). Jenkins-Friedman (1982) notes that one of the main purposes for identifying gifted students is to develop their potential for becoming outstanding professionals in whatever vocation they pursue. It is hoped that the specialized education provided will help develop the potential of these gifted students to make significant contributions to their fields and to society. Jenkins-Friedman maintains that it follows from this purpose of identification that the most important test of the selection procedure is whether it predicts accomplishments later in life. Ironically, the absence of a relationship between high intelligence and significant achievement later in life is very well documented. Wallach (1976) writes:

Recent research on the nature of talent indicates, however, that the premise that tests reflect the potential for achievement is false for the scores across the upper part of the range on customary assessments of academic skills - precisely that part of their range in which such scores are most often used for selecting recipients of the most contested education opportunities.

(Wallach, 1976, p.57)

Hoge (1988) says that little is known about whether achievement and intelligence tests predict performance in gifted classrooms. Fox (1981) also reports that little research has been done on the long-term power of tests to predict life accomplishments. Wallach (1976) and Jenkins-Friedman (1982) review several such studies, however, all of which suggest high scores on achievement tests and intelligence tests fail to predict the people who will demonstrate noteworthy achievements in their occupational and professional roles later in life. What these tests fail to predict is what was earlier defined as creative/productive giftedness (Renzulli, 1922). Wallach and Jenkins-Friedman agree that the only thing achievement and IQ tests predict are the cramming and test-taking skills necessary to succeed in a school environment and do well on similar kinds of tests, a function "congruent with neither our conception of giftedness or the goal of identification" (Jenkins-Friedman, 1982, p.25). They conclude by recommending that IQ tests be used only to screen out candidates who score very low and that different criteria be used to distinguish those remaining. The views of these two authors are shared by many others (Borland, 1986; Renzulli, 1982; Robinson & Chamrod, 1986).

Harrington (1982) attacks the use of intelligence tests for identification on still different grounds. Harrington provides a fictitious but realistic example of a young girl who scores 130 on the revised Wechsler Intelligence Scale for Children (WISC-R) and enters a program for the gifted. Two years later this girl is retested and scores 126. The common 130 cutoff score would

necessitate the removal of this girl from the program. Harrington feels this cutoff strategy for selection of gifted students is totally inadequate, pointing out that the standard error of measurement for the test in question is 126 ± 6 at the 95th percentile of confidence. The score of the girl in the example, therefore, can reasonably be expected to fluctuate between 120 and 132. Blind acceptance of the cutoff strategy, the author notes, fails to consider the random fluctuation of scores due to test environment, tester-testee rapport and a host of other factors. The result of this strategy is that many gifted students may be denied access to suitable education.

Harrington (1982) notes several other drawbacks encountered when identification is done using intelligence tests. He discusses the fact that many IQ tests are culturally biased, have low ceilings and reward only responses which reflect convergent rather than divergent thinking. Harrington discusses the fact that performance on these tests is heavily affected by levels of anxiety and that IQ measures for young children are very unstable. The latter point is one which is also maintained by Portes and Mas (1987), who suggest that in some young children, giftedness may not manifest itself until later years. These authors also raise another important issue by suggesting that intelligence tests may not only identify those who are truly gifted but also those who have enjoyed cognitively advantageous environments, where there are positive role models, pressure and rewards for high achievement and other advantages. These tests discriminate against those who do not enjoy the benefits of these conditions.

Attacks on the practice of using intelligence and achievement tests to identify the gifted have been heavy and numerous. While some have called for the total abandonment of these tests in the selection procedure, movement has generally been toward the use of multiple criteria to identify the gifted (Alvino, McDonnell & Richert, 1982; Borthwick et al., 1980). The controversial domination of intelligence and achievement tests in identifying the gifted set the stage for numerous advances in this area.

In many respects the advances made in the selection procedures for gifted programs parallel the theoretical advances, discussed earlier, which occurred in defining giftedness. As the trend toward expanded definitions of giftedness which included nonintellective components developed, the emergence of selection procedures that contained multiple criteria and measures of nonintellective factors became more popular. As Jenkins-Friedman (1982) notes, with the adoption of an expanded definition of giftedness by the United States Office of Education, measures of creativity, leadership ability, motivation and talent in various creative arts became more common ingredients of selection procedures in many states. These measurements also took on numerous forms: peer ratings, teacher ratings, self-rating scales, behaviour rating scales, parent ratings, standardized tests, etc. A panel of experts on the education of the gifted produced a list of principles of identification which reflect the advancements that have been made in this area (Richert, 1985).

The six principles of identification were:

- 1) Advocacy - identification should be designed in the best interest of all students;
- 2) Defensibility - procedures should be based on the best available research and recommendations;
- 3) Equity - procedures should guarantee that no one is overlooked - the civil rights of students should be protected - strategies should be outlined for identifying the disadvantaged gifted;
- 4) Pluralism - the broadest possible defensible definition of giftedness should be used;
- 5) Comprehensiveness - as many as possible gifted learners should be identified and served;
- 6) Pragmatism - whenever possible, procedures should allow for the modification and use of tools and resources on hand.

(Richert, 1985, pp. 68-69)

Shore and Tsiamis (1986) explored the possibility that an informal selection procedure for the gifted would be as good as a formal, multiple criteria selection procedure. The group of students formally identified were nominated by parents, needed to score highly on the WISC-R and above the 90th percentile on the Canadian Test of Basic Skills (CTBS), had to be nominated by teachers through scores on the Renzulli Hartman Scales and be approved by a panel of teachers and psychologists. The informally identified group needed only to meet one of three criteria: having been in a gifted program before; having been once identified as being eligible for a gifted program; or recommendation for a program by a parent or teacher. The authors found no significant differences between the groups on two different intelligence tests and three nonintellective measures and concluded that a more "open-door" policy of identification for the gifted is appropriate.

Two different identification measures serve as an example of a new wave of assessment devices that have been developed to unseat the IQ test from its traditional position of dominance in identifying the gifted. One of these measures was developed by Rim (1984) and is called the Gift Inventory for Finding Creative Talent (GIFT). This inventory is a self-rating measurement which employs a characteristics approach to identification. Dimensions on the GIFT include: Many Interests, Independence, Imagination, as well as others.

A second identification measure is the Scale for Rating the Behavioural Characteristics of Superior Students (SRBCSS) (Renzulli, Hartman & Callahan, 1971). This measurement is a teacher identification measure that includes a learning scale, a creativity scale, a motivation scale and a leadership scale. It should be noted that teacher identification measures have been criticized by many (Burke, Haworth & Ware, 1982; Fox, 1982; Gear, 1976; Rim, 1984). Recently, however, it has been suggested that many such criticisms are unfounded and that more research into the efficiency and effectiveness of teacher ratings is needed (Hoge & Cudmore, 1986).

The trend in the literature on the identification of the gifted is clear and it is one which parallels the trend in defining the gifted: there is a strong belief that appropriate identification procedures should include multiple criteria which are flexible, which include nonintellective measurements, which do not under identify the disadvantaged and which predict achievement beyond one's school years.

PROGRAMMING FOR THE GIFTED

The area of programming for the gifted has received far less attention in the gifted education literature than have the areas of defining giftedness and identifying the gifted. The lack of attention devoted to this area has led several researchers to comment on the great need for research into issues surrounding programs for the gifted (Feldhusen et al., 1984; Treffinger, 1984). There seems to be a general consensus in the literature that there is a great deal of room for improvement in specialized programs for our gifted and talented youth.

Perhaps the most common criticism of the current state of programming for the gifted is that only one type of program is generally offered to serve all the gifted. This "one program fits all" approach is based on the assumption that the gifted are a homogeneous group whose educational needs are uniform. Feldhusen (1982) and Treffinger (1984) note that it is naive to think that the educational needs of all gifted students will be served by a pull-out service. Feldhusen, Asher and Hoover (1984) and Juntune (1982) suggest that programming for the gifted should recognize the uniqueness of each gifted student, the different aptitudes, special talents, strengths and weaknesses of each. Until the variety of needs and the heterogeneity of the gifted is recognized in the programming for these children, considerable time and money will be misspent.

Borthwick et al's (1980) survey of Canadian provincial departments and ministries of education asked whether any specific preparation for the education of the gifted was offered to teachers in training. Seven of the ten provinces offered no such preparation. The remaining three offered only limited exposure to the characteristics and educational needs of the gifted. The lack of training our educators receive in the education of the gifted is a problem which may well delay the effectiveness of specialized programming for these children for years. Treffinger and Renzulli (1986) suggest that the "technical knowledge of gifted program specialists" must eventually be made available to the whole school faculty. These authors suggest that all teachers should be trained to develop creativity, task commitment, learning-to-skills and other areas.

One of the most exciting new programs for the gifted is one developed by Renzulli (1984). Renzulli's system combines identification of the gifted with the programming. Renzulli's Enrichment Triad Programming Model (Triad) offers students three levels of enrichment. Type I enrichment is designed to expose students to "new and exciting topics, ideas, and fields of knowledge that are not ordinarily covered in the regular curriculum" (Renzulli, 1984, p.168). This type of enrichment can be offered through field trips, visiting speakers and numerous other alternative mediums. An enrichment team consisting of teachers, parents and the principal bears most of the responsibility for planning these activities. All students are given the opportunity to participate in these enrichment

experiences. This level of involvement is designed to minimize concerns about elitism.

Type II enrichment is offered only to the "talent pool", a group of pre-selected students who represent the top 15 to 20 percent of the school population in general ability or any specific performance area that the school considers a priority in their programming efforts. This level of enrichment focuses on the development of higher level thinking processes, research and reference skills.

Talent pool students are encouraged to view their performance and experience in Type I and Type II enrichment as a way of revolving into Type III enrichment, the highest and most individualized enrichment level. In a sense students must earn their way into this level of enrichment. Renzulli's concept of "action information" is crucial here; it is at the heart of the author's model. Action information is defined as the dynamic interaction of the child with the material, the child's desire to productively pursue material that is exciting and interesting to him/herself, rather than passively react to it. Thus, it is the performance and the genuine interest of the child in the first two levels of enrichment that determines whether he or she will advance to or remain in a higher level of enrichment.

Renzulli's program represents a tremendous advancement in programming for the gifted. The program avoids the problem of totally relying on pre-selection decisions for identifying the gifted. It respects the heterogeneity of the gifted and allows all students access to enriching experiences. Unfortunately,

programs such as the one described are rare. This fact only underscores the developments which must be made in this area.

LINKING DEFINITION, IDENTIFICATION AND PROGRAMMING

In reviewing the literature on the gifted it was decided, for the purpose of clarity in presentation, to discuss the definition of giftedness, the identification of the gifted and programming for the gifted separately. It is perhaps obvious from this review that the three areas are very much related. The link between these three areas has been widely recognized in the literature (Hoge, in press; Hoge & Cudmore, 1986; Kirschenbaum, 1983; Renzulli, 1984; Treffinger & Renzulli, 1986). The way giftedness is defined should affect both how gifted students are identified and the nature of the programs for the gifted. Rim (1984) provides a good example of this link: if a definition of giftedness includes creativity as a component, then the identification procedure should include a measurement of creativity and the program should have as one of its objectives the expression and development of creativity. Thus, selection criteria should be intimately tied to program goals while reflecting the manner in which giftedness is defined.

Unfortunately, the link between these three areas is often not recognized in practice. Feldhusen et al. (1984), upon noting that program goals should set the direction for the identification process, say that, "A serious problem with the identification process is often a general, indiscriminate use of tests to identify the all-purpose gifted student, regardless of the nature of the program offerings" (p.150). Hoge (in press)

and Hoge & Cudmore (1986) suggest that ideally, the identification procedure and measures should be developed from the definition of giftedness. They maintain that this is often not the case, however, and often the reverse is true. An obvious example of this phenomenon surrounds the use of IQ tests. Traditionally the definitions of giftedness stemmed from the score on this identification measure (e.g., giftedness is a score of 130 or higher on a standardized IQ test).

Despite the claim by many researchers that the link between definition, identification and programming is important, common practice continues to ignore these ties. The gap between the state of the research literature and common practice is a considerable one. This theory-practice gap is the topic of the next section.

THE THEORY - PRACTICE GAP

The heading of this section comes from the title of an article by Yarborough and Johnson (1983). These authors realized that the advances made in the research literature on the education of the gifted have not been fully recognized in practice. Narrow definitions of giftedness, indefensible identification procedures and poor programs continue to be commonplace despite the efforts of researchers to tear down popular but misguided conceptions and propose alternative views. Yarborough and Johnson (1983) maintain that, although there is fairly wide consensus about the unfairness of IQ tests, they continue to be the "primary criterion" for the selection of gifted students for special programs. A survey conducted by the authors revealed that 82 percent of 109 programs, spanning 36 states, used achievement tests, a finding "in direct contradiction to popular rhetoric which insists that behavioural data replace the role of hard-line cognitive test scores" (p.136). Yarborough and Johnson suggest that the use of multiple criteria is only "skin-deep", as IQ and achievement test scores are often used to screen individuals before multiple criteria are used.

Yarborough and Johnson (1983) are not alone in their assessment of common practices within the schools. Jenkins-Friedman (1982) agrees that the real use of multiple criteria in the schools is only "cosmetic". She says that the

prevailing criterion for entry into gifted programs remains a score of 130 or higher on a standardized IQ test and that the common use of multiple criteria only on those students who are above this 130 cutoff score defeats the purpose of using multiple criteria. Treffinger and Renzulli (1986) maintain that, despite the "little games we play" and the constant references made to multiple criteria and broader definitions of giftedness, the "bottom line" for entrance into most programs is based on IQ test scores. People continue to view giftedness as a generic, absolute construct and programs continue to be restricted to very few students. The misuse of multiple criteria and continued reliance on intellectual measures for identification has been noted by many others as well (Birch, 1984; Feldhusen et al., 1984; Kirschenbaum, 1983; Livesay & Mealor, 1984).

The report of a recent survey by Richert (1985) pointed to numerous other bad practices in the school boards across the United States. Blacks, Hispanics and Native Americans continued to be underrepresented in gifted programs, perhaps by as much as 70 percent. Tests are being used in ways that they were never designed to be used. Multiple criteria are often combined to form composite scores in a totally inappropriate manner. In many cases, tests are being used at an inappropriate stage of the identification procedure. For instance, tests appropriate only for screening purposes are being used for final diagnosis.

Researchers have made impressive theoretical advances in recent years in the area of gifted education. Unfortunately it may be some time before these advances are recognized in the

school boards of North America. This problem has led Treffinger and Renzulli (1986) to draw attention to the need for strong leadership, at the state/provincial and national level, to voice the advances made in the field of gifted education and pressure various governments into implementing appropriate and updated practices.

THE HETEROGENEITY OF THE GIFTED AND NONINTELLECTIVE COMPONENTS OF GIFTEDNESS

Traditionally, giftedness has been defined as a unitary, stable, fixed concept (Feldhusen, 1982). This fact is illustrated by the continued use of high intelligence quotients to define giftedness. Identification procedures in the past, and to a very large extent today, have either relied solely on cognitive measures such as IQ and achievement tests, or made "cosmetic" use of multiple criteria (Yarborough & Johnson, 1983). Educators have continued to serve the needs of all gifted students through a pull-out program, naively assuming that all will profit equally from this practice (Feldhusen et al., 1984). It is apparent from the narrow way that theorists and educators have traditionally defined giftedness, from the simplistic way in which they have identified and educated the gifted, that these youth were viewed as a homogeneous group.

One of the key points which has emerged from the review of the literature is the fact that the gifted are not a homogeneous group (Juntune, 1982). The gifted have different behavioural characteristics, different abilities, personalities and educational needs. This new focus in the literature on the heterogeneity of the gifted invites an exploration into the nonintellective components of giftedness, for it is herein that the heterogeneity of our gifted youth is primarily found.

Are all gifted children the same? What personality and behavioural characteristics are important in giftedness? Would

knowledge of the nonintellective components of giftedness lead to a more sophisticated, more complex and more accurate picture of these children? An investigation into the non-cognitive aspects of giftedness would address these and other important questions. Hopefully, such an investigation will support the trend in the literature toward broader definitions of giftedness, more sophisticated identification procedures and programs which respect the heterogeneity of the gifted. Perhaps more research, rather than theorizing, would help close the theory-practice gap.

THE ENRICHMENT PROJECT

Treffinger (1984) has observed that there is an appalling lack of research in the giftedness area. He reviewed the 128 articles that were published in Gifted Child Quarterly during his five years tenure as editor of this journal (1980-1984). To his dismay, he found that during these five years 49 percent of the articles published contained no original data. Of these 49 percent, more than half were survey or simple descriptive studies. The author found similar results upon surveying other area journals as well. Alarmed by these findings, Treffinger called for a revitalization of the area and for not only more research, but for the adoption of a "research attitude" in the gifted literature.

The Enrichment Project is a study which answers Treffinger's call for a "research attitude", for original data. As the heterogeneity of the gifted lies primarily in the nonintellective components of giftedness, it is these factors which are the focus of this study. The project takes advantage of the enrichment program in place in the Ottawa Board of Education to explore several issues. The first issue addressed by this study is the degree of variability in the performance of the gifted students in the program. The second major issue addressed concerns the factors, both cognitive and non-cognitive, which are associated with differences in performance in the program. Nonintellective factors which were investigated included self-concept, leadership

characteristics, motivational characteristics, creativity characteristics, learning characteristics and others. The Enrichment Project is an attempt to investigate the heterogeneity of the gifted, to explore the importance of nonintellective variables in the performance of the gifted students. It also represents an effort to provide empirical support for the trend toward more sophisticated definitions of giftedness, selection procedures and programs.

METHOD

Subjects

The sample for the Enrichment Project was comprised of 308 subjects drawn from 20 enrichment classes in 8 different schools. The subjects came from grades 5 through 8 and ranged in age from 9 to 14. The mean age was 11.7 years with a standard deviation of 1.2 years. There were 156 boys in the sample and 152 girls.

According to the Ottawa Board of Education policy, the majority of the subjects were recommended to the Identification, Placement and Review Committee for placement into an enrichment program upon meeting the following criteria:

- 1) Teacher recommendation;
- 2) Gates-MacGinitie Reading Test: 95th percentile on one subtest and no less than the 90th percentile on the other;
- 3) Mathematics Achievement Test: 90th percentile;
- 4) Results on an individual or group test of general ability: 98th percentile.

Measures

Level of Performance: Two sources provided information on the level and variability of performance of the students in the program. The first is a teacher rating, the Achievement-Academic Skills Ratings (AASR). This rating requires teachers to rate students in various areas from 1 to 5, depending on whether they are much below average, average, above average etc. The measure

contains a rating of intellectual ability, motivation, classroom behaviour and ratings of achievement in various subject areas. The second source for information on performance level and variability was standardized achievement test scores obtained from Ottawa Board of Education (O.B.E.) records. Scores on the Gates-MacGinitie Reading Tests and O.B.E. Math Survey were obtained.

Pupil Attributes Measures: Several measures of pupil attributes were used in the Enrichment Project. Harter's (1985) Self Perception Profile for Children (SPPC) is a self-rating which was used to assess various aspects of the children's self-concept. The measure is comprised of six scales: Physical Appearance, Behavioral Conduct, Global Self-Worth, Scholastic Competence, Social Acceptance and Athletic Competence. Reliability and validity data are available for the SPPC (Byrne & Schneider, 1987; Harter, 1982; Silon and Harter, 1985).

Another pupil attribute measure used was The Scale for Rating the Behavioral Characteristics of Superior Students (SRBCSS) (Renzulli et al., 1971). The SRBCSS is a teacher rating which assesses learning, motivation, creativity and leadership characteristics. Although reliability and validity data are available for this measure (Renzulli et al., 1971) its psychometric properties have been questioned by some researchers (Argulwicz, Elliot & Hall, 1982; Burke et al., 1982; Gridley & Treloar, 1984; Rust & Lose, 1980). It seems further research into the psychometric properties of the measure is needed.

Intelligence scores were obtained from O.B.E. records. Henmon-Nelson scores were obtained for many students and Canadian Cognitive Abilities Test (CCAT) scores were also available for a smaller number of students. The AASR also contained a measure of intellectual ability. Copies of all available measures are found in the Appendices.

Procedure

The first step of the procedure involved obtaining parental permission for the participation of students. Forms were sent out to parents and later collected at the schools. Efforts to build a cooperative relationship with the teachers, principals and officials involved were made from the start of the project in order to insure its smooth and successful completion.

The ASSR was distributed to teachers and for the most part were completed within 2 to 3 weeks. Upon completing the AASR, teachers were asked to complete the SRBCSS. These were collective approximately four weeks from the time of distribution. Several weeks were spent at the O.B.E. collecting standardized achievement and intelligence test scores.

Analyses

Table 1 is a list of some of the variables which will be frequently referred to in the discussion ahead. This table includes a brief description of the variables and the sources from which they were drawn.

The analysis of the data begins with the presentation of various descriptive statistics and comments on the variability of both achievement and pupil attribute variables. Typically, this

TABLE 1
LIST OF VARIABLES
PUPIL ATTRIBUTES

<u>VARIABLE NAME</u>	<u>SOURCE</u>
LEARNING	THE LEARNING CHARACTERISTICS SUBSCALE OF SRBCSS (APPENDIX A)
MOTIVATION	THE MOTIVATION CHARACTERISTICS SUBSCALE OF SRBCSS (APPENDIX A)
CREATIVITY	THE CREATIVITY CHARACTERISTICS SUBSCALE OF SRBCSS (APPENDIX A)
LEADERSHIP	THE LEADERSHIP CHARACTERISTICS SUBSCALE OF SRBCSS (APPENDIX A)
PHYSICAL APPEARANCE	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
BEHAVIORAL CONDUCT	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
GLOBAL SELF-WORTH	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
SCHOLASTIC COMPETENCE	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
SOCIAL ACCEPTANCE	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
ATHLETIC COMPETENCE	ONE OF THE SELF-CONCEPT SUBSCALES IN THE SPCC (APPENDIX A)
IQ	SCORES ON THE HENMON-NELSON TEST OBTAINED FROM SCHOOL RECORDS
CCAT VERBAL	CANADIAN COGNITIVE ABILITIES TEST SCORES OBTAINED FROM SCHOOL RECORDS
CCAT NONVERBAL	CANADIAN COGNITIVE ABILITIES TEST SCORES OBTAINED FROM SCHOOL RECORDS
TEACHER-RATED INTELLECTUAL ABILITY	A TEACHER RATING OF INTELLECTUAL ABILITY FOUND ON THE AASR
TEACHER-RATED MOTIVATION	A TEACHER RATING OF MOTIVATION FOUND ON THE AASR
TEACHER-RATED CONDUCT	A TEACHER RATING OF CLASSROOM CONDUCT FOUND OF THE AASR
<u>ACHIEVEMENT</u>	
LANGUAGE ARTS	A TEACHER RATING OF ACHIEVEMENT IN LANGUAGE ARTS (SEE AASR)
MATHEMATICS	A TEACHER RATING OF ACHIEVEMENT IN MATHEMATICS (SEE AASR)
GATES-VOCABULARY	SCORES ON THE GATES-MACGINITIE READING TEST OBTAINED FROM SCHOOL RECORDS
GATES-COMPREHENSION	SCORES ON THE GATES-MACGINITIE READING TEST OBTAINED FROM SCHOOL RECORDS
GATES-TOTAL	AN INDEX OF ACHIEVEMENT BASED ON VOCABULARY AND COMPREHENSION SCORES
O.B.E. MATH	SCORES ON THE O.B.E. MATH SURVEY OBTAINED FROM SCHOOL RECORDS

will include the presentation of basic figures such as means, standard deviations, frequency distributions and so forth. This section is followed by a brief discussion of gender, age and age X by gender effects.

Following the discussion of gender and age differences is the presentation of a section on the correlates of performance. For reasons which will be discussed later, Teacher-rated Achievement rather than many standardized achievement variables is used as the major criterion variable. This focus on Teacher-rated Achievement is apparent in the correlates of performance section and the following section which compares the different attribute variables. Following these sections, is a brief discussion which uses standardized achievement variables as the major criterion variable. For all analyses it was decided to adopt an alpha level of .01 as a criterion for significance. A complete correlation matrix and complete regression tables can be found in the appendices.

RESULTS

ACHIEVEMENT: DESCRIPTIVE ANALYSES AND VARIABILITY

Teacher Ratings

One of the aims of the Enrichment Project was to assess the level of academic achievement in the enrichment classes. The AASR (see Appendices) was the primary source for this information. Results for Language Arts and Mathematics are reported in Figure 1. The results for Environmental Studies and History/Geography are not reported for two reasons: (i) many of the enrichment teachers did not teach these subjects and could not provide ratings in these areas and (ii) the results show a similar pattern to those of Language Arts and Mathematics.

The frequency distributions shown in Figure 1 are what one might expect from a group of gifted students. The overall means for these students in Language Arts and Mathematics were 3.71 and 3.76 respectively, both above average. In both subject areas the majority of the students (approximately 60%) are getting high ratings.

While the figures reported are of limited use in absolute terms, they do provide information about performance variability. The standard deviations, over 1.0 for both subject areas, are fairly high. The range of scores is from 1 to 5, or from -2.36 to +2.33 in terms of z-scores for Language Arts and -2.56 to +2.26 for Mathematics. It is interesting to note that while most students are rated quite highly, 11 or 12% are rated poorly in these performance areas. More will be said of this result later.

FIGURE 1

ACADEMIC ACHIEVEMENT: TEACHER RATINGS

LANGUAGE ARTS

$\bar{X} = 3.71$ S.D. = 1.02

MATHEMATICS

$\bar{X} = 3.76$ S.D. = 1.02

Standardized Achievement Tests

Access to school board files provided scores on standardized reading and mathematics tests. Table 2 presents means, standard deviations and the range of raw scores for Gates-Vocabulary, Gates-Comprehension and O.B.E. Math for the four grades investigated in this study. Also presented are the mean percentile scores for the Enrichment Project sample. These scores are based on the test publisher norms in the case of the Gates-MacGinitie Reading Test and city-wide O.B.E. norms in the case of the O.B.E. Math Survey. These figures, in effect, allow for the comparison of the average performance of the gifted sample with that of children in regular classrooms. The city-wide norms shown in Table 2 are the mean scores, at each grade level, for all O.B.E. students who wrote the given test.

Upon examination of Table 2, it is clear that the Enrichment Project sample is composed of, by and large, very bright children. In all cases the mean percentiles are in the high 80s or low 90s. For each test, at every grade level, the mean performance for the Enrichment Project sample was markedly higher than the corresponding city-wide performance.

As with the teacher-rated achievement variables, Language Arts and Mathematics, there is considerable variability in the Gates-Vocabulary, Gates-Comprehension and O.B.E. Math scores. This variability is apparent in the sizeable standard deviations and the wide range in scores. It is clear that, although most students are performing well on these tests, some have scored quite low. When pupils' scores on the standardized achievement

TABLE 2

STANDARDIZED ACHIEVEMENT TEST SCORES

GATES-MACGINITIE READING TEST - VOCABULARY

	ENRICHED CLASSES	CITY-WIDE NORMS
GRADE 5		
MEAN	41.0	34.0
S.D.	4.3	
MINIMUM	26.0	
MAXIMUM	45.0	
MEAN %ILE	90	
GRADE 6		
MEAN	41.6	32.8
S.D.	2.2	
MINIMUM	35.0	
MAXIMUM	45.0	
MEAN %ILE	88	
GRADE 7		
MEAN	41.5	32.0
S.D.	3.0	
MINIMUM	30.0	
MAXIMUM	45.0	
MEAN %ILE	87	
GRADE 8		
MEAN	40.2	28.8
S.D.	4.0	
MINIMUM	26.0	
MAXIMUM	45.0	
MEAN %ILE	90	

TABLE 2 (CONTINUED): STANDARDIZED ACHIEVEMENT TEST SCORES

GATES-MACGINITIE READING TEST - COMPREHENSION

	ENRICHED CLASSES	CITY-WIDE NORMS
GRADE 5		
MEAN	40.3	32.7
S.D.	4.0	
MINIMUM	19.0	
MAXIMUM	44.0	
MEAN %ILE	93	
GRADE 6		
MEAN	38.8	29.8
S.D.	3.8	
MINIMUM	23.0	
MAXIMUM	43.0	
MEAN %ILE	88	
GRADE 7		
MEAN	38.8	29.2
S.D.	3.5	
MINIMUM	28.0	
MAXIMUM	43.0	
MEAN %ILE	90	
GRADE 8		
MEAN	39.0	29.5
S.D.	2.7	
MINIMUM	33.0	
MAXIMUM	43.0	
MEAN %ILE	90	

TABLE 2 (CONTINUED): STANDARDIZED ACHIEVEMENT TEST SCORES

O.B.E. MATH SURVEY

	ENRICHED CLASSES	CITY-WIDE NORMS
GRADE 5		
MEAN	40.2	30.1
S.D.	4.7	
MINIMUM	27.0	
MAXIMUM	48.0	
MEAN %ILE	90	
GRADE 6		
MEAN	38.7	29.9
S.D.	5.1	
MINIMUM	23.0	
MAXIMUM	47.0	
MEAN %ILE	86	
GRADE 7		
MEAN	39.5	26.3
S.D.	4.4	
MINIMUM	31.0	
MAXIMUM	48.0	
MEAN %ILE	90	
GRADE 8		
MEAN	40.9	26.1
S.D.	5.5	
MINIMUM	20.0	
MAXIMUM	50.0	
MEAN %ILE	92	

tests were converted to z-scores, it could be seen that some students scored as low as four standard deviations below the mean. Many of the minimum scores for students in the enriched program are well below the city-wide performance on these tests. In grade 5, for example, 11.3% of students in the Enrichment Project sample scored below the mean grade 5 city-wide performance on Gates-Vocabulary. In grade 6, 6% of the Enrichment Project sample scored lower on O.B.E. Math than the mean performance of all grade 6 students who wrote this test. Similar findings exist for several of the tests in each grade level.

PUPIL ATTRIBUTES: DESCRIPTIVE ANALYSES AND VARIABILITY

SRBCSS

Renzulli's SRBCSS (Renzulli et al., 1971), seen in the Appendices, provides information on learning, motivation, creativity and leadership characteristics. Figure 2 includes frequency distributions for these four scales. Again, the distributions are what one might expect for a sample of gifted students, with large numbers of students obtaining high scores. While there are no norms for the SRBCSS, the means shown in Figure 2 can be compared with SRBCSS means from other samples of gifted students. Means from a sample of 40 gifted students (Renzulli, 1976) and a sample of 491 gifted students (Argulewicz et al., 1982) are presented in Table 3, along with the Enrichment Project means. Visual inspection of these means suggests that

FIGURE 2
PUPIL ATTRIBUTES

LEARNING CHARACTERISTICS

(8 ITEMS)

$\bar{X} = 23.9$ $S.D. = 2.0$

MOTIVATIONAL CHARACTERISTICS

(9 ITEMS)

$\bar{X} = 25.4$ $S.D. = 5.7$

CREATIVITY CHARACTERISTICS

(10 ITEMS)

$\bar{X} = 27.1$ $S.D. = 7.0$

LEADERSHIP CHARACTERISTICS

(10 ITEMS)

$\bar{X} = 29.7$ $S.D. = 6.3$

TABLE 3:

SRBCSS MEANS FROM THREE GIFTED SAMPLES

	ARGULEWICZ ET AL., (1982) SAMPLE	RENZULLI (1976) SAMPLE	ENRICHMENT PROJECT SAMPLE
LEARNING	23.74	24.43	23.90
MOTIVATION	24.89	24.43	25.40
CREATIVITY	28.63	25.01	27.10
LEADERSHIP	28.77	29.48	29.70

the results obtained in this study for the SRBCSS scales are very typical of a sample of gifted individuals. It is also evident from Figure 2 that there is a large degree of variability in the Learning, Motivation, Creativity and Leadership scores. The standard deviations are large and significant numbers of students are rated poorly on these four variables.

SPPC

The SPPC (Harter, 1985), seen in the Appendices, was used to assess various aspects of self-concept in the students. This self-concept measure is comprised of six scales: Physical Appearance, Behavioral Conduct, Global Self-Worth, Scholastic Competence, Social Acceptance and Athletic Competence. Table 4 shows the means on these six scales for the Enrichment Project sample, while Table 5 provides norms for the SPPC scales (Harter, 1985). Harter's normative samples were drawn primarily from lower to upper middle class neighbourhoods in Colorado. Approximately 90% of her subjects were caucasian.

A comparison of these sets of means in the two SPPC tables reveals some interesting findings. Perhaps not surprisingly, the means for the Enrichment Project sample on Scholastic Competence were higher than the means for the normative sample in all grades and for both sexes. The Enrichment Project sample means also tended to be higher than the normative sample means for Global Self-Worth as well. The pattern of results for Social Acceptance is more complicated. While no clear pattern seems to emerge for the grade 5s and 6s, the norms are markedly higher for grades 7

TABLE 4:**SPPC MEANS FOR THE ENRICHMENT PROJECT SAMPLE**

	GRADE 5		GRADE 6		GRADE 7		GRADE 8	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
SCHOLASTIC COMPETENCE	3.09	2.96	3.07	3.16	3.00	2.96	3.13	3.15
SOCIAL ACCEPTANCE	2.89	3.06	3.07	2.83	2.75	2.78	2.85	2.94
ATHLETIC COMPETENCE	3.11	2.55	2.94	2.41	2.72	2.42	2.97	2.73
PHYSICAL APPEARANCE	3.05	2.74	3.03	2.87	2.99	2.64	2.99	2.73
BEHAVIORAL CONDUCT	2.82	3.13	2.99	3.10	2.82	2.88	2.83	3.00
GLOBAL SELF-WORTH	3.07	3.25	3.32	3.28	3.24	3.08	3.23	3.24

TABLE 5:**NORMS FOR THE SPPC (HARTER, 1985)**

	GRADE 5		GRADE 6		GRADE 7		GRADE 8	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
SCHOLASTIC COMPETENCE	2.78	2.83	2.94	2.94	2.78	2.80	2.77	2.69
SOCIAL ACCEPTANCE	2.88	2.80	3.06	2.98	3.00	2.96	3.05	3.14
ATHLETIC COMPETENCE	3.15	2.62	3.15	2.80	3.11	2.54	3.18	2.56
PHYSICAL APPEARANCE	3.15	2.62	2.98	2.68	2.93	2.50	2.86	2.62
BEHAVIORAL CONDUCT	2.84	3.32	2.92	3.06	2.83	2.96	2.88	2.96
GLOBAL SELF-WORTH	3.14	3.04	3.20	3.10	3.20	2.97	2.99	2.91

and 8 than are the means from the Enrichment Project sample for these grades.

The pattern of results for Athletic Competence is clearer. With the exception of grade 8, the Enrichment Project students consistently score lower than the norms on this scale. No clear pattern of differences between the norms and the Enrichment Project means is evident in the Physical Appearance and Behavioral Conduct scales.

Intelligence Measures

Intelligence measures for this study came primarily from two sources: Henmon-Nelson scores obtained from school board records and teacher ratings of basic intellectual ability. Figure 3 is a frequency distribution for the Henmon-Nelson; the mean and standard deviation is also reported. It is clear from the distribution that this sample is composed of very bright children, the average IQ being 135.9. Given that an elevated IQ is one of the major entry requirements for inclusion into the enrichment program, the high mean is not surprising, nor is the lack of variability in IQ scores. Approximately one third of the Enrichment Project sample falls within the IQ range of 130 to 135 and over 60% falls within 130 and 140. For a limited number of students, Canadian Cognitive Abilities Test (CCAT) scores were available from school records. A similar pattern of results is seen in the CCAT scores.

The second major measure of intelligence was the teacher rating of "basic intellectual ability", seen in the AASR in the

FIGURE 3

HENMON - NELSON

$\bar{X} = 135.9$ S. D. = 6.9

Appendices. Figure 4 includes the mean, standard deviation and a frequency distribution of the Teacher-rated Intellectual Ability scores. The mean is high and 70% of the students were rated above average on this variable. These findings are consistent with the IQ results discussed above.

Other Attribute Variables

Teacher ratings of motivation to do school work and appropriateness of classroom behaviour were also obtained (see AASR in Appendices). The pattern of results for these ratings is similar to that of many of the other attribute variables. Most students were rated quite highly, but noticeable numbers received low ratings.

GENDER DIFFERENCES

Table 6 presents the gender differences of selected variables. There were no significant differences between boys and girls on Teacher-rated Achievement, an achievement variable which combines teacher ratings in Language Arts and Mathematics. In fact, there were no gender differences in any of the achievement variables, with the exception of O.B.E. Match, $F(1,264) = 7.48$, $p < .01$. Boys scored significantly higher on this standardized achievement test than did girls.

There were few gender differences among the pupil attribute variables as well. The only SRBCSS variables which yielded a significant gender difference was Leadership, on which girls were rated significantly higher by teachers, $F(1,258) = 9.25$, $p < .01$.

FIGURE 4

TEACHER RATING: BASIC INTELLECTUAL ABILITY

$\bar{X} = 3.89$ S.D. = 0.95

TABLE 6**GENDER DIFFERENCES IN SELECTED VARIABLES**

<u>VARIABLES</u>	<u>BOYS</u>		<u>GIRLS</u>		F	D.F.	P
	MEAN	S.D.	MEAN	S.D.			
TEACHER-RATED ACHIEVEMENT	7.34	1.82	7.59	1.69	0.52	1,210	
O.B.E. MATH	40.63	4.87	38.98	5.00	7.48	1,264	P < .01
LEADERSHIP	28.60	6.48	30.95	5.96	9.25	1,258	P < .01
PHYSICAL APPEARANCE	3.02	0.60	2.72	0.65	14.99	1,260	P < .001
ATHLETIC COMPETENCE	2.96	0.72	2.51	0.74	24.05	1,259	P < .001
GLOBAL SELF-WORTH	3.21	0.52	3.20	0.57	0.00	1,260	
IQ	135.87	6.91	135.90	6.88	0.01	1,230	
TEACHER-RATED INTELLECTUAL ABILITY	3.93	1.04	3.84	0.85	2.97	1,210	
TEACHER-RATED MOTIVATION	3.45	1.16	4.16	1.02	32.05	1,300	P < .001
TEACHER-RATED CONDUCT	3.44	1.16	4.20	0.94	38.87	1,300	P < .001

Boys and girls in the Enrichment Project sample scored similarly on most of the self-concept variables. As seen in Table 6 there were gender differences in Physical Appearance, $F(1,260)=14.99$, $p < .001$, and Athletic Competence, $F(1,259)=24.05$, $p < .001$, but no differences in Global Self-Worth or any of the other SPSC variables. Boys scored significantly higher than did girls on Athletic competence and Physical Appearance.

Neither of the intelligence measures yielded significant gender differences. The mean IQ for the girls in the Enrichment Project sample was 135.9, while the mean IQ for the boys was 135.8. There were, however, significant gender differences in motivation to do schoolwork, $F(1,300)=32.05$, $p < .001$, and appropriateness of classroom behaviour, $F(1,300)=38.87$, $p < .001$. Teachers rated girls significantly higher on both of these variables.

It should be noted as well, that there were no significant age or age by gender effects.

CORRELATES OF PERFORMANCE

This part of the results section deals with factors associated with the performance of gifted pupils. As mentioned earlier and for reasons which will be discussed later, Teacher-rated Achievement, rather than any of the standardized achievement variables, is considered the main achievement variable in the Enrichment Project and, as such, is treated as the major criterion variable in the remainder of the results section.

SRBCSS

The four SRBCSS scales, Learning, Motivation, Creativity and Leadership, were significantly correlated with Teacher-rated Achievement. The correlations with these four scales are .64, .64, .49 and .44 respectively ($p < .001$ for all). The correlations are high, especially those with Learning and Motivation.

As an alternative analysis of the SRBCSS variables, students were grouped into the bottom, middle and top thirds of Teacher-rated Achievement. These groups were compared with respect to the four SRBCSS variables. As Table 7 illustrates, there were significant differences between the groups on Learning, $F(2,172) = 55.77$, $p < .001$; Motivation, $F(2,172) = 44.66$, $p < .001$; Creativity, $F(2,172) = 24.43$, $p < .001$; Leadership $F(2,172) = 18.73$, $p < .001$. It seems high, medium and low achievers in the enrichment program can be differentiated by the degree to which they possess the various characteristics assessed by the SRBCSS.

In a stepwise regression analysis, only Creativity did not make in into the equation, the others being entered in the following order: Learning, Motivation, Leadership. The variable which accounted for the greatest unique variance in Teacher-rated Achievement was Learning, with a part correlation of .25. When all variables were forced into the equation, a multiple R of .70 was obtained. Thus, the SRBCSS variables account for half of the variance in achievement.

TABLE 7

SRBCSS MEANS FOR THE LOW, MEDIUM AND HIGH
TEACHER-RATED ACHIEVEMENT GROUPS

	<u>LOW</u>	<u>MEDIUM</u>	<u>HIGH</u>	F	D.F.	P
LEARNING	18.76	24.40	28.29	55.77	2,172	P < .001
MOTIVATION	21.06	26.12	29.25	44.66	2,172	P < .001
CREATIVITY	23.33	27.37	30.31	24.43	2,172	P < .001
LEADERSHIP	25.96	30.79	33.06	18.73	2,172	P < .001

SPPC

Table 8 presents the correlations between the self-concept variables and the criterion variable Teacher-rated Achievement. It is obvious that these correlations are considerably lower than those with the SRBCSS variables. Three SPPC correlations were significant: Behavioral Conduct, Global Self-Worth and Scholastic Competence. The highest correlation was between achievement and Scholastic Competence. This was followed by Global Self-Worth and finally Behavioral Conduct. It is interesting to note that, while not significantly, Athletic Competence was negatively correlated with the criterion variable.

Again, the students were grouped into the bottom, middle and top thirds with respect to Teacher-rated Achievement (see Table 8). Group differences were significant only with Scholastic Competence $F(2,213) = 9.60$, $p < .001$, and Athletic Competence, $F(2,240) = 5.59$, $p < .01$, although they approached statistical significance with Global Self-Worth as well ($p = .013$). It is interesting to note that high achievers score lower in Athletic Competence than do those students in the medium and low achieving groups.

A stepwise regression analysis included three variables in the equation in the following order: Scholastic Competence, Athletic Competence and Social Acceptance. The variable which accounted for the most unique variance in Teacher-rated Achievement was Scholastic Competence. With all self-concept variables in the regression equation, the multiple R is .39.

TABLE 8**SPPC CORRELATIONS AND ANOVA'S****CORRELATIONS**

PHYSICAL APPEARANCE	.11
BEHAVIORAL CONDUCT	.20*
GLOBAL SELF-WORTH	.21*
SCHOLASTIC COMPETENCE	.29**
SOCIAL ACCEPTANCE	.08
ATHLETIC COMPETENCE	-.09

* P < .01

** P < .001

**SPPC MEANS FOR THE LOW, MEDIUM AND HIGH
TEACHER-RATED ACHIEVEMENT GROUPS**

	<u>LOW</u>	<u>MEDIUM</u>	<u>HIGH</u>	F	D.F.	P
<u>SIGNIFICANCE</u>						
PHYSICAL APPEARANCE	2.76	2.95	2.94	1.99	2,213	
BEHAVIORAL CONDUCT	2.89	2.89	3.11	3.68	2,213	
GLOBAL SELF-WORTH	3.06	3.26	3.31	4.41	2,213	
SCHOLASTIC COMPETENCE	2.91	3.01	3.28	9.60	2,213	P < .001
SOCIAL ACCEPTANCE	2.76	3.02	2.91	2.35	2,213	
ATHLETIC COMPETENCE	2.78	2.91	2.52	5.59	2,213	P < .01

Sixteen percent of the variance in achievement is accounted for by the SPPC variables.

Intelligence Measures

The two major intelligence measures in the study are IQ (as measured by the Henmon-Nelson) and Teacher-rated Intellectual Ability. In addition to these, correlations with the verbal and nonverbal sections of the Canadian Cognitive Abilities Test (CCAT) were obtained. It is interesting to note that while Teacher-rated Intellectual Ability is highly correlated with achievement, the correlation with IQ is not even significant. Perhaps IQ and the teacher-rated variable are measuring different qualities. The fact that the correlation between these two variables is only .15 (not significant) supports this possibility.

An analysis of variance (ANOVA) was performed again by dividing the students into the same three groups as done earlier. Low, medium and high achievers did not differ significantly with respect to IQ, but they did differ with respect to Teacher-rated Intellectual Ability [$F(2,240) = 64.14, p < .001$]. The Enrichment Project sample was also divided into the bottom and top 20% with respect to IQ. The mean IQs for these two groups were 126.2 and 145.4 respectively. An ANOVA showed that these two groups did not differ significantly with respect to the criterion variable, Teacher-rated Achievement. All analyses seem to suggest that IQ in the Enrichment Project sample, unlike Teacher-rated

Intellectual Ability, does not seem to be associated with performance in the enrichment program.

Standardized Achievement Measures

Because they are not pupil attributes and cannot really be regarded as factors associated with performance, the standardized achievement variables are of limited interest as a correlate of performance, in so far as this thesis is concerned. Because, however, such variables are used by the Ottawa Board of Education and by other boards to identify giftedness and to select potential candidates for gifted programming, they will be briefly examined as correlates of performance.

The correlations between Teacher-rated Achievement and the standardized achievement variables are: Gates-Vocabulary, .12; Gates-Comprehension, .24 ($p < .001$); Gates-Total, .20 ($p < .01$); O.B.E. Math, .39 ($p < .001$). Perhaps not surprisingly, three of the correlations are statistically significant and may be useful in predicting success in an enrichment program. It should be noted, however, that they seem to be less associated with performance than most of the other attribute variables discussed.

Other Attributes

Two other pupil attributes were quite highly correlated with Teacher-rated Achievement; these were Teacher-Rated Motivation and Teacher-Rated Conduct. The correlations with these variables were .61 and .50 respectively ($p < .001$ for both). It seems teachers see motivation to do school work and appropriateness of classroom conduct as being highly associated with performance in the enrichment program.

COMPARING ATTRIBUTES: THE BEST PREDICTORS OF ACHIEVEMENT

Having examined how the different groups of attributes are associated with achievement separately, a comparison of the different attribute variables is in order. This section of results is designed to address questions such as: which variables are most highly associated with achievement, which are the best predictors and how do nonintellective variables stack up against the intellective or cognitively oriented variables?

Table 9 lists, in order of magnitude, the correlations between the various pupil attribute variables and Teacher-rated Achievement. Also included are the standardized achievement test variables from the Gates-MacGinitie Reading Test and the O.B.E. Math Survey. As mentioned earlier, these are not attribute variables, but are used by the Board to predict success in gifted programs. One can see that the top of the list is dominated by nonintellective correlates of performance. It is interesting to see that IQ fell into the bottom quarter of the list.

Examining the multiple regression coefficients for the different groups of variables is the major means for comparing predictors of achievement. Table 10 lists the multiple regression coefficients of the various groups of predictors of achievement. The SRBCSS and the SPPC multiple Rs were obtained from the four and six variables, respectively, which make up these instruments. The cognitive/intellective multiple R comes from seven variables: Teacher-rated Intellectual Ability, IQ, Gates-Vocabulary, Gates-Comprehension, O.B.E. Math, CCAT Verbal and CCAT Nonverbal. The school board variables include

TABLE 9

CORRELATIONS BETWEEN PUPIL ATTRIBUTE VARIABLES
AND TEACHER-RATED ACHIEVEMENT

MOTIVATION	.64**
LEARNING	.64**
TEACHER-RATED	.64**
INTELLECTUAL ABILITY	
TEACHER-RATED	.61**
MOTIVATION	
TEACHER-RATED	.50**
CONDUCT	
CREATIVITY	.49**
LEADERSHIP	.44**
O.B.E. MATH	.38**
SCHOLASTIC COMPETENCE	.29**
GATES-COMPREHENSION	.24**
GLOBAL SELF-WORTH	.21*
GATES-TOTAL	.20*
BEHAVIORAL CONDUCT	.20*
GATES-VOCABULARY	.12
CCAT VERBAL	.12
IQ (HENMON-NELSON)	.12
PHYSICAL APPEARANCE	.11
ATHLETIC COMPETENCE	-.09
CCAT NONVERBAL	.09
SOCIAL ACCEPTANCE	.08

* P < .01

** P < .001

TABLE 10

**PREDICTING ACHIEVEMENT:
A COMPARISON OF MULTIPLE Rs**

	<u>MULTIPLE R</u>
COGNITIVE/INTELLECTIVE MEASURES	.63
SRBCSS VARIABLES	.70
SPPC VARIABLES	.39
SCHOOL BOARD VARIABLES	.40
ALL VARIABLES	.86

Gates-Comprehension, Gates-Vocabulary, O.B.E. Math and IQ. Finally, all attribute variables means all variables less the standardized achievement variables and, of course, the criterion variable.

At .70, the multiple R for the SRBCSS variables is quite impressive. It is especially so given that it is higher than the multiple regression coefficient for the intellectual variables which is .63. Though the SPPC multiple R is not as high as the others, these variables still account for a substantial amount of variance in the criterion variable, Teacher-rated Achievement. It is interesting to note that the SRBCSS and SPPC variables do as good a job or better at predicting performance in the enrichment program than do the measures which the school board uses to place students in this program.

The multiple R for all the predictor variables in this study is .86. Thus, 74% of the variance in Teacher-rated Achievement has been accounted for by the variables in this study.

USING STANDARDIZED ACHIEVEMENT MEASURES AS THE CRITERION VARIABLE

For reasons which will be discussed later, it was decided that Teacher-rated Achievement would be the major criterion variable. It would be interesting, however, to see how highly associated the various attribute variables would be with the standardized achievement measures and how well they would predict these measures.

Gates-Total

For the purpose of simplicity, Gates-Vocabulary and Gates-Comprehension were combined to form Gates-Total. Table 11 contains the correlations between this new criterion variable and the various pupil attribute variables. Perhaps not surprisingly, CCAT-Verbal was most highly correlated with Gates-Total ($r=.34$, $p < .001$). Also highly correlated with Gates-Total was Teacher-rated Intellectual Ability. Three of the four SRBCSS variables were significantly correlated, Leadership being the only one which was not. Among the self-concept variables, Athletic Competence was the only one which was significantly correlated with Gates-Total ($r=-.27$, $p < .001$). Again, it was perhaps a little surprising how low the correlation with IQ was ($r=.16$, $p < .01$). This was only the 6th highest correlation.

O.B.E. Math

Table 12 is a list of the correlations between the various attribute variables and O.B.E. Math. Again it is not surprising that CCAT-Nonverbal was most highly correlated with this math criterion variable ($r=.34$, $p < .001$). Of the SRBCSS variables, only Learning and Motivation were significantly correlated with O.B.E. Math. Of the six SPPC variables only Scholastic Competence and Athletic Competence were significantly correlated. Interestingly, the former of these was negatively correlated with O.B.E. Math. As with Gates-Total, Teacher-rated Intellectual Ability was more highly correlated than was IQ with the criterion variable in question.

TABLE 11

CORRELATIONS BETWEEN GATES-TOTAL
AND VARIOUS ATTRIBUTE MEASURES

SRBCSS VARIABLES

LEARNING	.29**
MOTIVATION	.30**
CREATIVITY	.25**
LEADERSHIP	-.08

SPPC VARIABLES

PHYSICAL APPEARANCE	.10
BEHAVIORAL CONDUCT	.05
GLOBAL SELF-WORTH	.04
SCHOLASTIC COMPETENCE	.04
SOCIAL ACCEPTANCE	-.09
ATHLETIC COMPETENCE	-.27**

INTELLIGENCE MEASURES

CCAT VERBAL	.34**
CCAT NONVERBAL	-.09
IQ	.26*
TEACHER-RATED BASIC INTELLECTUAL ABILITY	.34**

OTHER VARIABLES

TEACHER-RATED MOTIVATION	.04
TEACHER-RATED CONDUCT	.02

* P < .01

** P < .001

TABLE 12

CORRELATIONS BETWEEN O.B.E. MATH
AND VARIOUS ATTRIBUTE MEASURES

SRBCSS VARIABLES

LEARNING	.27**
MOTIVATION	.20*
CREATIVITY	.15
LEADERSHIP	.06

SPPC VARIABLES

PHYSICAL APPEARANCE	.08
BEHAVIORAL CONDUCT	.12
GLOBAL SELF-WORTH	.02
SCHOLASTIC COMPETENCE	.26**
SOCIAL ACCEPTANCE	-.17*
ATHLETIC COMPETENCE	-.06

INTELLIGENCE MEASURES

CCAT VERBAL	.02
CCAT NONVERBAL	.34**
IQ	.24**
TEACHER-RATED BASIC INTELLECTUAL ABILITY	.26**

OTHER VARIABLES

TEACHER-RATED MOTIVATION	.13
TEACHER-RATED CONDUCT	.14

* p < .01
** p < .001

PREDICTING PERFORMANCE ON STANDARDIZED ACHIEVEMENT TESTS

Gates-Total

A stepwise regression with the SRBCSS variables resulted with only two variables making it into the equation, Motivation and Leadership. Motivation was entered first in this equation. The multiple regression coefficient for all the SRBCSS variables was .44. In the SPPC stepwise regression, only Athletic Competence made it into the equation. With all the SPPC variables forced into the equation, the multiple R was .26.

The multiple Rs for SPPC and SRBCSS variables are not so impressive, especially given that the Pearson correlation with both CCAT-Verbal and Teacher-Rated Intellectual Ability (see Table 6) are higher than both these multiple Rs.

O.B.E. Math

In a stepwise regression with the SRBCSS variables, only Learning made it into the equation. With all variables forced into a regression equation, the multiple R is .35. This multiple R is identical to that attained with the six self-concept variables. It is interesting to note that the SPPC variables do a better job of predicting performance on O.B.E. Math than on Gates-Total, while the SRBCSS variables do a better job of predicting performance on Gates-Total.

DISCUSSION

The first goal of the Enrichment Project was to assess the level of academic performance in the program and to report on the variability of this performance. Feldhusen et al. (1984) and Treffinger (1984) have noted that little investigation has been done on the performance of students in enrichment programs. A follow-up investigation of this type is crucial for testing the validity of the selection instruments and might provide information about the program as well.

The students in the O.B.E. program are, for the most part, performing very well. Both the teacher ratings on performance and standardized test scores support this conclusion. It is clear from both sources, however, that some of the students are not performing well. The standard deviations for all the achievement measures are quite large. Approximately 12% of the students received low ratings from teachers in the performance areas assessed and a surprisingly large number of students in the gifted program scored below the city-wide norms on several of the standardized tests. The variability and low scores could mean many things. Perhaps the program is not benefiting some portion of the students, perhaps it cannot serve the needs of all. It might be that the 11 or 12 percent of the students whose achievement was low, were improperly identified by the selection procedure. The presence of low achievement scores and the variability in these scores suggest that a more complex picture of gifted education, than the one often painted by educators, is

appropriate. These findings may suggest that the gifted are not all alike, that they cannot be simply identified or their needs easily addressed.

The results for the SRBCSS variables Learning, Motivation, Creativity and Leadership seem typical for a sample of gifted students when compared with other samples of gifted pupils. Most of the students received high ratings in these areas while relatively few received poor ratings. The pattern of results for the Creativity scale differs somewhat from the others in that more students were rated poorly on this scale. This difference may be due to the fact that the selection for the enrichment program was largely based on IQ scores and achievement measures. It is argued by some that these measures do not reward creativity, that they assess convergent rather than divergent thinking (Harrington, 1982).

Although most students received high ratings on the characteristics assessed by the SRBCSS, there is considerable variability in the scores. The ranges are wide and the standard deviations are large, perhaps with the exception of the Learning scores. It is interesting to note that the Learning scale reflects more directly the kinds of characteristics necessary for high achievement in a school environment than do the other scales. The lower standard deviation on Learning is not surprising, as the students in the program all have high academic achievement in common. There is more variability in the Motivation, Creativity and Leadership scores, scales which seem to tap personality variables more than characteristics related to

school performance. These findings support the claims made by Juntune (1982), Feldhusen (1982), Treffinger (1982) and others that the gifted are not all alike and that the heterogeneity of the gifted lies primarily in nonintellective or personality characteristics. The question which arises from the SRBCSS results is whether these nonintellective components are related to achievement. This issue will be discussed later.

The comparison of the Enrichment Project sample with Harter's (1985) normative sample on the SPPC provided some interesting results. It was not surprising that the mean for this sample on Scholastic Competence was higher than that of the normative sample. The results for Social Acceptance and Athletic Competence were more interesting. As stated in the results section, no clear pattern of results emerged for the grade 5 and 6 students on Social Acceptance, but the gifted students scored noticeably lower in grades 7 and 8 than did the normative sample. These results might suggest that it is more socially acceptable, particularly among friends and schoolmates, to be gifted at the age of 10 or 11 than it is at age 12 or 13. Perhaps as one approaches the teenage years and it becomes more important to "fit in" with others, the stigma of being labeled gifted becomes increasingly undesirable. These results as well as the work of Schneider et al. (in press) on the social relations of gifted children point to the need for more research on the self-concept of this population.

Students from the Enrichment Project sample also tended to score lower in Athletic Competence than the students from the Harter sample. Unfortunately, this result supports the "bookworm" stereotype often associated with giftedness. It has been suggested that self-concept may be an important component of giftedness (Delisle & Renzulli, 1982). The relationship between the self-concept variables measured by the SPPC and achievement will be discussed later.

While there is considerable variability in the nonintellective attributes discussed earlier, the variability in intelligence scores is low for both the teacher-rating and the Henmon-Nelson test. This is hardly surprising given that most students had to score on or above the 98th percentile on an intelligence test to gain entrance into the program. Over 80% of the subjects had IQ scores above 130 on the Henmon-Nelson and the mean IQ score was 135.9. Seventy percent of the students were given high ratings on intellectual ability by teachers. It is interesting to note that the O.B.E. uses intelligence scores in exactly the fashion which many researchers have decried. As mentioned earlier, Wallach (1976) warned that intelligence scores in the upper range do not reflect the potential for achievement. Renzulli (1978) said that giftedness requires only above average intelligence. Other authors have maintained that the use of high cutoffs on IQ tests for the purpose of identification is inexcusable (Borland, 1986; Harrington, 1982; Jenkins-Friedman, 1982; Robinson & Chamrod, 1986). It is ironic, given the amount

of literature on the misuse of intelligence tests, that so many school boards continue to use these measures in an inappropriate fashion.

The second major aim of this thesis was to explore the factors associated with achievement in the gifted classrooms. Either the teacher-ratings of achievement or one of the standardized achievement tests could have served as the criterion variable in this exploration. Teacher-rated Achievement was chosen because it was thought that this variable is the best indicator of how the students are currently performing in the enrichment program. The other standard score variables reflect more what each student has accomplished or achieved in the past and how well he or she can "display" their achievement level in a test situation. While the student is subject to test anxiety in writing the standardized test, their classroom performance, as measured by Teacher-rated Achievement, is subject to many more "real world" influences, such as learning skills, ability to get along with others (e.g., other students and the teacher), motivation to do school work etc.

Listing the correlations between the criterion variable and all of the remaining variables, in order of magnitude, provided some interesting results. The correlation between achievement in the gifted classes and IQ was not significant and at .12, lay down near the bottom of the table. This is surprising when one considers that the O.B.E. and many boards across North America rely heavily upon IQ to identify those students suitable for enrichment. The low correlation with IQ is perhaps not

surprising, however, when one considers the low variability in these scores and the comments of numerous researchers (Jenkins-Friedman, 1982; Wallach, 1976) about the lack of their predictive validity. The other standardized achievement variables used by the O.B.E. Math and Gates-Comprehension fared little better. Only the O.B.E. Math and Gates-Comprehension were significant. The correlations between Teacher-rated Achievement and Gates-Vocabulary, CCAT Verbal and CCAT Nonverbal were all below .15. Yarborough and Johnson (1983) reported that over 80% of all gifted programs in the United States used standardized achievement tests to select students for enrichment and 70% use a combination of achievement and IQ tests. The wide use of these tests for this purpose is ironic given that they seem to be poorly correlated with performance in the enrichment program.

The only cognitive variable which was highly correlated with achievement was Teacher-rated Intellectual Ability. This correlation differs markedly from that between IQ and achievement. It seems Teacher-rated Intellectual Ability and IQ are measuring different qualities. Some teachers may have simply rated their students highly on Teacher-rated Intellectual Ability because they were performing well in the program, assuming that high achievement necessitated high intellectual ability. Rating the students in this manner would inject an achievement component into Teacher-rated Intellectual Ability and thereby inflate the correlation between this variable and the criterion achievement variable.

In stark contrast to the unimpressive correlations between the cognitive variables and achievement are the correlations with the nonintellective variables. Most impressive are the correlations between the two motivation variables and achievement, both of which were above .60 ($p < .001$ for both). All of the SRBCSS variables correlated significantly with Teacher-rated Achievement ($p < .001$ for all). The correlations with the self-concept variables were lower and were significant only with Scholastic Competence and Global Self-Worth. These findings support those of Delisle and Renzulli (1982) who found that self-concept was an important factor in the performance of students in a gifted program.

The results using ANOVA supported the correlational analyses. Low, medium and high achievers differed significantly with respect to Learning, Motivation, Creativity, Leadership, Scholastic Competence and Athletic Competence. Curiously, the high achievers scored the lowest on Athletic Competence, reinforcing the stereotype of the non-athletic gifted student. While the three levels of achievement in the gifted program can be differentiated on many of the nonintellective variables, there were no differences between these groups on IQ. It seems that being in the highest achieving group in the enrichment program does not necessitate having the highest IQ. In fact, the top 20% of the students in terms of IQ and the bottom 20% did not differ significantly in achievement. This finding is consistent with Wallach's (1976) claim that IQ scores in the upper ranges have no predictive validity and supports Renzulli's (1978) claim that

only above average intelligence is necessary for giftedness. The ANOVA results clearly point to the importance of personality and behavioural characteristics in achievement while suggesting that intelligence plays a smaller role in the achievement of students in gifted classrooms.

The regression analyses are particularly revealing. A comparison of the multiple regression coefficients for the cognitive/intellective variables, the SRBCSS variables, the SPPC variables and the O.B.E. selection variables revealed that the highest multiple R was obtained using the SRBCSS variables. These results suggest that ratings of motivation, learning characteristics, creativity and leadership skills are better predictors of performance in a gifted program than are any cognitive measures such as scores on IQ or achievement tests. The variables used by the O.B.E. to select students for the enrichment program yielded a multiple R of .40. It seems that the Board might have done much better to use the SRBCSS alone for selection purposes than using a combination of the Henmon-Nelson, Gates-MacGinitie Reading Test and O.B.E. Math Survey. These tests hardly do a better job at predicting achievement than do the self-concept variables. All of the variables combined yielded a multiple R of .86, thereby explaining 74% of the variance in Teacher-rated Achievement.

It was decided to use Teacher-rated Achievement as the principal criterion variable. It is possible that the SRBCSS variables and attribute variables from the AASR were more highly correlated with achievement than the other variables because

they, like the criterion variable, are teacher ratings. The tendency to automatically give students one has rated highly on achievement high ratings on the attribute variables might be strong. It is for this reason that, although the standardized achievement test scores perhaps do not reflect current achievement as directly as the teacher rating, it was important to analyze the data using the standardized achievement variables as the criterion.

Analyses were done using both Gates-Total and O.B.E. Math as criterion variables. It is perhaps not surprising that IQ, CCAT Verbal and CCAT Nonverbal are much more highly correlated with the standardized achievement variables. Jenkins-Friedman (1982) and Wallach (1976) both said that the only thing achievement and IQ tests predict is future performance on similar tests. Still, correlations between IQ and the new criterion variables are not that high, though they are significant. For both criterion variables the correlations are higher with Teacher-rated Intellectual Ability than they are with IQ.

The correlations between the nonintellective variables and the new criterion variables are definitely lower than they were with Teacher-rated Achievement. Nevertheless, many of these correlations are as high or higher than those with IQ.

Using standardized achievement tests as criterion variables does alter the pattern of correlations. The correlations with the O.B.E. selection variables were marginally higher, while correlations with nonintellective variables tended to be lower.

Regardless of which criterion variable is used, it seems clear that consideration of nonintellective variables in the education of our gifted is imperative.

The results of the Enrichment Project are clear and consistent. There is considerable variability in achievement in the classrooms and in pupil attributes. These results suggest that not all the gifted are alike. Personality and behavioural characteristics such as motivation and self-concept seem to be associated with performance in the enrichment program. The SRBCSS variables did a better job at predicting academic achievement than did the various cognitive variables. The results have lent needed empirical support to two claims made by researchers in gifted education: 1) the gifted are a heterogeneous population and 2) nonintellective factors are important in giftedness. These results have important implications for the way giftedness is defined, how our gifted youth are identified and how they are educated.

It is clear that our definitions of giftedness must be broadened to include nonintellective factors. While this has been recognized for some time, it is apparent that educators continue to ignore these factors (Richert, 1985; Yarborough & Johnson, 1983). It is largely the focus on IQ scores which has led to the stereotype that all gifted students are alike and which has led to simplistic definitions of this construct. It is largely this focus which has impeded the progress of gifted education. Intelligence should not disappear from definitions of giftedness, but much less emphasis should be placed on it.

Renzulli (1978) noted that above average intelligence is probably necessary for giftedness. We must continue to ask ourselves, "What does it mean to be gifted?". Does it mean having a high IQ, being highly motivated, being creative? Are self-concept, task commitment, discipline etc. parts of what it means to be gifted? Likely, being gifted means to have all or some of these qualities in varying degrees. Each gifted person may have a different pattern of these characteristics. What some lack in intelligence, they may make up for in motivation. What some lack in discipline they may make up for by being particularly bright. Researchers and educators must develop more sophisticated definitions of giftedness which place more emphasis on the nonintellective components of giftedness and that respect the heterogeneity of the gifted. These definitions must be the base from which selection procedures and enrichment programs are developed.

If nonintellective factors are part of the definition of giftedness, then they must be considered in the selection/identification process as well. The results of the Enrichment Project strongly suggest that motivation was a very important factor in performance in the enrichment program, even more so than intelligence. If motivation is to be a part of one's definition of giftedness, then it follows that one must include a measure of motivation in the selection/identification process. Assessing nonintellective qualities would enable one to identify those individuals who do not have IQ scores above 125 or 130, but perhaps when challenged by an enrichment program, make

up for this with exceptional motivation, interpersonal skills, curiosity etc. Cosmetic use of multiple criteria must cease. Education boards must stop relying solely on cognitive oriented tests for selection purposes and make the assessment of nonintellective components of giftedness a routine part of the overall selection process. The results of the Enrichment Project suggest that the O.B.E. would have a better predictor of achievement in their enrichment program if they used teacher ratings of learning, creativity, motivation and leadership qualities than the IQ and achievement tests they currently use.

Respect for the heterogeneity of the gifted must be present not only in the definition of giftedness and the identification of the gifted, but in the programs for the gifted as well. This respect will come only when it is realized that not all the needs of the gifted can be served by a pull-out program which presents material at an accelerated pace. Different gifted children require different gifted programs. Broader definitions of giftedness that emphasis nonintellective components must be the base from which programs are developed. While it is difficult to raise IQ, it is possible to cater to a child's natural curiosity, to reward and encourage a child's task commitment or discipline, to increase motivation and self-concept. Because not all gifted children are the same with respect to these characteristics, they must not all be treated or educated in the same manner.

The results of the Enrichment Project suggest that we can no longer characterize the gifted as simply a group of individuals with IQs over 130. Much of what makes these students special

is the personalities and behavioural characteristics they possess. It is in these qualities or characteristics that there is rich variability among the gifted. These nonintellective characteristics and the heterogeneity they create must play a role in the definition of giftedness, in the selection process and in programs for the gifted.

The Enrichment Project only began to explore the role of nonintellective components in giftedness. To increase the complexity and strength of the study would require the inclusion of another group of subjects who were not in the O.B.E. enrichment program. The inclusion of this group of subjects would allow for direct comparisons with the present sample on motivation, self-concept and many of the other variables. It would be interesting to compare the performance of a group of students whose IQ scores were moderately above average but who were rated highly on the various nonintellective characteristics with a group whose IQ scores were very high but whose ratings in the other areas were low. It would be interesting to see if there are students in normal classrooms who have high IQ scores but are not high achievers. Answers to these questions are beyond the scope of this study. The study would also be improved if it were longitudinal, providing a true test of the predictive validity of a selection procedure involving nonintellective components. It is also possible that another criterion variable, such as school grades, would have been a better indicator of achievement than the teacher-rating used. Teacher-rated Achievement represented a limited definition of success in this program, especially since it is a teacher rating. Students who were rated poorly on this criterion variable may still be benefitting from the program and making considerable academic progress.

Despite its weaknesses and limitations, the Enrichment Project was a valuable exploration of the heterogeneity of the gifted. In many respects and from many directions, the literature is converging toward a focus on the heterogeneity of our gifted youth. This focus is a focus on the individuality of each gifted student. It is a focus which will lead to increasingly individualized instruction for, not only the gifted, but for all students. Fox (1981) paints the following picture of the future of gifted education:

One might envision a future when diagnostic assessment and prescriptive instruction are developed for all children in keeping with their unique learning and instructional needs. Then there would be no need to predict whether or not a student is academically gifted, as each student would automatically be continually directed to more difficult and challenging learning experiences. (Fox, 1981, p.1109)

This picture of the future of gifted education is being seen more often in the literature. The focus is shifting away from identifying gifted students and toward identifying the learning characteristics and individual instructional needs of all students. Treffinger (1982, 1984) proposes that efforts to identify gifted children be abandoned and that instead, the focus should be placed on identifying students who, by virtue of their unique learning characteristics, require modifications in instruction. He suggests that research into the interaction of various programming methods with different learning characteristics would lead to a more effective education for all.

Portes and Mas (1987) suggest that attention should be devoted, not to identifying the gifted, but to developing giftedness in all students. They maintain that this approach is more in tune with our educational philosophy. This philosophy is in accordance with that of Renzulli (1984), who believes that a focus on developing "gifted behaviour" rather than identifying the gifted is most appropriate.

The future, as envisioned by these researchers is a promising one. It is a future that will depend on respect for the heterogeneity of not just the gifted, but all students. This respect will lead to increasingly individualized instruction. The content, style, pace etc. of the education programs will match the characteristics of students in a manner which optimizes the educational opportunities of each student (Birch, 1984). The result of this approach will be an emphasis, not on what a student has or is, but on what a student can be.

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APPENDICES

ACHIEVEMENT-ACADEMIC SKILLS RATINGS

I. Academic Skills

The following rating should be made with reference to your current class; thus, 'average' represents the average level of the characteristic for this group of children.

1. How would you rate this pupil with respect to basic intellectual ability?

1	2	3	4	5
much below average	somewhat below average	average	somewhat above average	much above average

2. How would you rate this pupil with respect to motivation to do school work?

1	2	3	4	5
much below average	somewhat below average	average	somewhat above average	much above average

3. How would you rate this pupil with respect to the appropriateness of her/his classroom behaviour?

1	2	3	4	5
much below average	somewhat below average	average	somewhat above average	much above average

II. Achievement Ratings

The following ratings should be made with reference to average performance for this class or group of children. If you are not directly familiar with the child's level of achievement in the area, please omit the rating.

	much below average	somewhat below average	average	somewhat above average	much above average
1. Language Arts	1	2	3	4	5
2. Mathematics	1	2	3	4	5
3. Environmental Studies (grades 5 & 6)	1	2	3	4	5
4. History/Geography (grades 7 & 8)	1	2	3	4	5

WHAT I AM LIKE

Boy or Girl (circle which) AGE BIRTHDAY Month Day GROUP

SAMPLE SENTENCE

ALLY RUE R ME	SORT OF TRUE FOR ME					SORT OF TRUE FOR ME	REAL TRUE FOR
			BUT				
		Some kids would rather play outdoors in their spare time			Other kids would rather watch t.v.		
		Some kids find it hard to make friends	BUT		Other kids find it's pretty easy to make friends		
		Some kids feel that they are very good at their school work	BUT		Other kids worry about whether they can do the school work assigned to them		
		Some kids do very well at all kinds of sports	BUT		Other kids don't feel that they are very good when it comes to sports		
		Some kids are happy with the way they look	BUT		Other kids are not happy with the way they look		
		Some kids often do not like the way they behave	BUT		Other kids usually like the way they behave		
		Some kids are often unhappy with themselves	BUT		Other kids are pretty pleased with themselves		
		Some kids feel like they are just as smart as other kids their age	BUT		Other kids aren't so sure and wonder if they are as smart		

ALL Y
OUR
R ME

SORT OF
TRUE
FOR ME

SORT OF
TRUE
FOR ME

REALLY
TRUE
FOR ME

Some kids have a lot of
friends

BUT

Other kids don't have very
many friends

Some kids wish they could
be a lot better at sports

BUT

Other kids feel they are good
enough at sports

Some kids are happy with
their height and weight

BUT

Other kids wish their height
or weight were different

Some kids usually do the
right thing

BUT

Other kids often don't do the
right thing

Some kids don't like the
way they are leading their
life

BUT

Some kids don't like the way
they are leading their life

Some kids are pretty slow
in finishing their school
work

BUT

Other kids can do their
schoolwork quickly

Some kids would like to
have a lot more friends

BUT

Other kids have as many
friends as they want

Some kids think they could
do well at just about any
new sports activity they
haven't tried before

BUT

Other kids are afraid they
might not do well at sports
they haven't ever tried

Some kids wish their body
was different

BUT

Other kids like their body the
way it is

Some kids usually act the
way they know they are
supposed to

BUT

Other kids often don't act the
way their supposed to

Some kids are happy with
themselves as a person

BUT

Other kids are often not happy
with themselves

Some kids often forget
what they learn

BUT

Other kids can remember things
easily

REALLY TRUE FOR ME	SORT OF TRUE FOR ME			SORT OF TRUE FOR ME	REAL TRUE FOR
		Some kids are always doing things with alot of kids	BUT	Other kids usually do things by themselves	
		Some kids feel that they are better than others their age at sports	BUT	Other kids don't feel they can play as well	
		Some kids wish their physical appearance (how they look) was different	BUT	Other kids like their physical appearance the way it is.	
		Some kids usually get into trouble because of things they do	BUT	Other kids usually don't do things that get them in trouble	
		Some kids like the kind of person they are	BUT	Other kids often wish they were someone else	
		Some kids do very well at their classwork	BUT	Other kids don't do very well at their classwork	
		Some kids wish that more people their age like them	BUT	Other kids feel that most people their age do like them	
		In games and sports some kids usually watch instead of play	BUT	Other kids usually play rather than just watch	
		Some kids wish something about their face or hair looked different	BUT	Other kids like their face and hair the way they are	
		Some kids do things they know they shouldn't do	BUT	Other kids hardly ever do things they know they shouldn't do	
		Some kids are very happy being the way they are	BUT	Other kids wish they were different	

REALLY TRUE FOR ME	SORT OF TRUE FOR ME			SORT OF TRUE FOR ME	REALLY TRUE FOR ME
--------------------------	---------------------------	--	--	---------------------------	--------------------------

Some kids have trouble
figuring out the answers
in school

BUT

Other kids almost always can
figure out the answers

Some kids are popular with
others their age

BUT

Other kids are not very
popular

Some kids don't do well at
new outdoor games

BUT

Other kids are good at new
games right away

Some kids think that they
are good looking

BUT

Other kids think that they are
not very good looking

Some kids behave
themselves very well

BUT

Other kids often find it hard
to behave themselves

Some kids are not very
happy with the way they do
alot of things

BUT

Other kids think the way they
do things is fine.

ater, Ph.D., University of Denver, 1985

Directions: These scales are designed to obtain teacher estimates of a student's characteristics in the area of learning, motivation, creativity, and leadership. It should be pointed out that a considerable amount of individual differences can be found in any population of pupils; and therefore the profiles are likely to vary a great deal. Each item in the scales should be considered separately and should reflect the degree to which you have observed the presence or absence of each characteristic. Please read the statements carefully and place an X in the appropriate place according to the following set of values:

1. If you have seldom or never observed this characteristic.
2. If you have observed this characteristic occasionally.
3. If you have observed this characteristic to a considerable degree.
4. If you have observed this characteristics almost all of the time.

Part I: Learning Characteristics

1 2 3 4

1. Possesses a large storehouse of information about a variety of topics (beyond the usual interests of children his/her age).
2. Has unusually advanced vocabulary for age or grade level.
3. Has quick mastery and recall of factual information.
4. Has rapid insight into cause-effect relationships; tries to discover the how and why of things; wants to know what makes things tick.
5. Has a ready grasp of underlying principles.
6. Is a keen and alert observer; usually "sees more" and "gets more" out of a story, film, etc. than others.
7. Reads a great deal on his/her own; usually prefers adult level books; does not avoid difficult material.
8. Tries to understand complicated material by separating it into its respective parts; reasons things out by him/herself.

1. If you have seldom or never observed this characteristic.
2. If you have observed this characteristic occasionally.
3. If you have observed this characteristic to a considerable degree.

Part II: Motivational Characteristics

1 2 3 4

1. Becomes absorbed and truly involved in certain topics or problems; is persistent in task completion.
2. Is easily bored with routine tasks.
3. Needs little external motivation to follow through in work that initially excites him/her.
4. Strives toward perfection; is self critical.
5. Prefers to work independently; requires little direction from the teacher.
6. Is interested in many "adult" issues such as religion, politics, etc. - more than usual for age level.
7. Often is self assertive; stubborn in his/her beliefs.
8. Likes to organize and bring structure to things, people, and situations.
9. Is quite concerned with right and wrong, good and bad; often evaluates and passes judgment on events, people and things.

Part III: Creativity Characteristics

1. Displays a great deal of curiosity about many things; is constantly asking questions about anything and everything.
2. Generates a large number of ideas or solutions to problems and questions; often offers unusual, unique responses.
3. Is uninhibited in expressions of opinion; is sometimes spirited in disagreement.
4. Is a high risk taker; is adventurous.
5. Displays a good deal of intellectual playfulness; fantasizes; manipulates ideas.

1. If you have seldom or never observed this characteristic.
2. If you have observed this characteristic occasionally.
3. If you have observed this characteristic to a considerable degree.

Part II: Motivational Characteristics

1 2 3 4

1. Becomes absorbed and truly involved in certain topics or problems; is persistent in task completion.
2. Is easily bored with routine tasks.
3. Needs little external motivation to follow through in work that initially excites him/her.
4. Strives toward perfection; is self critical.
5. Prefers to work independently; requires little direction from the teacher.
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7. Often is self assertive; stubborn in his/her beliefs.
8. Likes to organize and bring structure to things, people, and situations.
9. Is quite concerned with right and wrong, good and bad; often evaluates and passes judgment on events, people and things.

Part III: Creativity Characteristics

1. Displays a great deal of curiosity about many things; is constantly asking questions about anything and everything.
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3. Is uninhibited in expressions of opinion; is sometimes spirited in disagreement.
4. Is a high risk taker; is adventurous.
5. Displays a good deal of intellectual playfulness; fantasizes; manipulates ideas.

1. If you have seldom or never observed this characteristic.
2. If you have observed this characteristic occasionally.
3. If you have observed this characteristic to a considerable degree.

6. Displays a keen sense of humour.
7. Is unusually aware of his impulses and more open to the irrational in him/herself; shows emotional sensitivity.
8. Is sensitive to beauty; attends to aesthetic characteristics of things.
9. Is nonconforming; accepts disorder; is not interested in details; does not fear being different.
10. Criticizes constructively; is unwilling to accept authoritarian pronouncements without critical examination.

Part IV: Leadership Characteristics

1. Carries responsibility well; can be counted on to do what he/she has promised and usually does it well.
2. Is self confident with children own age as well as with adults.
3. Seems to be well liked by his/her classmates.
4. Is cooperative with teacher and classmates; tends to avoid bickering and is generally easy to get along with.
5. Can express self well; has good verbal facility and is usually well understood.
6. Adapts readily to new situations; is flexible in thought and action and does not seem disturbed when the normal routine is changed.
7. Seems to enjoy being around other people; is sociable and prefers not to be alone.
8. Tends to dominate others when they are around; generally directs the activity in which he/she is involved.
9. Participates in most social activities connected with the school; counted on to be there if anyone is.
10. Excels in athletic activities; is well coordinated and enjoys all sorts of athletic games.

COMPLETE CORRELATION MATRIX

	Teacher-Rated Motivation	Teacher-Rated Conduct	Language Arts	Mathematics	Teacher-Rated Achievement	Learning
Teacher-Rated Int Ability	.39**	.24**	.58**	.48**	.64**	.75**
Teacher-Rated Motivation		.72**	.66**	.40**	.61**	.40**
Teacher-Rated Conduct			.51**	.35**	.50**	.24**
Language Arts				.39**	.82**	.60**
Mathematics					.83**	.47**
Teacher-Rated Achievement						.64**
Learning						
Motivation						
Creativity						
Leadership						
Physical Appearance						
Behavioral Conduct						
Global Self-Worth						
Scholastic Competence						
Social Acceptance						
Athletic Competence						
CCAT Verbal						
CCAT Nonverbal						
IQ						
Gates-Vocabulary						
Gates-Comprehension						

	Motivation	Creativity	Leadership	Physical Appearance	Behavioral Conduct	Global Self- Worth
Teacher-Rated Int Ability	.56**	.57**	.23**	.09	.07	.14
Teacher-Rated Motivation	.60**	.34**	.56**	.06	.36**	.23**
Teacher-Rated Conduct	.39**	.15*	.40**	.00	.45**	.15*
Language Arts	.66**	.52**	.48**	.12	.16*	.20**
Mathematics	.40**	.31**	.28**	.08	.18*	.13
Teacher-Rated Achievement	.64**	.49**	.44**	.11	.20*	.21*
Learning	.74**	.75**	.36**	.10	.07	.18*
Motivation		.67**	.47**	.16*	.22**	.20*
Creativity			.46**	.07	.02	.12
Leadership				.12	.16*	.36**
Physical Appearance					.13	.43**
Behavioral Conduct						.28**
Global Self-Worth						
Scholastic Competence						
Social Acceptance						
Athletic Competence						
CCAT Verbal						
CCAT Nonverbal						
IQ						
Gates-Vocabulary						
Gates-Comprehension						

	Scholastic Competence	Social Acceptance	Athletic Competence	CCAT Verbal	CCAT Nonverbal	IQ
Teacher-Rated Int Ability	.23**	.01	.11	.21*	.02	.15
Teacher-Rated Motivation	.31**	.17*	.11	.08	.05	.08
Teacher-Rated Conduct	.17*	.10	.22**	.00	.01	.06
Language Arts	.20*	.17*	.12	.21*	.03	.09
Mathematics	.29**	.02	.06	.01	.13	.16
Teacher-Rated Achievement	.29**	.08	.09	.12	.09	.12
Learning	.30**	.01	.08	.21*	.12	.14
Motivation	.34**	.04	.15	.16	.13	.07
Creativity	.22**	.07	.04	.17	.07	.00
Leadership	.28**	.44**	.11	.02	.06	.01
Physical Appearance	.22**	.21*	.20*	.05	.12	.08
Behavioral Conduct	.35**	.09	.05	.09	.04	.03
Global Self-Worth	.40**	.56**	.24**	.01	.01	.06
Scholastic Competence		.15*	.18*	.12	.12	.26**
Social Acceptance			.42**	.00	.03	.02
Athletic Competence				.01	.02	.00
CCAT Verbal					.16	.40**
CCAT Nonverbal						.26*
IQ						
Gates-Vocabulary						
Gates-Comprehension						

	Gates- Vocabulary	Gates- Comprehension	O.B.E. Math.
Teacher-Rated Int Ability	.29**	.30**	.26**
Teacher-Rated Motivation	.01	.07	.13
Teacher-Rated Conduct	.00	.03	.14
Language Arts	.16	.23**	.15*
Mathematics	.07	.15	.48**
Teacher-Rated Achievement	.12	.24**	.39**
Learning	.21*	.30**	.27**
Motivation	.20*	.32**	.20*
Creativity	.15	.28**	.15
Leadership	.10	.05	.06
Physical Appearance	.08	.09	.08
Behavioral Conduct	.02	.06	.12
Global Self-Worth	.05	.02	.02
Scholastic Competence	.02	.05	.26**
Social Acceptance	.06	.10	.17*
Athletic Competence	.26**	.21*	.06
CCAT Verbal	.36**	.24**	.02
CCAT Nonverbal	.21	.03	.34**
IQ	.31**	.15	.24**
Gates-Vocabulary		.55**	.04
Gates-Comprehension			.21*

PREDICTING ACHIEVEMENT

1. Predictor Variables	B	Beta	Part Cor	Partial
Leadership	.1929	.1913	.1642	.2241
Learning	.4320	.4362	.2563	.3347
Creativity	-.1116	-.1107	-.0702	-.0979
Motivation	.2949	.2951	.1802	.2447
Constant	.0256			
Multiple R	.7002			
R Square	.4902			

	DF	SS	MS	F	P
Regression	4	104.00	26.00	54.09	.0000
Residual	225	108.14	.48		

2. Predictor Variables	B	Beta	Part Cor	Partial
Athletic Competence	-.0451	-.2235	-.1938	-.2063
Behavioral Conduct	.0073	.0276	.0249	.0271
Physical Appearance	.0138	.0563	.0497	.0540
Scholastic Competence	.0860	.3049	.2642	.2762
Social Acceptance	.0340	.1601	.1167	.1260
Global Self-Worth	.0068	.0235	.0158	.0172
Constant	-1.9232			
Multiple R	.3941			
R Square	.1553			

	DF	SS	MS	F	P
Regression	6	29.10	4.85	6.25	.0000
Residual	204	158.28	.78		

3. Predictor Variables	B	Beta	Part Cor	Partial
Teacher-Rated Intellectual Ability	.5410	.5834	.5371	.5680
O.B.E. Math	.2053	.2206	.1952	.2432
CCAT Verbal	.0120	.0954	.0825	.1054
CCAT Nonverbal	.0045	.0487	.0430	.0552
Gates-Comprehension	-.1303	-.1208	-.1033	-.1316
IQ	-.0271	-.1644	-.1437	-.1816
Gates-Vocabulary	.0412	.0384	.0307	.0395
Constant	1.6367			

Multiple R .6280
R Square .3944

	DF	SS	MS	F	P
Regression	7	26.18	3.74	6.33	.0000
Residual	68	40.21	.59		

4. Predictor Variables	B	Beta	Part Cor	Partial
O. B. E. Math	.3441	.3742	.3552	.3618
Gates-Vocabulary	.0958	.0859	.0726	.0791
IQ	-.0013	-.0091	-.0084	-.0092
Gates-Comprehension	.0670	.0624	.0541	.0590
Constant	.2183			

Multiple R .4028
R Square .1623

	DF	SS	MS	F	P
Regression	4	19.83	4.96	6.43	.0001
Residual	133	102.38	.77		

5. Predictor Variables	B	Beta	Part Cor	Partial
Learning	.2161	.2542	.0918	.1790
Teacher-Rated	.2621	.2607	.1098	.2126
Motivation				
O.B.E. Math	.2139	.2749	.2241	.4060
Athletic Competence	-.0048	-.0233	-.0189	-.0375
IQ	.0247	.1542	.1261	.2426
Social Acceptance	.0331	.1306	.0893	.1743
Physical Appearance	.0064	.0264	.0189	.0375
Gates-Comprehension	-.0465	-.0495	-.0364	-.0721
Behavioral Conduct	-.0090	-.0338	-.0205	-.0406
Gates-Vocabulary	-.0736	-.0700	-.0481	-.0950
Leadership	-.0472	-.0521	-.0320	-.0632
Scholastic Competence	-.0240	-.0755	-.0424	-.0838
Teacher-Rated	.1464	.1670	.0966	.1881
Intellectual Ability				
Teacher-Rated	.0354	.0378	.0204	.0404
Conduct				
Global Self-Worth	.0245	.0886	.0476	.0838
Creativity	-.0674	-.0756	-.0379	-.0749
Motivation	.2216	.2276	.0783	.1533
Constant	-3.7015			
Multiple R	.8635			
R Square	.7456			
	DF	SS	MS	F
Regression	17	37.31	2.19	7.78
Residual	45	12.73	.28	.0000

END

17.02.90

FIN