AN ASSESSMENT OF IDENTIFICATION PROCEDURES USED IN THE SELECTION OF GIFTED STUDENTS

BY

JAMES MEIKLE

Submitted in partial fulfillment of the
requirements for the degree of
Master of Arts (Education)

Faculty of Education
Saint Mary's University
Halifax, Nova Scotia
Canada

September 1991

ISBN 0-315-74439-1

SAINT MARY'S UNIVERSITY

FACULTY OF EDUCATION

The undersigned certify that they have read, and recommend to the Faculty of Education for acceptance, a thesis entitled AN ASSESSMENT OF IDENTIFICATION PROCEDURES USED IN SELECTION OF GIFTED STUDENTS submitted by JAMES MEIKLE in partial fulfillment of the degree of MASTER OF ARTS (EDUCATION).

Jerome K. Turner

(Supervisor)

Roger H. Davis

(Supervisor and Dean of Education)

Date Dec. 13, 1991

ABSTRACT

AN ASSESSMENT OF IDENTIFICATION PROCEDURES USED IN SELECTION OF GIFTED STUDENTS

As a result of recommendations made by teaching personnel of a program for gifted learners from Pictou District School Board, Nova Scotia, a study was initiated to investigate the identification procedures being used to classify these students. More specifically, a repeated-measures design was utilized to provide increasing sequential information over four distinct phases to discern what information was being used by school guidance counsellors to identify gifted individuals; a further question related to the impact of increased information on decision-making was explored. The students participating in the study were one hundred seventy-five, thirteen and fourteen year old boys and girls enrolled in all grade eight classrooms located in nine schools of the Pictou District School Board. Each school guidance counsellor was asked to rank, in terms of priority, the top 20% of their grade eight classes for enrichment programming; this was achieved through four successive phases of decision-making in which the counsellors encountered new, identifying information related to student ability. Phase 1 consisted of ranking students based solely on their grade point average (GPA); Phase 2 consisted of ranking students based on their GPA, Canadian Tests of Basic Skills (CTBS) and Canadian Cognitive Abilities Test (CCAT) results; Phase 3 consisted of ranking students based on their GPA, CTBS, CCAT results and the Otis-Lennon School Ability Test

(OLSAT) results; and Phase 4 consisted of ranking students based on their GPA, CTBS, CCAT, OLSAT results and Torrance Test of Thinking (TTCT) results. These data were then submitted to correlational analyses and individual comparisons were made where appropriate. The findings provided some support for the expectation that additional, diverse information would change ratings made on students; the post-study questionnaire provided explanations for the present findings which resulted in recommended changes to the previous screening procedures.

ACKNOWLEDGMENTS

I would like to acknowledge the support of Dr. Jerome Turner and Dr. Roger Barnsley, whose significant time and efforts were helpful in the preparation of this document.

Margaret MacLean's skill and patience in the preparation of the document for print was first-rate and sincerely appreciated.

The cooperation of the Pictou District School Board, the Program Committee of the Board, Principals and Guidance Counsellors enabled this study to be completed and for that I offer my sincere thanks.

The support and encouragement I received from Superintendent of Personnel, Dr. Jim Gunn, Superintendent of Program, Sam MacDougall and Student Services Coordinator, Ken Maclean was substantial and much appreciated.

Finally, I would like to thank my family and friends for their support and understanding of the time and commitment that I chose to give to the completion of this study.

TABLE OF CONTENTS

TABLES

APPENDICES

INTRODUCTION

The impetus for this study emanated from ongoing reports received by the Pictou District School Board with regard to one of their programs being provided during the summer period. This board has been sponsoring a "summer academy" for designated gifted students since 1983 at Saint Francis Xavier University, Nova Scotia. Based on "feedback reviews", recommendations have been made by Saint Francis Xavier personnel in an effort to improve the program being offered to these students. A recurring and repeated theme related to the delivery service was the identification of the students; there was concern expressed by Saint Francis Xavier staff that some of the designated students might have been mistakenly identified as gifted or that the board's identification procedure may have overlooked other students who would benefit from the summer program. Appropriate identification of students was considered to be a key factor in order that the goals and objectives of gifted programming could be achieved.

In an effort to overcome these concerns, it became evident that the identification procedure had to be revised and improved. An initial observation indicated that Guidance Counsellors relied on grade point average and standardized test results (Canadian Tests of Basic Skills and Canadian Cognitive Abilities Test) in the identification process. There was also evidence that they were using subjective data (teacher recommendations, knowledge of the students extra-curricular and community activities, student personality and environmental factors) to make their decisions.

These concerns provided the motivation for conducting this investigation of student identification procedures for enrichment programming. The need for such a study is also warranted from Pendarvis' (1981) claim that gifted education is an area of "benign neglect", although it has been receiving considerable

attention over the last decade. Although studied from many points of view and having a vast array of issues, there has been agreement by most researchers (Sternberg and Davidson,1986) that the definition of giftedness and how it is measured remain the most contentious issues.

In order to determine how students are identified for enrichment programming, the study focused on how guidance counsellors made these decisions. Although it was expected that guidance counsellors would use subjective information as part of their decision making process, no attempt was made to standardize or influence the type or quality of subjective data that they might use; however, based on the data collected, inferences were made on whether or not the use of subjective data was a factor in the identification of students for enrichment programming.

Secondly, the study attempted to determine which information counsellors felt provided useful data upon which to base their decisions on student identification. To accomplish this goal, guidance counsellors were provided sequential data and asked to rank students in priority for enrichment programming after three separate but distinct phases of the study. The priority ranking of students was then examined to see if the guidance counsellors changed their rankings after having received additional objective data.

In order to determine whether individual school guidance counsellors would rank students differently than a group of counsellors, data were collected at both the school level and at two sessions where a group of counsellors were asked to rank students collectively from all participating schools.

Following the data collection, guidance counsellors were individually interviewed in an effort to gain more insight into the nature of the results.

Chapter 1

REVIEW OF LITERATURE

The roots of many current concepts and issues related to talented children can be found in the history of gifted education. This literature reveals that attention has varied over time and place according to the philosophy, values and needs of society, but little has been written specifically about the historical ascendancy of the gifted. Facts must be inferred from what is known about both the historical development of education in general and the lives of these gifted individuals during particular eras. In spite of the lack of historical perspective, it is appropriate to be concerned with its evolution for several reasons. It is only by developing an awareness of how gifted education has progressed and what factors have influenced its growth that the entire subject of education for the gifted and its current directions can be viewed from a more accurate perspective. Certainly, the steps taken in present programs for the gifted should at the very least benefit from decisions in the past. Additionally, such background information should serve as a constant reminder that the interest in the gifted is not a recent phenomenon: the search for a greater understanding of the dynamics and individual differences within the cognitive system requires further scrutiny.

The remainder of this chapter will explore the present status of education for the gifted as it evolved initially from the philosophical reasoning of Plato to the merging and modification by scientific inquiry. As the empirical method began to proliferate, the definition and meaning of giftedness became more global and encompassing. It was further supported by the impetus of the psychometric movement to the extent that any definition, evaluation and

measurement of giftedness today are no longer viewed separately but rather as interdependent.

A BRIEF HISTORICAL PERSPECTIVE OF THE GIFTED MOVEMENT

Philosophical Bases

One of the early philosophers who considered the question of intellectual growth was Plato. In a translation of Plato's Discourse (Nettleship, 1966) the human mind was envisioned as growing from a state of intellectual darkness into varying stages of intellectual illumination or knowledge. Plato theorized that there were four such stages and that all minds pass through them sequentially. He further speculated that individuals progress to different distances, and attain varying heights within these stages. It was Plato's belief that a more perfect social order could be achieved if the people selected to govern were chosen from among the most intellectually capable of available individuals. Throughout many succeeding ages, this Platonic philosophy was never to be fully realized, although surprisingly, there were some very early attempts made at measuring individual differences. Around 2200 B.C., for example, the Chinese had devised a form of civil service examination to scrutinize individuals seeking various government positions. For the most part, however, training, position, and power were awarded to individuals as a consequence of their class, or as the luck of birth, rather than as a result of their abilities or potential.

Within this early historical phase, ancient philosophers attempted to explain the existence and uniqueness of man in rationalistic terms and seemed less concerned with implementation of their philosophic beliefs. It could be

postulated from Plato's writings that the gifted individual would be one who passes through the stages of knowledge more quickly than others, reaches a higher level of understanding within each stage than most and is able to progress through all stages, attaining what Plato calls "total illumination of understanding". At this period in history, no more precise definition was required.

When the importance of scientific inquiry into natural phenomenon was expanded, scientific methodology was applied to human behaviors and human intelligence. As the age of scientific inquiry into the social sciences progressed, philosophical questioning of man's intellect and abilities would no longer suffice; consequently, there was a movement toward defining, in terms of measurable and observable behaviors, what it was that philosophers had so eloquently described as man's uniqueness. As a result of Darwinian theory (1859), there came a desire to obtain more conclusive evidence concerning the nature of heredity. The combination of interest in intellectual measurement and heredity was also mirrored in the work of scholars in various related fields including education and the social sciences. A brief sketch of these concepts follows in the next section.

Origins of Giftedness

Early researchers and theorists on the nature of intelligence agreed that intelligence was a fixed characteristic genetically determined at conception; however, following World War I, the ideals of egalitarianism and self-determination came into conflict with the idea of predetermined limits. Several investigators began pointing to the environment as the principal influence on intellectual development. The highly explosive nature-nurture

(heredity-environment) controversy began and remains as a volatile issue today.

The Nature-Nurture Controversy

Hunt (1961) traced the roots of the nature viewpoint to Charles Darwin's theory of natural selection. Published in 1859, On the Origin of Species presented the thesis of evolution as the survival of adaptive inherited characteristics. Ten years later, influenced by the concept of evolution, Darwin's famous cousin, Sir Francis Galton, published a study of distinguished men of Great Britain and attributed their "genius" to heredity. Galton later developed measures to assess inherited individual differences. These measures consisted of simple sensory, motor and memory tasks, which later research did not support as predictors of academic achievement. Convinced of the hereditary nature of intelligence, Galton founded the eugenics movement. This movement sought to improve society through such means as curtailing reproduction of "inferior" specimens - for example, the mentally handicapped.

The next significant event to further the nature viewpoint occurred in France in 1905, when Binet and Simon developed a test that differentiated between low and high achievers in school (Hunt,1961). In 1904, the French minister of public education had appointed Binet to a commission whose task was to devise a method of identifying Parisian school children who were likely to fail and hence were in need of special services. Binet and Simon based their test on a conceptualization of intelligence more complex than Galton's, involving judgement, reasoning, memory, imagination, comprehension and aesthetic appreciation. Although Binet argued against intelligence as fixed and suggested that the capacity to learn can improve with instruction, the influence of two other men combined to overshadow Binet's cautions against

hereditary interpretations of test performance. First, Cattell, who brought to North America in the late 1800's the idea of using tests in schools, was a student of Galton and an ardent supporter of the hereditary perspective. Second, Goddard, the person who first brought the Binet-Simon test to North America, also promoted the hereditary viewpoint (Hunt, 1961). Goddard translated the Binet-Simon test for use in his investigation of the mentally retarded and authored the well known study of the Kallikak family, often cited in support of eugenics.

The environmentalist faction reacted to the nature argument by positing that differences in intelligence result entirely from differences in experience. The strict environmentalist position has been criticized for raising false hopes about the ability of parents and educators to make mentally retarded children intellectually normal and to make intellectually normal children gifted (Zigler, 1970). That genetic inheritance contributes to individual differences in intelligence cannot be denied; the issue today concerns the relative contributions of heredity and environment.

Evidence used to support the environmentalist position includes reinterpretations of data from studies of related individuals, changes in IQ over time and studies of the effects of differing environments.

Rather than an either/or proposition, today, the nature/nurture controversy is being addressed as behavior caused by the interaction of heredity and environment. Furthermore, several theorists have described models that attempt to explain how heredity and environment interact to produce an individual's current level of intellectual functioning. Jensen (1969) suggested a threshold hypothesis in which a certain minimum quality of environment is required for normal intellectual development. Above the threshold, variations in environment do not lead to major differences in intelligence. Thus, removing

children from extremely deprived environments (below the minimum quality for normal development), such as those described in studies of early institutions and orphanages, would result in substantial IQ gains. However, moving children from a lower- to a middle-income environment would not, according to Jensen, result in dramatic increases in intellectual ability. The threshold hypothesis suggests that heredity sets limits for intellectual potential, while the quality of environment determines the extent to which that potential is achieved.

Any discussion of the origins of behavior and other abilities assumes that they exist as measurable human characteristics that manifest themselves to a greater or lesser degree among different individuals. Yet, despite the volumes of philosophical, theoretical and empirical literature on intelligence dating from the beginnings of recorded history, no consensus definition exists. In fact some writers argue that intelligence is only a hypothetical construct invited by early theorists to explain and predict individual differences in behavior. These theorists have generally described intelligence in three ways: (a) the capacity to learn, (b) the totality of knowledge acquired and (c) the ability to adapt to new situations in the environment (Robinson and Robinson, 1976). More recent conceptualizations of intelligence can be organized for purposes of discussion into factor and information-processing theories.

THE NATURE OF INTELLIGENCE

Factor Theories

Factor theories attempt to describe intelligence in terms of its structure- that is, as being composed of one or more independent traits. Recent factor

theories were developed from data using the statistical process of factor analysis. Factor analytic procedures help researchers identify the traits or abilities (factors) that make up the construct being investigated. The general procedure permits the researcher to determine the number and nature of variables underlying a set of measures, such as intelligence subtests (measures may also be the individual items of a single test or may be several different tests). When different subtests correlate with one factor but not with any other, the subtests that correlate most highly with each factor are examined to determine what the factor represents. Factor analysis has been used by investigators attempting to discover whether intelligence can be accounted for by a single, general factor or by a number of specific, independent factors.

The English psychologist Charles Spearman is credited with introducing factor analysis into psychology. During the first quarter of this century, he proposed a two-factor theory of intelligence (Spearman, 1927). According to Spearman, a single general factor (g) underlies all intellectual operations, from verbal analogies to spatial relationships. He suggested that all intellectual tests or activities have the g-factor in common, with the remaining elements of the activities composed of specific (s) factors independent of the g-factor. Positive correlations among many diverse tests of mental ability were cited as evidence supporting a g-factor. Spearman described this factor as the ability to perceive, manipulate and use relations. Opposing Spearman's view, Thorndike (1925) argued that intelligence cannot be accounted for by a single general factor but instead is a function of many highly specific and independent abilities. During the next decade, Thurstone (1938) conducted a series of factor-analytic studies that led to the identification of seven factors or "primary abilities", underlying intelligence tests: verbal comprehension, word fluency, number (speed and accuracy of

arithmetic computation), spatial relations, associative memory, perception and reasoning.

Guilford (1959, 1973) extended Thorndike's multifactor theory and developed a unique three dimensional model of intelligence based on multifactor-analytic procedures. Guilford's theory represents a comprehensive effort to incorporate the abilities underlying all cognitive behaviors. The model goes beyond factors derivable from existing tests by projecting previously unidentified factors; the structure-of-intellect (SI) model posits one hundred and twenty unique abilities that compose the intellect. These discrete abilities are defined in terms of three parameters: operations, products and contents. Combining the five types of operations, six types of products and four types of contents yields the one hundred and twenty abilities. When the model was first developed, almost forty abilities had been discovered through factor analysis. By 1973, nearly one hundred abilities had been demonstrated by additional tests.

Based upon analyses of methodological procedures used for factor derivation, Guilford's assumptions about the independence of the factors has been criticized. Eysenck concluded that Guilford's "attempt to construct a structure-of-intellect model has not been successful and cannot at the moment dethrone the paradigm originally set up by Spearman and Thurstone" (Eysenck, 1979). Eysenck reconciled the disparate views about the nature of int. "igence by suggesting a hierarchial model. According to this model, there exists a general intelligence (g) that underlies a number of correlated primary abilities, such as those identified by Thurstone. Eysenck gives Guilford credit for adding important new primary factors within the hierarchical model.

Three implications of major import for gifted education stem from factor theories of intelligence. The first implication concerns the issue of single-

factor versus multifactor theories of intelligence; the other two stem primarily from Guilford's model. The decision to accept a single or multifactor theory has an impact on the definition of giftedness and hence on what type of individual is subsequently identified as gifted. Acceptance of a single-factor approach promotes the idea that giftedness is synonymous with high general intelligence as measured by a single IQ score. In contrast, adherence to a multifactor model of intelligence permits a definition of giftedness that includes individuals who excel in one or more of several different ability areas (for example, mathematics, the arts or creativity). A multifactor theory is also consistent with the notion that a gifted individual may demonstrate superiority in some areas but perform at an average or below-average level in others.

Guilford's structure-of-intellect (SOI) model already has had a profound influence on the field of gifted education in two ways. First, although Guilford was not the first to introduce the concepts of divergent and convergent production, his distinction between these two types of operations within the SOI model has generated tremendous interest in theory, research and practice relative to creative thinking. Second, Guilford's model provided the basis for development of SOI Learning Abilities Test (Meeker, 1977), which some educators describe as the most comprehensive tests of abilities for identifying gifted individuals; most other intelligence tests fail to assess creative and other nonconvergent abilities. Mary Meeker's Structure of Intellect Institute in California provides materials and training to help practitioners translate specific structure-of-intellect abilities into curriculum and instruction strategies.

Guilford's model will continue to be influential. It has potential to provide methods for identifying and working with children who possess talent in

specific areas. For example, measures of abilities in figural content may ultimately aid in the identification of children gifted in the visual and performing arts. Similarly, tests of abilities in behavioral content may help educators discover socially gifted children.

Another recent multifactor model receiving considerable interest is that of psychologist, Howard Gardner (1982, 1983). Gardner recently proposed a multifactor theory that human intelligence consists of seven semiautonomous domains: (a)linguistic, (b)musical, (c)mathematical-logical, (d)visual-spatial, (e)bodily-kinesthetic, (f)social-interpersonal and (g)intrapersonal. Gardner's theory is unique in two ways. First, drawing on data from individuals who sustained injury to different parts of the brain, Gardner posits that the seven types of competence have independent existences in the neural system - that is, each has its own neurological organization. Second, Gardner recognizes abilities not generally included as areas of cognitive competence: music, fine and gross motor skills and the two "personal" abilities. Interpersonal intelligence refers to the ability to understand and interact with others. Intrapersonal intelligence is defined as one's ability to know oneself and to have a developed sense of identity.

Gardner's theory has implications for the definition, identification and education of the gifted and talented. The theory supports a broad definition of giftedness that includes individuals who are socially, personally and kinesthetically gifted. If accepted, this definition would require that the assessment process, including the use of experiential and observational methods, be viewed anew. Gardner also suggests that areas of weakness can be improved if identified early. Educators could facilitate the development of strengths by broadening the definition of schooling to include the community.

Information-Processing Theories

Information-processing theories attempt to define precisely the processes or operations individuals employ in solving particular problems. These operations include sensory processing, encoding and decoding strategies and memory processing. Information-processing theories differ from factor theories in that the former analyze the sequence of steps individuals use to perform different tasks, whereas factor theories seek to determine the independent variables that make up individuals' performance on the same type of task (for instance, an intelligence test).

One approach to information processing is computer simulation (Newell and Simon, 1972). Computer simulation involves (a) careful analysis of subjects' descriptions of their thought processes and behaviors while solving a problem, (b) specifying these behaviors as a computer program and (c) testing the program on a computer to determine the closeness of the match. The assumption is that a close match between the subjects' descriptions of steps in successful problem solution and the computer's steps in reaching the same solution indicates the accuracy of the subjects' descriptions.

Another approach that has been applied directly to gifted individuals (mainly college-age adults) is Sternberg's (1977, 1981) componential theory of human intelligence. Sternberg analyzed human problem solving as involving elementary information processes or components, that perform five functions: metacomponents and performance, acquisition, retention and transfer components. According to Sternberg's (1981) theory of intellectual giftedness, giftedness can be understood in terms of superior functioning of, activation of and feedback from information-processing components and may be trainable.

Sternberg's componential theory of information processing has two major

implications for the education of gifted individuals. First, componential theory provides a different way of perceiving or defining intellectual giftedness: It defines giftedness as superior access to and implementation of information-processing components (especially in the use of feedback to alter other components). Second, Sternberg suggests that success in training individuals in access and implementation should make it possible to train individuals to become more intelligent, if not truly gifted (Sternberg, 1981). Moreover, according to Sternberg, some evidence already exists that individuals can be trained in components. Much of Sternberg's work was conducted with adults and additional research with school-age children is required. Alexander (1984) has described a training program for gifted students based on Sternberg's componential theory. Subjects (including fourth grade children) are taught to apply the components to nonlinguistic analogies, then to linguistic analogies developed in sentences, paragraphs and stories; and finally to performance in content areas.

A recent refinement of Sternberg's information-processing approach (Davidson and Sternberg, 1984) posited that one major way in which the intellectually gifted differ from the intellectually average is in insight ability, which involves three separate but related processes. The first, selective encoding, refers to the ability to discriminate between relevant and irrelevant information, as in selecting appropriate clues to solve a mystery. A second process is selective combination or synthesizing pieces of information into a unified whole. Finally, selective comparison is the ability to relate new information to previously acquired information, as in using past experience to solve a current problem. From a series of studies on fourth- through sixth-grade children, Davidson and Sternberg (1984) reported finding that (a) performance is consistent with their information-processing theory of insight

and (b) certain aspects of insight performance can be trained in both gifted and intellectually average children.

Summary of Theories About Intelligence

In sum, there are several approaches to defining intelligence, each suggesting a different conceptualization of giftedness. Single-factor theories (for example, Sperman's g-factor theory) are compatible with a definition of gifted individuals as possessing a high level of intelligence that underlies performance in a variety of areas. Multifactor models, such as Guilford's structure-of-intellect model, suggest that individuals may be gifted in some specific areas, such as mathematics, creativity or the arts and not necessarily gifted in other areas. Multifactor theories are more compatible with current definitions of giftedness. Information-processing approaches, represented by Sternberg's componential theory of giftedness, hypothesize that intelligence can be improved through the acquisition and efficient implementation of a set of problem-solving steps. According to this view, teachers will ultimately be able to "make" children gifted.

In summary, it can be noted that the focus of the human mind progressed from the philosophical analysis to scientific inquiry into individual differences in intelligence. Initially, this scientific investigation centered around intelligence as a fixed quantity that remained unchanged by outside forces. In time, however, many researchers came to view intellectual growth as greatly dependent on environmental stimulation and the attempts one made to adapt to the environment. Those currently involved in gifted education no longer feel it is sufficient to talk about the stimulation of the human mind; consequently, gifted education has now evolved to the point at which it is

necessary to systematically plan and organize programs within our educational institutions that will adequately provide appropriate and intellectually stimulating experiences. In order to design appropriate programs and student identification procedures for those programs, the definition of "giftededness" must be fully explored and consistently applied by those responsible for gifted programming.

APPROACHING A DEFINITION OF "GIFTEDNESS"

As previously reviewed in the history of gifted education, definitions of giftedness in the early and mid 1900's focused on IQ or intellectual ability as the main indicator of giftedness; consequently, the gifted individual was viewed as one possessing a high level of intelligence, which, in turn was seen as a fixed and measurable quantity. Correspondingly, the gifted could be adequately defined as a person with an IQ at or above an established point. Although this may be conceived by some as the narrowest interpretation of giftedness, it is one that can still be found in operation in many schools today (Rellas, 1969).

During the period when IQ was conceptualized as a global ability measured by psychometric instruments, there were attempts by educators to broaden this narrow conceptualization (Archambault, 1984; and, Aylesworth, 1984). What was added to some definitions of giftedness was reference to achievement or performance as well as IQ. Witty (1951) referred to this achievement factor by describing a potentially gifted child as any child whose performance in a worthwhile type of human endeavor was repeatedly or consistently remarkable over a period of time.

In addition, some definitions attempted to demonstrate that the gifted

child was not only cognitively but socially superior as well, leading to the conclusion that the "gifted" is one who has a higher order of ability to handle ideas, to produce creativity and to demonstrate social leadership (NSSE, 1958; Austin, 1981; and, Beckwith, 1982).

The difficulty with these broad and/or general definitions was the inability to quantify or explain in practice such phrases as "remarkable performance", "facility with ideas", or "creative production". Furthermore, the resounding impact of Terman's (1926) research and its emphasis on IQ continued to exert influence on gifted education.

In the late 1950's and 1960's, additional changes occurred in the notion of giftedness. While IQ continued to be an essential element in defining giftedness, other dimensions in which individuals could display their giftedness were added (Crockenberg, 1972; and, Harvey, 1982). In 1957, DeHaan and Havighurst made reference in their definition to such areas as leadership ability, artistic talent, mechanical and physical skills. What was noteworthy about definitions arising in this period was their acceptance of less traditional indicators of giftedness (i.e. music, graphic arts, creative writing, dramatics) which could be demonstrated and evaluated within the school setting and their emphasis on the importance of adequate school programs for gifted learners. Lucito (1963) indicated, that the gifted are those students whose potential intellectual powers are at such a high ideational level in both productive and evaluative thinking that it can be reasonably assumed they could be the future problem solvers, innovators and evaluators of the culture, if adequate educational experiences are provided.

The 1970's proved to be another turning point in gifted education primarily because of the revealing Marland Report (1972). In his report to Congress, Marland, the Commissioner of Education, painted a bleak picture of gifted

programming in the United States. On the basis of Marland's intense investigations, the federal government produced guidelines for state gifted program development. These guidelines described gifted individuals as those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

It was felt that children capable of high performance should include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination: (1) general intellectual ability, (2) specific academic aptitude, (3) creative or productive thinking, (4) leadership ability, (5) visual and performing arts, and (6) psychomotor ability.

Renzuili (1978), in an examination of this report points out four major difficulties inherent in its argument: (1) it fails to include motivational factors, (2) it attempts to separate the six aptitude areas by presenting six categories that represent process abilities and two that focus on performance areas; it is Renzulli's contention that process abilities do not exist apart from the performance areas, (3) it is advocated by many people in theory, but the use of intelligence or aptitude test results predominate in practice, (4) it ignores task commitment, which research has shown to be directly related to giftedness.

To overcome these difficulties, Renzulli defines giftedness as the interaction of above average ability, task commitment and creativity. This giftedness is then demonstrated, according to Renzulli, in general and specific performance areas such as math, art, science and music.

Through an historical review of the development of testing in general and the emergence of the "gifted movement" in particular, it may be concluded that in order to provide educational programs for these individuals, the identification procedures must use valid and reliable testing instruments which will include intelligence measures in addition to other various screening devices which might prove helpful and worthwhile. In this context, the following section presents the current practices as well as some of the limitations of these procedures.

IDENTIFICATION OF THE GIFTED LEARNER

Within this section, several aspects of the identification process will be outlined and analyzed: these include strategies and models of identification, materials and sources of information employed within these strategies and current controversies and general questions about the identification process.

The information most frequently accumulated and analyzed to make decisions about who will participate in gifted programs falls into two general categories: objective and subjective data (Beckwith, 1982; Evans and Marken, 1982; Archambault, 1984; Aylesworth, 1984). Objective data include information gleaned from a variety of tests that can be quantified and are frequently standardized or norm-referenced. They are often employed to distinguish the gifted from the non-gifted and include group and individual intelligence tests, achievement tests, aptitude tests and academic grade point averages. Subjective measures, on the other hand, include behavioral checklists, recommendations and referrals that are characterized by personal judgments about an individual's performance and capabilities. These objective and subjective categories of information can be employed singly or in combination

to produce various strategies or approaches to the identification process.

Using objective information, the operational definition of "giftedness" is often stated in terms of which score, percentage, ranking or other similarly quantifiable information is specifically utilized. The most commonly used instruments found in this category are intelligence tests which can be classified as either individually or group-administered measures. The most widely used and most respected individually administered intelligence tests are the "Stanford-Binet", the "Wechsler Preschool and Primary Intelligence Scale" (WPPSI), the "Wechsler Intelligence Scale for Children-Revised" (WISC-R) and the "Wechsler Adult Intelligence Scale" (WAIS). Within recent years, there has been much controversy over the reliance on these tests for placement of students in special programs (Salvia and Ysseldyke, 1981). Much of this concern has focused on the behaviors measured and on the interpretation and the suitability of these instruments in the identification process.

Although the original Binet scale was developed for assessing learning problems, the revision prepared by Terman in 1916 for use in the United States was designed to evaluate the learning potential (IQ) of average, below-average and above-average subjects. Terman was particularly interested in giftedness and contributed greatly to its study (Genetic Studies of Genius, Volumes 1-5). Perhaps this interest confirmed Terman's choice of test items that tended to emphasize verbal rather than perceptual-performance capabilities.

Although the Stanford-Binet has been criticized for its heavy weighting of verbal skills (Sattler, 1982), this characteristic of the test probability improves its applicability for the identification of superior academic ability. Terman and Merrill (1973) contend that the eight types of tasks most sensitive to intelligence (operationalized as problem-solving ability) are vocabulary, abstract words, sentence building, similarities and differences,

analogies, sentence completion, verbal absurdities and reasoning. These skills, sampled on the Stanford-Binet, relate to the cognitive import of scholastic learning (including its contemplative aspects) and are therefore especially suited to the identification of superior students (Miller, 1969).

The Stanford-Binet provides a continuous scale of items ranging from the 2-0 age level to the Superior Adult III level. The nature of tasks sampled varies from level to level. At the younger age levels, the test samples behaviors related to visual-motor skills, spatial relations, general knowledge, picture vocabulary, recall and classification. Near the test ceiling, behaviors sampled include verbal fluency, abstract reasoning, expressive vocabulary, arithmetical reasoning and general knowledge. The test is scored by crediting items between the lowest basal and the highest ceiling.

In 1936, David Wechsler developed a test designed to measure the intelligence of adults. This Wechsler-Bellevue Intelligence Scale was composed of separate subtests intended to sample the many manifestations of intelligence.

Wechsler expanded his original scale downward to develop a test for measuring the intelligence of children called the Wechsler Intelligence Scale for Children (WISC) (Wechsler, 1949). The WISC was revised slightly and renormed in 1974 to account for the general upward trend in IQ scores since the original standardization of the WISC in 1949 (Pedriana and Bracken, 1982) and was called the Wechsler Intelligence Scale For Children - Revised (WISC-R). In 1955, the Wechsler-Bellevue was revised and reissued as the Wechsler Adult Intelligence Scale (WAIS) (Wechsler, 1955) and in 1981 this test was again revised and renormed to account for the same population phenomenon that necessitated renorming of the WISC. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wechsler, 1967) was developed in 1967 for use with

children from four to six and one half years of age and includes eight subtests similar to those on the WISC-R.

All of the Wechsler scales sample two broad domains of cognitive functioning, the verbal domain and the performance domain. A full-scale IQ score is derived by computing the sum of the scaled scores on both the verbal and performance batteries. Therefore, the full-scale IQ is not so much an averaging of verbal and performance IQs as an inclusion of both domains to provide a larger sample of items for evaluating "global intelligence".

This notion of intelligence as a global phenomenon (Wechsler, 1974) makes the Wechsler scales less suitable than the Stanford-Binet for assessing intellectual giftedness. Because of the importance given to performance items (e.g., spatial relations, visual-motor skills, visual sequencing) on the Wechsler scales, academically gifted students frequently score ten points lower on the WISC-R than they do on the Stanford-Binet (Miller, 1969; Rubenzer, 1979a). In addition, the multiple-subtest format of the Wechsler scales makes them less suitable for identifying gifted students whose superior intellectual functioning is not generalized. Whereas the Stanford-Binet allows students to continue to attempt items as long as they have one correct item at each successive level, the Wechsler scales require that students achieve a ceiling on each subtest. This causes difficulty when students fail to achieve a ceiling on subtests measuring cognitive strengths, since students may be unable to demonstrate the full range of those strengths.

IQ measured on the Wechsler scales is less related to the criterion performance expected in the gifted programs than is IQ measured on the Stanford-Binet and is probably less accurate as a measure of the academic learning potential of superior students (Miller, 1969). Because of the scoring technique, which involves adding scaled subtest scores, calculation of

students' general intelligence may not reflect the extent of their strengths but rather may over-emphasize the significance of their relative weaknesses. This phenomenon is contrary to the practice of eliciting optimal performance.

Owing to the increased workloads of school psychologists and the time involved in the administration of either the "Stanford-Binet" or "Wechsler Intelligence Scales", it is highly unrealistic to assume that these instruments could be employed as screening devices for giftedness on any large scale (Hagen, 1980). This is especially true when the number of students to be evaluated increases or the number of qualified diagnosticians decreases. One alternative approach in such instances would be the administration of a group test such as the "Otis-Lennon Student Ability Test" (Salvia and Ysseldyke, 1981), which is a group administered test. This instrument is often substituted for other more reliable and valid measures of intelligence since it is easier to administer than the "WISC-R" or the "Stanford-Binet", can be given by regular school personnel and can be administered and scored in less time than other individual intelligence tests; it can also be administered in a group setting, when large numbers of students need to be screened for possible inclusion into the gifted program.

Although these instruments provide a relatively quick method of measuring learning ability, there are some serious limitations; one major difficulty with group tests is their heavy reliance on proficient reading ability and competence in standard English. As a result, group tests often become poor measures of ability for children who may be underachievers in reading or who may be from culturally diverse backgrounds. When the results of group testing serve as the main criteria for program participation, the identification process may seem to require less time and cost investment. Although this factor of time and cost differential is an often quoted reason for the

dependency on group-standardized measures in the identification process, recent research by Renzulli and Smith (1977) has demonstrated that the cost differential between traditional and more case study identification methodologies may not be as significant as previously believed. It would appear, however, that the effort needed to assemble the results of group tests and to list the names of those who meet the established criteria may be less than that of procedures employing more subjective data analysis.

For many school programs, the inclusion of an objective test measure is necessary to comply with district or even provincial guidelines for gifted programming (Evans and Marken, 1982; Archambault, 1984; and, Aylesworth, 1984). It is, therefore, important that the gifted program guidelines, if any exist, be carefully considered and satisfied when procedures are being outlined; these guidelines most often allow some degree of flexibility in the selection of objective measures even when the inclusion of such objective data is required. Furthermore, some school districts find a percentage cutoff level on a quantifiable measure useful to comply with the current level of funding available from the provincial government.

Standardized achievement and aptitude tests (Canadian Tests of Basic Skills and Canadian Cognitive Abilities Test) are periodically administered to students in Canadian schools to determine specific knowledge or skill acquisition within various curricular areas; success in these tests, as in group intelligence tests, depends largely on the students' competence in standard English. Because the individuals' reading abilities influence their performance on such tests, it is often difficult to get an accurate view of ability. Another concern in using standardized group achievement tests, as with any group-administered test, is the inability of the examiner to effectively observe students' behavior and adequately assess attitudes during

the test taking session. In spite of precautions recommended by the publishers of these tests, some gifted children will be easily identified because of their outstanding academic achievements; however, there are a large number of gifted children who are not identifiable by their school performance. Several factors may account for this; first, certain gifted learners come to school with an experiential gap and they may not be able to demonstrate their potential in academic related areas; second, many gifted learners "turned off" by the educational irrelevancy of the curriculum will "mentally drop out", losing interest in school and often refusing to demonstrate their abilities. For these individuals, a "motivational" gap may prevent an accurate assessment by means of academic achievement. If academic achievement is to be used as a criterion for identification, it is necessary to consider those factors described above when making decisions for placement.

Various instruments have been developed to assess the potential of children who come from economically or culturally different backgrounds. These instruments are designed to minimize cultural or linguistic influences. The most widely used of these nontraditional measures are the "Torrance Tests of Creative Thinking" (Torrance, 1966). These tests, which assess auditory, verbal and pictorial areas, are designed to measure the divergent-productive abilities of the learner, an area frequently overlooked by more conventional instruments.

Another strategy frequently employed in the identification of gifted learners places emphasis on subjective information based on observations and interviews with students (Borland, 1978; Austin and Draper, 1981; Evans and Marken, 1982; and, Archambault, 1984). A program established under such a strategy generally includes information accumulated from several sources; the literature of the gifted is inundated with behavioral checklists or

delineations of behaviors that might serve as indications of giftedness. These checklists assist the observer by calling attention to behavioral manifestations of giftedness that might be present within the context of natural activities rather than in contrived test settings; one frequently used device is Renzulli and Hartman's (1971) Scale for Rating Behavioral Characteristics of Superior Students (SRBCSS).

Perhaps the most controversial and yet one of the most frequently used sources of subjective data for gifted programs are teacher recommendations. It has been noted that when teacher recommendations are used as the principal means of identification, approximately fifty per cent of the gifted remain unidentified (Alvino and Wieler, 1979). However, Gear (1976) has stated that with training, teacher recommendations can be more effective and efficient sources of subjective data.

Within some programs, the opinions of parents are solicited in the identification process (Jacobs, 1971; Callahan and Kauffman, 1982; Colangelo and Kelly, 1983). Such nominations may consist of merely submitting the name of the learner as a potential candidate for the gifted program or may request more elaborate information regarding the behaviors the parent(s) feels the learner appropriately displays that facilitated the nomination. There is increasing support in the literature (Renzulli and Smith, 1977) for the inclusion of peer nomination in the identification process. These nominations seem to be especially helpful in the location of gifted students from subdominant cultural groups. Gifted learners can aid in the identification process by evaluating their own abilities and capabilities through self nomination. These ratings should be an encouraged procedure at upper educational levels (Renzulli et al, 1981); however, there are several limitations that need to be addressed. Probably the biggest question that can

be leveled at subjective information is based on accuracy; the inaccuracy of teacher recommendations is legendary and even with suitable training, such recommendations can still be considered questionable (Gear, 1976; Borland, 1978; Colangelo and Kelly, 1983).

Not only are many gifted students overlooked by nomination or recommendation procedures, but many non-gifted students are recommended possibly for such reasons as their appearance or deportment (Gear, 1976). Furthermore, it is almost impossible to ensure that the judgements made by individuals as part of the gifted identification procedure will be consistent from student to student, class to class, or year to year, even when these judgements are made on the basis of specified criteria. Behavioral checklists may eliminate some of the difficulty in this matter, but even their application cannot ensure consistency of judgement. Moreover, when the time comes to support the decisions made about the inclusion or exclusion of individuals in gifted programs, it may be difficult to justify decisions made solely on the basis of subjective data.

In order to circumvent these problems, a comprehensive inform tion strategy (Evans and Marken, 1982) allows the judgments made in the identification process to be based on data gathered from a variety of sources, both objective and subjective in nature. While the disadvantages of both the objective and subjective information strategies will need to be considered as a consequence of this combination, the weaknesses of one approach may be offset by the advantages of the other.

How much "trade off" should be made on the objective/subjective continuum in order to allow recognition of a broader spectrum of human abilities? If some degree of subjectivity cannot be tolerated, the definition of giftedness and the resulting programs will be limited to abilities that can only be

measured by objective tests (Renzulli and Reis, 1985).

STATEMENT OF THE PROBLEM

Despite the varied theoretical and conceptual approaches used to understand and deliver enriched programs to gifted individuals, there is strong consensus that concise and appropriate identification procedures are required to determine their curriculum. While the subjective information gleaned through inventories and questionnaires discussed previously has been used in identification procedures, it has been found to be useful generally in confirming decisions made using the more widely accepted objective information strategy. Most school boards utilize a multi-test approach (Evans and Marken, 1982). It includes various standardized tests aimed at measuring those abilities which research has demonstrated to be intricately correlated to gifted individuals. Perhaps one of the most frequently used and controversial variables is student Grade Point Average (GPA). Research has revealed (Aylesworth, 1984; Birch, 1984) that, because of the instability of this measure due to varying school standards, differing aspiration and expectation levels as well as other demographic characteristics, it is perceived as a relatively unreliable measure. Consequently, it is considered too open to influence and interpretation to serve as the sole criterion; instead, GPA is most often used in conjunction with a standardized, norm-referenced achievement test. It has been suggested in the research (Evans and Marken, 1982) that this latter measure overcomes weaknesses related to the GPA and therefore creates a higher level of confidence by the rater; in other words, when there is inconsistency between a GPA score and an achievement test score, the latter score will generally be accepted while the GPA score is explained in terms of

the many weaknesses of this particular measure. in addition to both of these data, it is generally considered that an IQ test is the most necessary and sufficient condition for identification of the gifted. So much emphasis is placed on this measure that it often supersedes the results of all other information (Evans and Marken, 1982). The research literature would suggest that, if there is inconsistency between an IQ score and any other form of information, the decision will most likely be made based on the IQ data.

Another measure frequently used in identification procedures is that of creativity, although it has received mixed reviews in the literature (Salvia and Ysseldyke, 1981). Proponents of its use suggest that it is one of the few distinguishing features shared in common with gifted learners (MacKinnon, 1965), whereas there are those who argue that it is an attribute found frequently among individuals of average intellect (Getzels and Jackson, 1965).

In addition to finding the most relevant and useful test, another variable of considerable interest, but not reported in the literature, Is the type of information provided in conjunction with the time and sequence of such data. Such a study would seem warranted since it could provide important data relating to the dynamics of a selection process and could yield relevant data on the identification process of gifted students.

Although no systematic study has been conducted on decision making based on various test measures being presented in a fixed sequence, inferences could be made from such a study to determine what information is required to make decisions on identification.

As the history of gifted education has revealed, interest in gifted learners was promoted by early philosophers and their philosophic belief. With the increasing importance of scientific inquiry, scientific methodology became the prominent medium for explaining the unique learning styles of exceptional

children. It is based on this empirical method that various definitions of giftedness have been offered.

PURPOSE

The purpose of the study is to compare the various levels of student test information, to determine the effect of these data on the rating of gifted students and subsequently to make recommendations for the nomination of students for enrichment programming.

To fulfill the purpose of the study, guidance counsellors in each of nine schools were asked to rank their students for enrichment programming after additional and sequential information on their students was given to them. At a later date, a group of guidance counsellors were asked to rank the combined group of students previously ranked in their individual schools.

The manner in which individual guidance counsellors and a group of guidance counsellors responded to the sequential presentation of student information was monitored and recorded. Following the study, an interview was conducted to clarify and provide additional information pertaining to their decision making. This procedure was conducted to answer several questions related to identification of gifted students and recommendations for enrichment programming. More specifically:

(1) Are subjective and objective data useful in ranking students?

(2) Do guidance counsellors change student ranks when presented additional information?

(3) Which measures are most influential in determining placement?

(4) Are students ranked differently by individual counsellors as compared to the group consensus?

Chapter 2

METHOD

OVERVIEW

Based on the information discussed in Chapter 1, a repeated-measures design was conceptualized whereby individual guidance counsellors were required to rank, in terms of priority, the top 20% of their grade eight classes for enrichment programming. The same process of ranking was followed in a later phase of the study by a group of guidance counsellors. At each of four phases of the study, counsellors were provided with increasing, sequential information on their students and were required to classify their students based on these data. For example: Phase 1 consisted of ranking students based solely on their Grade Point Average (GPA); Phase 2 consisted of ranking students based on their Grade Point Average (GPA), Canadian Tests of Basic Skills (CTBS) scores and Canadian Cognitive Abilities Test (CCAT) results; Phase 3 consisted of ranking students based on their (GPA), and the following standardized test results; (CTBS) scores, (CCAT) results and the Otis-Lennon School Ability Test (OLSAT) IQ scores; Phase 4 consisted of ranking students based on their (GPA), and the following standardized test results; (CTBS) scores, (CCAT) results, (OLSAT) IQ scores and Torrance Test of Creative Thinking (TTCT) results. These data were then submitted to correlational analyses and individual comparisons were made where appropriate.

SUBJECTS

The subjects participating in the study were one hundred seventy-five (175), thirteen and fourteen year old boys and girls enrolled in all grade eight classrooms (located in nine schools) in the Pictou District School Board. Table 1 represents descriptive data of this sample by age, sex and school. Due to incomplete data on fourteen individuals, they were eliminated from the study, leaving a total sample size of one hundred sixty-one students (N = 161).

Also participating in the study were eight Guidance Counsellors and one Principal charged with the responsibilities for guidance; the qualifications and experience of these individuals varied from one to twenty year's experience and from a master's degree in guidance to on-the-job training.

TEST INSTRUMENTS

Grade Point Average (GPA)

The grade point average was derived by averaging six mid-term examinations in the following subject areas: English, French, Math, Science, Social Studies, and Physical Education. These evaluations are administered annually during the third week of January and are composed, distributed and scored independently by each school.

Canadian Tests of Basic Skills, Multi-Level Edition (CTBS)

The Canadian Tests of Basic Skills (Nelson, 1984) were adapted from test materials which were originally included in the Iowa Tests of Basic Skills constructed at the University of Iowa and which have been used continuously since 1935. The ongoing work in CTBS development has resulted in readiness

TABLE 1

Descriptive Characteristics of Sample by Age, Sex and School

School	Sex	N	Mean Age *	Standard Deviation	Standard Error
A	M	5	167.4	3.1	1.4
	F	8	169.1	3.4	1.2
	Total	13	168.5	3.3	.9
B	M	9	167.8	5.4	1.8
	F	6	169.0	3.7	1.5
	Total	15	168.2	4.7	1.2
C	M	10	168.3	3.4	1.1
	F	24	168.5	4.8	1.0
	Total	34	168.4	4.4	.8
D	M	17	170.7	4.1	1.0
	F	13	165.9	5.0	1.4
	Total	30	168.7	4.5	1.0
E	M	10	169.5	3.6	1.1
	F	12	168.0	5.3	1.5
	Total	22	168.7	4.5	1.0
F	M	2	165.0	2.8	2.0
	F	14	170.4	4.0	1.1
	Total	16	169.7	4.2	1.1
G	M	5	169.8	8.6	3.8
	F	7	171.4	2.2	.8
	Total	12	170.8	5.5	1.6
H	M	4	169.5	4.0	2.0
	F	11	170.4	3.1	.9
	Total	15	170.1	3.3	.8
I	M	2	174.5	.7	.5
	F	2	170.5	2.1	1.5
	Total	4	172.5	2.7	1.3
Group	M	64	168.7	4.7	.6
	F	97	169.0	4.9	.5
	Total	161	168.9	4.8	.4

* Mean Age in Months

measures at 5 years of age to the uppermost level of the high school test battery. The CTBS are intended to provide objective information about skills performance that will constitute a partial basis for making instructional decisions for individual pupils. The eleven subtests include: (1) Vocabulary and Reading; (2) Language, which consists of Spelling, Capitalization, Punctuation and Usage; (3) Work Study, which consists of Visual Materials and Reference Materials and (4) Mathematics which consists of Concepts, Problem Solving and Computation. All items are in multiple choice format which can be hand or machine scored. Raw scores were converted to grade equivalents or standard scores; grade equivalents and standard scores were converted to percentile ranks in grades and stanines for fall, mid-year and spring norms. Reliability scores vary from test to test and grade to grade. Internal consistency reliability coefficients for the five main area scores range from .87 to .96; composite reliability is .97 to .98 for all grades. Some evidence suggests (Gallivan, 1985) that the tests have a reasonable level of predictive validity. Data from the Cardston Alberta school district show moderate to high correlations (.53 to .76) between CTBS subtest scores and year end course grades of ninth-grade students. At the time of this study (1990), it was the practice of all schools within the Pictou District School Board to annually administer the CTBS to all students in grades five, seven and nine. The dependant variable used to determine the relationship between the test instruments was the students' composite score, derived from student scores on the eleven subtests completed the previous school year.

Canadian Cognitive Abilities Test, Multi-level Edition, (CCAT)

Research (Thorndike and Hagen, 1977) has shown that individuals vary in their abilities to work with three basic types of symbols-verbal, quantitative and

geometric or spatial and that individual differences in both level and pattern of these developed abilities have important implications for success in school or in in other learning activities. The history and development of the Canadian Cognitive Abilities Test (Thorndike and Hagen, 1982) reflects these concerns. By separately and reliably measuring each of these abilities, the test becomes an aid to any teacher, counsellor or administrator who wishes to sharpen his or her perceptions of these important differences within and among individuals in typical classrooms. The multi-level edition is organized into three batteries: (1) Verbal which includes (a) vocabulary, (b) sentence completion, (c) verbal classification, and (d) verbal analogies; (2) Quantitative which includes (a) quantitative relations, (b) number series and (c) equation building; (3) Non-Verbal Battery which includes (a) figure classification, (b) figure analogies and (c) figure synthesis. For each battery separately, the following total scores are reported: raw scores (number right); standard scores, percentile ranks and stanines for age groups; percentile ranks and stanines for grade groups. The verbal battery which contains 100 items requires 34 minutes working time; the quantitative battery which contains 60 items requires 32 minutes working time and the non-verbal battery which contains 80 items, requires 32 minutes working time. All tests except Quantitative Relations (QR) and Figure Synthesis (FS) have 5-choice multiple response items. QR items are 3-choice; FS items employ a yes/no response pattern. The reliability coefficients were for the Verbal Battery .92, for the Quantitative Battery .89 and for the Non-Verbal Battery .87. These reliability estimates suggest (McInnis, 1986) a high level of internal consistency. In terms of content validity, intercorrelations among the batteries ranged from .54 to .71, with over 85% of the values above .60. This would tend to suggest that the subtests measure a general ability factor for

each grade. At the time of this study (1990), it was the practice of all schools within the Pictou District School Board to annually administer the CCAT to all students in grades five, seven and nine. The dependant variable used to determine the relationship between the test instruments (Table 2) was the students' verbal-age score, derived from student scores on the four subtests completed the previous school year.

Otis-Lennon School Ability Test (OLSAT)

This test was designed to "provide an accurate and efficient measure of the abilities needed to acquire the desired cognitive outcomes of formal education" (Otis and Lennon, 1989); the authors identify this complex of abilities as "scholastic aptitude" or "school ability". The test measures this set of abilities by assessing students' skills in detecting similarities and differences, defining words, following directions, classifying, sequencing, solving arithmetic problems and completing analogies. The tests require 40 to 50 minutes to administer and all items are read by the student. Three kinds of scores may be obtained using the OLSAT: a school ability index (SAI), percentile ranks and stanines by age and grade. The OLSAT was last standardized in 1977 on approximately 130,000 pupils in seventy school systems stratified and selected on the basis of geographic region, school system enrollment, socio-economic status and ethnic enrollment. Both internal-consistency and test-re-test reliability are reported in the test manual by both grade and age. All internal-consistency coefficients exceed .90; test-re-test reliabilities range from .84 to .92. Kuder-Richardson formula 20 estimates of reliability of OLSAT scores range from .91 to .95. Both concurrent and predictive validity coefficients were computed by correlating scores from the OLSAT with scores from the Metropolitan Achievement

Test and the Stanford Achievement Test. Most of the validity coefficients range between .40 and .60; values of this magnitude are typical of well-made psychological tests (Williams, 1984). The dependant variable used to determine the relationship between the test instruments (Table 2) was the school ability index, which is statistically equivalent to a deviation IQ with a mean of 100 and a standard deviation of 16.

Torrance Tests of Creative Thinking-Verbal, Form A (TTCT)

This test was designed (Torrance, 1966) to measure creative thinking (divergent) in school age children. Form A is comprised of seven hypothetical activities to which individuals are required to respond on paper; all responses are scored under three categories; (1) Fluency is defined as "the total number of appropriate, different responses to each of the activities"; (2) Originality represents the subject's ability "to produce ideas that are away from the obvious, common place, banal or established"; (3) Flexibility represents a person's ability to produce a variety of kinds of ideas, to shift from one approach to another or to use a variety of strategies. All responses can be either hand or electronically scored; both within-grade percentile-ranks and standard scores are provided with additional within-grade percentile rank grade percentile ranks or average standard score. Several studies of reliability and validity are reported in the TTCT Norms-Technical Manual. Classroom teachers who had only studied the Scoring Guide showed mean reliability coefficients that ranged from .88 to .96 for the figural tests and from .94 to .99 for the verbal tests. The data on prediction validity presented by Torrance seem to indicate that the TTCT scores are predictors of later creative accomplishments (Treffinger, 1985). On the other hand, in his evaluation of the TTCT, Chase (1985) states that the TTCT does not have a firm base in construct validation.

Despite the shortcomings, Swartz (1988) concludes that he is not aware of a better set of tests for assessing creativity in children and adults. The dependant variable used to determine the relationship between the test instruments (Table 2) was the average student score, derived by averaging the student score on three subtests.

PROCEDURE

Consent for the study was granted by the Pictou District School Board subject to (1) anonymity of the student data, (2) confidentiality of information, (3) prior and appropriate parental consent and (4) review and editing of any possible publication by the school board.

Individual Counsellor Ratings

The guidance counsellor for each school was notified that a study, approved by the board, was being initiated to identify students who could possibly qualify for enriched programming in the near future (see Appendix A). Their participation was solicited and they were informed that the first phase of the study would follow shortly. Before they were contacted, however, Phase 1 of the study had already been conducted. This phase consisted of averaging the mid-year examinations for all grade eight students which was stored in the data bank of the board's centralized computer system; each student's GPA consisted of the average of the following subjects: English, French, Math, Science, Social Studies and Physical Education. Based on this GPA, the top scoring 20% for each of the nine schools was listed alphabetically, with individual names and their respective scores; this list comprised all information in Phase 1. It could be argued both theoretically and conceptually that, in the absence of

any other data, the appropriate rating would be consistent with these data.

Phase 2:

This phase was initiated on April 2, 1990 (see Appendix B) when counsellors were presented with their school list along with their respective GPA; they were required to record (by hand) all CTBS and CCAT sub-test scores which were in student files in each school and when this was completed, rank all students on this list in terms of priority for enriched programming based on information from GPA, CTBS and CCAT scores. All lists were completed and submitted by April 12, 1990.

Phase 3:

This phase began with a letter to Guidance Counsellors on April 16, 1990 (see Appendix C) requesting them to send letters of consent to parents of their students so that the OLSAT and TTCT could be administered. By May 1, 1990, every parent had given their approval and each counsellor was asked to arrange (see Appendix D) a one and one-half hour group testing session during the week of May 7-11, 1990 to collect the appropriate data; they were requested to score the OLSAT themselves and send the TTCT test to the district office. They were then issued copies of the data provided on April 12, 1990 except that their ranking of students had been deleted. With the additional data from the OLSAT, they were once again asked to rank students in terms of priority for enrichment programming and submit the data no later than May 18, 1990.

Phase 4:

This phase was initiated (see Appendix E) on June 4, 1990 after the TTCT had been scored (according to the norms and technical aids of the TTCT Manual) by

three scorers, all of whom had a bachelor's degree from university and at least one year post-graduate work. The TTCT results were provided along with all information previously submitted in phase 3 except for the previous ranking they had provided. Based on all past information (excepting previous rankings) and the TTCT scores, they were once again requested to rank students in terms of priority for enrichment programming; these results were required by June 9, 1990. All schools complied within this time limit.

Following this final submission, all counsellors were individually contacted by telephone to thank them for their contribution to the study.

After these data had been collected, several observations related to the study emerged; (1) data were gathered in nine different schools, each with their own characteristic sample, (2) each of the schools were rated by nine different counsellors housed within their school, (3) the sample size of each school was relatively small and (4) the names of the children being rated were listed; consequently, the personal characteristics of each child could possibly have influenced various ratings. Based on these observations, it was decided to enlarge the study by attempting a "board-wide" rating in an effort to gain further insight into the nature of the present data.

Group Counsellor Ratings

A meeting was called on December 18, 1990 at which the guidance counsellors participating in the study were invited to the board's administrative building to participate in ranking the total sample of students for enrichment programming. Five of the six counsellors had participated in the school based part of the study, whereas the sixth guidance counsellor was substituting for a counsellor on sick leave.

The group of six guidance counselors were told that they would be

participating as a group in a school board approved study on procedures to identify students for enrichment programming and were subjected to the following procedures.

Phase 1:

The group was presented with 161 cards containing information on students previously screened for enrichment programming at one of the nine district schools. The student GPA was recorded beside a student letter code. Due to the committment of anonymity of student data and the possibility of a conflict of interest with guidance counsellors knowing a number of the students, it could be argued both theoretically and conceptually that in the absense of other data, guidance counsellors would rank students from highest to lowest in relation to their GPA rank.

Phase 2:

The 161 cards containing objective data on students were randomly placed on a large table around which the guidance counsellors sat. The student cards contained the following information: a student letter code, GPA, student sex and age (in months), CTBS scores and CCAT results. The instructions on the task were read to the guidance counsellors: they were asked to arrange in terms of priority (from highest to lowest) the students that the group would recommend for enrichment programming. To facilitate the task, they were told that they could work as a group but they would be required to establish their own criteria and process for ranking the students. When they were finished, they were to inform the observer and receive instructions on the next phase. The observer's role was to record notes but not to participate in the process of ranking students.

Due to the length of time, as well as the difficulty and fatigue experienced by the guidance counsellors, the remaining phases of the study had to be rescheduled for January 9, 1991.

Phase 3:

Five of the six guidance counsellors who participated in the group part of the study were able to return for the final session on January 9, 1991. The group were once again read instructions on the school board approved study of procedures to identify students for enrichment programming.

The 161 cards containing information on students previously screened for enrichment programming at one of the nine participating schools were placed on a large table in front of the guidance counsellors. The student cards were presented to the cousellors in the same order as they had ranked them in Phase 2 of the study. This procedure was followed so that it could be determined how the guidance counsellors would be influenced by additional information presented in a sequential manner.

Each student card contained the following information: a student letter code, GPA, student sex and age (in months), CTBS scores, CCAT results and an IQ score from the Otis-Lennon test. The counsellors were informed that their task was to arrange in terms of priority (from highest to lowest) the students that the group would recommend for enrichment programming. To facilitate their task, they were told that they could work together to determine their criteria and process for ranking the students. Once again, an observer was present to record the process but not to participate in the ranking of students. They were told to inform the observer when they had finished and further instructions would follow.

After a two hour period, they had completed their task and they took a

short break before they were given further instructions.

Phase 4:

After a twenty minute break, the group of guidance counsellors were called back to the table where they were presented with the 161 student cards in the same order that they had left them in Phase 3 but with additional student information.

In addition to the student letter code, GPA, student sex and age (in months), CTBS scores, CCAT results, and an Otis-Lennon IQ, student scores from the Torrance Test of Creativity were shown on the student information card.

The guidance counsellors were read a description of what the creativity scores measured; they were given information on the meaning of relevant fluency, originality, and flexibility according to descriptions found in the testing manual. Once again, they were informed that their task was to rank students in terms of priority (from highest to lowest) for enrichment programming. They were to base their decision on the previous information as well as the new student data. To facilitate their task, they were told that they would work as a group to determine their criteria and process for ranking the students. The observer's role would be to continue to record the process and not to participate in the process of ranking students. They would inform the observer when they had finished and further instructions would follow.

After thirty minutes, they informed the observer that they had finished their task. At this time, the 161 cards were collected and the counsellors were notified that individual interviews on the procees would take place in the near future.

Interviews with Counsellors

During the first week of February, 1991, interviews were conducted with each guidance counsellor individually at their own school. The same questions (see Appendix F) were asked of each counsellor to gain further insight about the ranking process and how the increasing sequential information might have effected them.

Chapter 3

RESULTS

This chapter will present results stemming from the research findings mainly in terms of the questions presented at the end of Chapter 1. The first section will demonstrate the statistical validation of the five tests used in the four phases of the study. This will be followed by a presentation of the statistical analyses of ranks made by individual counsellors in each of the four phases; a statistical analysis of ranks made by a group of guidance counsellors in similar phases is also presented. Following this, information will be presented on the number of students whose ranks decreased, increased or stayed the same over the three phases of the study. The final section will present information on four groups of students identified by GPA and will show the percentage of these students that subsequently appear in the three phases of the study.

Table 2 represents the Pearson Product-Moment Correlation Coefficients of the various tests used throughout the study along with their respective significance levels. Although they were administered in nine separate schools by their own individual guidance counsellors, because of the nature of the tests and the strict, objective scoring criteria, the data were collapsed over schools yielding a total N = 161 for each correlated group. The matrix reveals strong and highly significant relationships between CTBS, CCAT, OLSAT and GPA scores ($p < .01$); moderate but significant correlations ($p < .05$) were obtained between TTCT as compared to GPA and CCAT whereas there was no significant

Table 2

Pearson Product-Moment Correlation Matrix of Raw Test Scores of Total Sample (N = 161)

	GPA	CTBS	CCAT	OLSAT	TTCT
GPA	1.0				
CTBS	.4495**	1.0			
CCAT	.3434**	.8412**	1.0		
OLSAT	.4773**	.7097**	.7162**	1.0	
TTCT	.2327*	.1467	.2061*	.1316	1.0

*$p<.05$ **$p<.01$

relationship between TTCT as compared to either CTBS or OLSAT ($p > .10$).

Data directly relevant to the study are presented in Table 3 and illustrate the Kendall Tau for individual and group guidance counsellor ranks for each phase comparison. In the Phase one vs Phase two column, only three out of eight schools showed a statistically significant Tau coefficient; that is, the ratings between GPA and combined CTBS-CCAT ratings for five schools were not related suggesting that the additional information given in Phase two had a differential effect causing the second rating to be statistically different from Phase one. Comparison of Phase two and three demonstrates that only one school out of eight reacted to OLSAT scores causing a different rating on information gleaned from Phase three as compared to Phase two. All other Kendall Tau comparisons showed statistically significant correlations ($p < .01$). In the ratings of Phase three and Phase four six schools recorded significant correlations at $p < .01$ and the remaining two schools showed significant correlations at $p < .05$ level of confidence.

Comparison of the group process as compared to the independent ratings of school guidance counsellors would suggest only slight differences from the individual cousellor ratings. This may be accounted for by the fact that individual counsellors had access to subjective data whereas the group of counsellors did not.

In an attempt to gain further insight into the nature of the present findings, Table 4 demonstrates the actual changes in individual and group guidance counsellors' student ranks. Student ranks which decreased (-), increased (+), or stayed the same (0), are shown over the three phases of the study. It would appear that both individual counsellors and the group of counsellors made changes in their student rankings when presented with new objective information on students; however, since the change in any given rank

Table 3

Kendall Tau Coefficients of Individual and Group Guidance Counsellors' Rankings Over Three Phase Comparisons

		Phase Comparisons		
School	N	P1 vs P2	P2 vs P3	P3 vs P4
A	13	.33	.77**	.59**
B	15	.24	.73**	.64**
C	34	.30*	.45**	.77**
D	30	.39**	.95**	.94**
E	22	.37*	.61**	.74**
F	16	.36	.80**	.77**
G	12	.33	.42	.55*
H	15	.28	.75**	.51*
I	4	Deleted because of small N		
Group	161	.38**	.85**	.97**

*$p<.05$ **$p<.01$

Table 4

Individual and Group Guidance Counsellors' Changes in Student Rankings over Three Phase Comparisons

		P1 vs P2			P2 vs P3			P3 vs P4		
School	N	(-)	(+)	(0)	(-)	(+)	(0)	(-)	(+)	(0)
A	13	5	6	2	4	5	4	6	5	2
B	15	6	7	2	5	5	5	7	7	1
C	34	17	17	0	16	15	3	21	11	2
D	30	15	12	3	6	5	19	12	3	15
E	22	10	11	1	10	8	4	10	8	4
F	16	8	6	2	5	7	4	5	8	3
G	12	5	4	3	5	6	1	5	6	1
H	15	7	8	0	4	7	4	7	7	1
I	4	Deleted because of small N								
Group	161	82	64	15	59	50	52	15	10	136

necessitated changes in all other ratings which followed, it was decided that further analysis of these ranks was warranted.

Table 5 presents information from three of the largest schools: School C, (n = 34); School D,(n = 30); School E,(n = 22) and the total sample (N = 161). Four student groups were selected based on the highest GPA. The first group of students consisted of 5% of the sample, the second group comprised 15% of the sample, the third group was made up of 25% of the sample and the fourth group consisted of 50% of the sample The table shows the percentage of the four groups of students who were identified at each of the three subsequent phases of the study. In School C (n = 34), neither of the two students (5% of the school sample) with the highest GPA appeared in the top 5% of students identified at Phase two; 50% of these students were in the top 5% of students at Phase three and Phase four. Of the five students (15% of the school sample), 60% appeared in the top 15% of students in Phase two and three, whereas 40% appeared in the top 15% in Phase four. Of the nine students (25% of the school sample), 67% were identified in Phase two and 89% in Phase three, whereas 78% were identified in Phase four. Of the seventeen students (50% of the school sample), 65% were identified in Phase two, 82% in Phase three and 88% in Phase four. The guidance counsellor did have access to the student names and subjective data on each student; however, it would appear from these data that additional student information resulted in changes in the rankings of students at this school.

In School D (n = 30), 50% of the two students (5% of the school sample) with the highest GPA appeared in the top 5% of students identified at Phase two, Phase three and Phase four. Of the five students (15% of the school sample), 40% appeared in the top 15% of students in Phase two, three and Phase four. Of the eight students (25% of the school sample), 50% were identified in

Table 5

Four Groups of Students Identified by GPA Subsequently Shown As They Appear In Other Phases of the Study

	% of Sample	N	Phase 1	Phase 2	Phase 3	Phase 4
School C						
	5%	2	100%	0	50%	50%
	15%	5	100%	60%	60%	40%
	25%	9	100%	67%	89%	78%
	50%	17	100%	65%	82%	88%
School D						
	5%	2	100%	50%	50%	50%
	15%	5	100%	40%	40%	40%
	25%	8	100%	50%	63%	63%
	50%	15	100%	60%	60%	60%
School E						
	5%	1	100%	0	0	0
	15%	3	100%	0	0	0
	25%	6	100%	33%	33%	33%
	50%	11	100%	64%	55%	64%
Group						
	5%	8	100%	25%	13%	0
	15%	24	100%	50%	50%	50%
	25%	40	100%	45%	48%	48%
	50%	80	100%	69%	73%	71%

Phase two and 63% in Phase three and Phase four. Of the fifteen students (50% of the school sample), 60% were identified in Phase two, three and Phase four. The guidance counsellor did have access to the student names and subjective data on each student; however, it would appear from these data that additional student information resulted in changes in the rankings of students at this school.

In School E (n = 22), the one student (5% of the school sample) with the highest GPA did not appear in the top 5% of students identified at Phase two, three and Phase four. Of the three students (15% of the school sample), none appeared in the top 15% of students in Phase two and three, and Phase four. Of the six students (25% of the school sample), 33% were identified in Phase two,three and Phase four. Of the eleven students (50% of the school sample), 64% were identified in Phase two, 55% in Phase three and 64% in Phase four. The guidance counsellor did have access to the student names and subjective data on each student; however, it would appear from these data that additional student information resulted in changes in the rankings of students at this school.

For the entire sample of students (N = 161), Table 5 indicates that only 25% of the eight students (5% of the school sample) with the highest GPA appeared in the top 5% of students identified at Phase two; only 13% of these students were in the top 5% of students at Phase three and none were in the top 5% at Phase four. Of the twenty-four students (15% of the school sample), 50% appeared in the top 15% of students in Phase two and three and Phase four. Of the forty students (25% of the school sample), 45% were identified in Phase two and 48% in Phase three and Phase four. Of the eighty students (50% of the school sample), 69% were identified in Phase two, 73% in Phase three and 71% in Phase four. The guidance counsellors' group did not have access to the student

names and subjective data on each student; therefore, in the absence of additional data, counsellors ranked students from highest to lowest based on the objective information presented to them.

At the post study interview guidance counsellors were asked to rank the test instruments in terms of usefulness for identifying students for enrichment programming. Individual counsellors prioritized the test instruments as follows: School C - GPA, OLSAT, CTBS, and TTCT; School D - CCAT, GPA, CTBS, OLSAT, and TTCT; School E - CCAT, CTBS, OLSAT, GPA and TTCT. It is suggested that differences noted in their responses (Table 6) may be explained by the variation in the training of the guidance counsellors, their knowledge of the test instruments and their previous experience in using these tests at their school.

The guidance counsellors' group prioritized the test instruments as follows: CCAT, CTBS, OLSAT, GPA and TTCT. As a group, they appeared to rely on the test instruments for which they had the most knowledge and experience. The one exception to this was GPA; the counsellors stated that considering the variety of school marking criteria and teacher input, GPA could not be considered a fair discriminator of student ability when considering students from a variety of schools. The TTCT was almost totally rejected by the school guidance counsellors' group; they reasoned that the test instructions for students were too vague and the student test scores were neither meaningful nor helpful to them in identifying students for enrichment programming.

It is apparent that individual counsellors and the guidance counsellors' group reacted to the sequential presentation of additional data; however, the differences were slight and may be accounted for by the fact that individual counsellors had access to subjective data whereas the guidance counsellors' group did not.

Table 6

Individual and Group Guidance Counsellors' Rankings of Test Instruments to Identify Students For Enrichment Programming

	School C	School D	School E	Group
GPA	1	2	4	4
CTBS	3	3	2	2
CCAT	4	1	1	1
OLSAT	2	4	3	3
TTCT	5	5	5	5

Chapter 4

DISCUSSION

This chapter will deal with the findings directly relevant to the questions asked at the end of Chapter 1; because the main concern of the study is the comparison of various levels of test information and the effect of these data on the rating of gifted students; the discussion will emphasize this aspect. In pursuit of this goal, then, attention will first be directed to an analysis of the interrelationships among the test measures followed by an elaboration of the various ratings completed by the guidance counsellors as well as by subjective data collected from a structured interview after all the ratings had been completed.

As indicated in Table 2, there were highly significant correlations among OLSAT, CTBS and CCAT scores; this finding was expected and is consistent with a plethora of research studies (Feldhusen, 1989). Although statistically significant, a moderate relationship between GPA and CCAT, CTBS, and OLSAT measures has been demonstrated. Based on a post-study questionnaire, it is evident that the guidance counsellors were somewhat skeptical concerning information contained in the GPA's due to the inherent weakness of this measure already discussed previously; the implications of these findings will be further elaborated in conjunction with other data later in this chapter. The Torrance Test of Creative Thinking demonstrated low significant correlations with GPA and CCAT respectively, but revealed no statistically significant relationship to either the CTBS or OLSAT measures. This finding, although not originally anticipated, can be explained from the considerable research conducted on the creativity variable. For example, over two decades ago,

Getzels and Jackson (1958), followed by Torrance (1962) reported comparative studies of intellectually gifted (high IQ) and creatively gifted students. Rather consistently, there were no differences in the measured educational achievement of these two groups of students. Furthermore, Torrance (1963) found no differences between the overlapping group (those who were both intellectually gifted and creatively gifted) and these two groups. There was also a general consistency in the degree of overlap between these two groups. Of those identified as intellectually gifted (by intelligence tests), only 30% were also creatively gifted (as identified by tests of creative thinking ability). In practical terms, this meant that about 70% of the most creative children in these studies would have been eliminated for consideration in gifted programs using intelligence scores as the sole criterion of selection.

During the past two decades, there has been much controversy concerning those students who would have been identified as gifted on the basis of creativity tests but not identified as gifted on the basis of intelligence tests. Even some of the leading investigators of creative talent (MacKinnon, 1965) have seen little promise in these youngsters. A few school systems, however, have modified their identification procedures to permit consideration of this group; for example, some school systems assign to gifted groups all students attaining an IQ of 130 or above. They then administer a creativity test to all students having IQ's between 115 and 129 and add to the gifted group those who score at the gifted level (Creativity Index of 130 or higher).

Other school administrations choose a more conservative strategy by selecting as gifted students those who score in the gifted range on both creativity and intelligence based on the curriculum model researched by Renzulli and his associates (Renzulli et al, 1985). The implications of their model suggests that creativity and intelligence are independent measures which

are mutually exclusive but interact and contribute to superior performance. The present data would tend to support this inference and will further be elaborated in the section concerning phase comparisons which follows.

Initially, although 3% to 5% of the population are considered to score in the gifted range of endowment, it was decided to expand the range to the top 20% of all students in each school and to use scores on the GPA as the selective criterion. This choice was used in order to provide a viable working sample in each of the eight schools and to include all those individuals who might, for various reasons, be otherwise excluded from the sample.

Furthermore, to constitute data to be used in Phase 1 of the study, the ratings of Phase 1 were determined by rank-ordering them from the highest to lowest and assigning their rank ordinally in ascending order. Initially, it was felt both theoretically and conceptually that, in the absence of any other data, this would be the most appropriate ranking system. To verify this procedure, however, it was decided to statistically compare the "theoretical" rankings used in Phase 1 with the "real" GPA rankings obtained from the first and second questions of the post-study questionnaire. In all cases, there was a close relationship between these ratings indicating that the "theoretical" rating was an appropriate measure; this interpretation is further supported by their response to question #2 which asked them to rank students by GPA in the absence of student identity. In this case, counsellors unanimously agreed that the appropriate ranking would be consistent with the "theoretical" ranking utilized in the study. There appear to be some differences in ranking between the two comparisons indicating that the guidance counsellors rated students in terms of other attributes above and beyond their GPA; based on observations of these data and in response to the post-study interview, it has become obvious that the ratings were inspired by additional information considered by the

counsellors to be essential to their rating. This information is based on knowledge of the student, school and school system. More specifically, several counsellors have taught many of the children in their school either whole courses or sections of courses; furthermore, in their professional capacity, they have indirect information on these children which could contribute to their specific ratings. During the interviews, it became apparent that the counsellors are skeptical of teachers's ratings which contributed to the GPA citing such reasons as "inflated" test scores, lower academic standards and student sample characteristics. The counsellors also suggested that they realized that school standards and expectations varied over schools. This lack of confidence in GPA is further substantiated by the fact that counsellors felt that some students were "bright but poor test takers" and were more qualified for enrichment programming than others with a similar or higher GPA and adjusted their rankings accordingly. Thus, it would appear that when ranking GPA, counsellors used additional knowledge and perceptions rather than just GPA scores solely.

This finding can be further substantiated by comparing ratings in Phase 1 vs Phase 2. These results indicate different ratings between GPA and CTBS/CCAT scores in five of the eight schools and suggest that five of the guidance counsellors changed their ratings when presented the additional information contained in the CTBS/CCAT data. This would support the contention that, when confronted with data from the standardized, objective tests, counsellors abandoned the more "subjective" data of the GPA resulting in a different rating based on this additional information in at least five of the eight schools tested. These results partially support the hypothesis that when there is inconsistency in scores between a "subjective" measure and a more widely accepted objective measure, decisions will be made based on the latter.

Further observation of these data would suggest that, although all schools were asked to rank the top 20% of their students, the variation which caused most of the re-ranking, occurred mainly in the lower three quartiles; that is, there was only limited variation occurring in the top quartile. This finding is consistent with much of the research on gifted learners (Renzulli and Reis, 1985) suggesting that these students who score in the top 50% of their class on a given academic subject tend to consistently score in the same range on other academic areas as well.

The comparison of Phase 2 vs Phase 3 reveals the effect of the additional information contained on the OLSAT; given the high correlation between the OLSAT and CTBS/CCAT, it is not surprising to note the lack of variance between these phases. The results reveal that in only one of the eight schools tested was there a noteworthy change in student ranks indicating that information contained in Phase 3 (OLSAT) for that single school contributed to different rankings when compared to the rankings of Phase 2. Why this occurred is not immediately clear but could possibly be attributable to the demand characteristics or the idiosyncracies of the sample. During the last few years, the village where the school is located has been influenced by a new housing development of middle income families in an area previously inhabited primarily by lower income families creating a bi-modal distribution; these findings have been observed in other tests which have been administered in the school over the last five years.

The final phase comparison (Phase 3 vs Phase 4) demonstrated that the counsellors seemed not to be affected by the TTCT scores; this finding is unexpected when considering the relationship with other measures used in the study. The marginal but significant correlations between TTCT and GPA/CCAT and the nonsignificant relationship with CTBS and OLSAT would suggest substantial

variation to be reflected in the ratings. Information gleaned from the post-study questionnaire demonstrates that, because of the considerable variation and discordance between the two comparisons, the TTCT was systematically rejected by the counsellors who basically re-ranked candidates based primarily on Phase 3 data. They did report, however, that in their individual schools, the top students consistently had the highest ranks even when considering the TTCT scores; however, it was noted that this correspondence quickly diminished, variation substantially increased in lower scoring students causing serious conflict with previous ratings and eventually resulting in rejection of the newer data. Generally, counsellors interpreted the supporting data as confirmation of their rating of the "top" students whereas the inconsistent data were interpreted as "misleading". This contention is further supported by their rating of the various tests in terms of usefulness; in all eight schools, the TTCT was rated as the least useful of the five measures utilized in the study. There is a concern related to why the TTCT was rejected outright while the different ratings on Phase 1 vs Phase 2 comparisons in 5 of the nine schools was resolved by adjusting their ratings. When confronted with this observation, the respective counsellors responded by suggesting that observations made during the TTCT testing session revealed that, in large part, the students did not take the test seriously caused in large part due to the ambiguous instructions offered at the beginning and the passive, non-directed answers to their questions concerning the various segments of the test as the session progressed.

Support for this occurrence can be gleaned from a study by Getzels and Jackson (1965), who demonstrated that significantly different test results can be obtained merely by varying the test-taking instructions. These observations are further substantiated by the counsellor's concerns of the three scores

obtained on the test: namely, fluency, originality and flexibility. None of the counsellors had any previous experience with the TTCT and based on their observations, expressed serious concerns about its usefulness, resulting in a "cautious" interpretation in the best interest of their students (error of "omission" rather than "commission").

The results obtained on the "board wide" procedure were disappointing in that only modest differences were obtained in any of the phase comparisons; these findings, however, can be explained in terms of the procedures used. Although five counsellors participated in this aspect of the study, each individual had responsibilities to rank each of the one hundred and sixty-one students, which they felt to be an insurmountable task before starting. They articulated this concern several times as they ranked students and after the data had all been collected concurred with their original belief at the beginning of the task. Clearly, this was a monumental task which created considerable frustration, mental stress and physical exhaustion which must have interfered with objective ratings required of them. Due to their motivation, interest and willingness to participate, they performed the task as requested but, observations and comments made as they completed their ratings would indicate that there were so many students whose scores were so close that they felt their rankings were being made arbitrarily; on many occasions, they shared the common theme with each other - "there are just too many students to rank."

In spite of their concerns, the comparison of ratings within each school and the order of rankings in the board-wide procedure yielded significant Kendall Tau Coefficients indicating that, in spite of their concerns, students in each individual school were consistently ranked similarly in the board-wide procedure suggesting considerable internal consistency. Although the present findings render only partial insight into answers to the questions previously

posed, there is considerable support which can be formulated into recommendations for future screening procedures in the section which follows.

CONCLUSIONS AND RECOMMENDATIONS

Although only partial support for the expected results was obtained in the present study, there are, nevertheless, several conclusions which could be offered based on these data and these are listed below.

(1) In order to obtain an appropriate sample size in each of the schools, counsellors were asked to recommend and prepare ratings on the top 20% of their school sample. Clearly, these lists included children who were not considered gifted since most of the research literature (Renzulli, 1978) suggests recommending only the top five percent of students. By limiting the future prospects to this category and range, it would alleviate the difficulties encountered by the counsellors on the board-wide procedure and restrict this sample to approximately forty students creating a more realistic and viable working sample.

(2) It is apparent from the present data that the findings could have been effected by the knowledge of the various tests used and the familiarity with the specific tests including the understanding of test instructions. Although not always required on guidance curricula, it is apparent that a general understanding of this area would serve an important function in the identification of gifted learners. Additionally, in establishing a "weighted scoring system" utilized in many other research studies, this content would provide particularily relevent experiences and tentative modalities to be considered.

(3) In keeping with the previous recommendation, it is apparent that

training of guidance counsellors and classroom teachers is an extremely important consideration. It is recommended that all teachers and counsellors be cognizant of the learning ability and potential of gifted children, their learning and cognitive styles including motivational, situational and social-emotional concomitants by attending formal, credit courses and/or seminars so that no gifted child would be omitted from the opportunity to receive enriched programming if so qualified. Once having identified these students, teaching personnel would then have the opportunity to design specific learning opportunities for each child based on their interest and capability.

(4) It is recommended that a board-wide Admissions Committee for Gifted Learners be created to identify gifted students and ensure that appropriate educational plans are devised individually for each child. Although not necessarily required for identification procedures, the role of the committee would be to devise a reasonable philosophy of giftedness for the school board and to assure curricula modifications could be made within the financial restraints of the budget. The particular role of this Committee would be to fulfill the professional mandate proposed by educators and administrative personnel.

(5) Finally, it can be concluded that, based on the data of the present study, more research on the dynamics of the rating process for enrichment programming is warranted. More specifically, the present findings would suggest that "the more measures to identify giftedness the better is not necessarily valid but specific reasons for this finding is not immediately clear. Certainly more research is required to elucidate the most interesting and perplexing implications of the study results.

References

Alexander, A., & Muria, J. (1982). Gifted education. Rockville: Aspen.

Alexander, P.A. (1984). Training analogical reasoning skills in the gifted. Roeper Review, 6, 191-193.

Alvino, J. & Wieler, J. (1979). How standardized testing fails to identify the gifted and what teachers can do about it. Phi Delta Kappan, 61, 106-109.

Archambault, F.X., Jr. (1984). Measurement and evaluation concerns in evaluating programs for the gifted and talented. Journal for the Education of the Gifted, 7, 12-25.

Austin, A.B., & Draper, D.C. (1981). Peer relationships of the academically gifted: A review. Gifted Child Quarterly, 25, 129-133.

Aylesworth, M. (1984). Guidelines for selecting instruments in evaluating programs for the gifted. Journal for the Education of the Gifted, 7, 38-44.

Beckwith, A.H. (1982). Uses of the Ross Test as an assessment measure in programs for the gifted and a comparison study of the Ross Test to an individually administered intelligence test. Journal for the Education of the Gifted, 5, 127-140.

Binet, A., & Simon, T. (1905). Methods nouvelles pou le diagnostic du niveau intellectuel des anamouraux. L'Anie Psychologigue, 11, 191-244.

Birch, J.W. (1984). Is any identification procedure necessary?. Gifted Child Quarterly, 28, 157-161.

Borland, J. (1978). Teacher identification of the gifted: A new look. Journal of the Education of the Gifted, 2, 22-32.

Callahan, C.M., & Kauffman, J.M. (1982). Involving gifted children's parents: Federal law is silent but its assumptions apply. Exceptional Education Quarterly, 3(2), 50-55.

Cartwright, G.P., Cartwright, C.A., & Ward, M.E. (1981). Educating special learners. Belmont: Wadsworth.

Cattell, R.B. (1963). Theory of fluid and crystallized intelligence. Journal of Educational Psychology, 54, 1-22.

Chase, E.I. (1985). Torrance tests of creative thinking. In O.K. Buros (Ed.), The seventh mental measurements yearbook (pp.836-838). Highland Park, N.J.: Gryphon Press.

Colangelo, N., & Kelly, K.R. (1983). A study of student, parent and teacher attitudes toward gifted programs and gifted students. Gifted Child Quarterly, 27, 107-110.

Crockenberg, S.B. (1972). Creativity tests: A boon or boondoggle for education?. Educational Research, 42(1), 27-45.

Darwin, C. (1958). The origin of species. New York: Mentor Books.(Original work published 1859)

Davidson, J.E. and Sternberg, R.J. (1984). The role of insight in intellectual giftedness. Gifted Child Quarterly, 28, 58-64.

De Haan, R., & Havighurst, R. (1957). Educating gifted children. Chicago: University of Chicago Press.

Divesta, F., & Thompson, G. (1970). Educational psychology instruction and behavior change. New York: Appleton-Century-Crafts.

Dixon, B., Meyer, J., & Hardy, A. (1986). Reaching the gifted. Toronto: OISE.

Duffey, J.B., Salvia, J., Tucker, J., & Ysseldyke, J. (1981). Nonbiased assessment: A need for operationalism. Exceptional Children, 47, 427-434.

Evans, E.D., & Marken, D. (1982). Multiple assessment of special class placement for gifted students: A comprehensive study. Gifted Child Quarterly, 26, 126-132.

Eysenck, H. (1979). The structure and measurement of intelligence. New York: Springer Verlog.

Feldhusen, J.F. (1989). Synthesis of research on gifted youth. Educational Leadership, 46 (6), 6-11..

Gallagher, J.J. (1975). Teaching the gifted child. Toronto: Allyn & Bacon.

Gallivan, J. (1985). Canadian tests of basic skills. In D.J. Keyser & R.C. Sweetland (Eds.), Test critiques: Vol. IV (pp. 127-131). Kansas City, MO: Test Corporation of America.

Galton, F. (1883). Inquiries into human faculty and its development. London: Macmillan.

Galton, F. (1962). Hereditary genius. London: Fontana. (Work originally published 1869)

Gardner, H. (1982). Giftedness: Speculations from a biological perspective. New Directions for Child Development, 17, 47-60.

Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. New York: Basic Books.

Gear, G.H. (1976). Accuracy of teacher judgment in identifying intellectually gifted children: A review of the literature. Gifted Child Quarterly, 20, 478-489.

Gear, G.H. (1976). Accuracy of teacher judgement in identifying intellectually gifted children: A review of the literature. Gifted Child Quarterly, 22, 90-97.

Getzels, J.W., & Jackson, P.W. (1958). The meaning of giftedness - An examination of an expanding concept. Phi Delta Kappan, 40, 275-277.

Guilford, J.P. (1959). Three faces of intellect. American Psychologist. 14, 469-479.

Guilford, J.P. (1973). Theories of intelligence. In B.B. Wolman (Ed.), Handbook of General Psychology (pp. 630-643). Englewood Cliffs, N.J.: Prentice Hall.

Hagen, E. (1980). Identification of the gifted. New York: Teachers College Press.

Haring, N.G., & McCormick, L. (Eds.). (1986). Exceptional children and youth, (4th ed.). Toronto: Merrill.

Harvey, S. (1982). A new view of the relationship between creativity and intelligence. Journal for the Education of the Gifted, 5, 295-307.

Howley, A., Howley, C.B., & Pendarvis, E.D. (1986). Teaching gifted children. Toronto: Little, Brown & Company.

Hunt, J. (1961). Intelligence and experience. New York: Ronald Press.

Jacobs, J. (1971). Effectiveness of teacher and parent identification of gifted children as a function of school level. Psychology in the Schools, 8, 140-142.

Jensen, A.R. (1969). How much can we boost I.Q. and scholastic achievement. Harvard Educational Review, 39, 1-123.

Karnes, F. & Brown, K. (1981). A short form of the WISC-R for gifted students. Psychology in the Schools, 18(2), 169-173.

Lerner, J., Mardell-Czudnowski, C., & Goldenberg, D. (1981). Special education for the early childhood years. Englewood Cliffs: Prentice-Hall.

Link, F.R. (Ed.). (1985). Essays on the intellect. Alexandria: ASCD.

Lucito, L. (1963). In L. Dunn (Ed.), Exceptional children in the schools. New York: Holt, Rinehart & Winston.

MacKinnon, D.W. (1965). Instructional media in the nurturing of creativity. In C.W. Taylor & F.E. Williams (Eds.), Instructional media and creativity. New York: Wiley.

Maker, C.J. (1982). Teaching models in education of the gifted. Austin: Pro*Ed.

Marland, S.P. (1972). Education of the gifted and talented (Report to Congress). Washington, D.C.: U.S. Office of Education.

McInnis, C.E. (1986). Canadian cognitive abilities test. In D.J. Keyser & R.C. Sweetland (Eds.), Test critiques: Vol. V (pp. 48-54). Kansas City, MO: Test Corporation of America.

Meeker, M. (1977). SOI Learning Abilities Test. El Segundo, CA: SOI Institute

Miller, E. (1969). Individual intelligence testing (Cassette Recording No. 29233). New York: Jeffrey Norton.

National Society for the Study of Education. (1958). Education of the gifted (Fifty-seventh Yearbook of the National Society for the Study of Education). N.B. Henry (Ed.). Chicago: University of Chicago Press.

Nelson Canada Limited. (1984). Canadian tests of basic skills: Manual for administrators, supervisors and counsellors. Scarborough: Author

Nettleship, R. (1966). The four stages of intelligence. In A. Sesonske (Ed.), Plato's Republic. Belmont, CA: Wadsworth Publishing Company.

Newell, A. and Simon, H.A. (1972). Human problem solving. Englewood Cliffs, NJ: Prentice-Hall.

Otis, A.S. and Lennon, R.T. (1989). Otis-Lennon school ability test: National norms booklet-sixth edition. New York: Harcourt Brace Jovanovich, Inc.

Pedriana, A.J. and Bracken, B.A. (1982). Performance of gifted children on the PPVT and PPVT-R. Psychology in the Schools, 19(2), 183-185.

Pendarvis, E.D. (1981). Gifted and talented children. In A.E. Blackhurst & W.H. Berdine (Ed.), An introduction to special education: individual differences in learning behavior (pp. 463-496). Toronto: Little, Brown & Company.

Piaget, J. (1952). The origins of intelligence in children. New York: International Universities Press.

Rellas, A. (1969). The use of the Wechsler Preschool and Primary Scale (W.P.P.S.I.) in the early identification of gifted students. California Journal of Education Research, 20(3), 117-119.

Renzulli, J. (1978). What makes giftedness? Re-examining a definition. Phi Delta Kappan, 60(3).

Renzulli, J., & Hartman, R. (1971). Scale for rating behavioral characteristics of superior students. Exceptional Children, 38, 211-214.

Renzulli, J.S., & Reis, S.M. (1985). The schoolwide enrichment model: A comprehensive plan for educational excellence (pp. 19-22). Mansfield Center, CT: Creative Learning Press.

Renzulli, J.S., Reis, S.M., Smith, L.H. (1981). The revolving door identification model. Mansfield Center, CT: Creative Learning Press.

Renzulli, J., & Smith L. (1977). Two approaches to identification of gifted students. Exceptional Children, 43, 512-518.

Robinson, N.M., and Robinson, H.B. (1976). The mentally retarded child: A psychological approach, 2nd Ed. New York: McGraw-Hill.

Rubenzer, R. (1979). Identification and evaluation procedures for gifted and talented programs. Gifted Child Quarterly, 23(2), 304-316.

Safford, P.L. (1978). Teaching young children with special needs. Saint Louis: Mosby Company.

Sattler, J.M. (1982). Assessment of children's intelligence and special abilities (2nd Ed.). Boston: Allyn and Bacon.

Salvia, J., & Ysseldyke, J. (1981). Assessment in special and remedial education. Boston: Haughton-Mifflin.

Spearman, C. (1904). General intelligence - objectively determined and measured. American Journal of Psychology, 15, 201-293.

Spearman, C. (1927). The abilities of man. New York: Macmillan.

Sternberg, R.J. (1977). Intelligence, information processing and analogical reasoning: The componential analysis of human abilities. New York: Wiley.

Sternberg, R.J. (1981). A componential theory of intellectual giftedness. Gifted Child Quarterly, 25, 86-91.

Sternberg, R.J., & Davidson J.E. (Eds.). (1986). Conceptions of giftedness. New York: Cambridge University Press.

Swartz, J.D. (1988). Torrance tests of creative thinking. In D.J. Keyser & R.C. Sweetland (Eds.), Test critiques: Vol. VII (pp. 127-131). Kansas City, MO: Test corporation of America.

Terman, L.M. (1926). Genetic studies of genius: Vol.1. Mental and physical traits of a thousand gifted children. Stanford, CA: Stanford University Press.

Terman, L.M. and Merrill, M.A. (1973). Stanford-Binet intelligence scale; Manual for the 3rd revision, Form L-M. Boston: Houghton-Mifflen.

Thorndike, E. (1925). The measurement of intelligence. New York: Columbia University Teachers College.

Thorndike, R.L., and Hagen, E. (1977). Measurement and evaluation in psychology and education. New York: John Wiley and Sons, Inc.

Thorndike, R.L., & Hagen, E. (1982). Canadian cognitive abilities test: Examiner's manual. Scarborough: Nelson.

Thurstone, L.L. (1938). Primary mental abilities. Psychometric Monographs, 1.

Thurstone, L.L. (1938). Primary mental abilities. Chicago: University of Chicago Press.

Torrance, E.P. (1962). Guiding creative talent. Englewood Cliffs, N.J.: Prentice-Hall Inc.

Torrance, E.P. (1963). Education and the creative potential. Minneapolis: University of Minnesota Press.

Torrance, E.P. (1966). The Torrance tests of creative thinking: Technical - norms manual. Lexington, MA: Personnel Press.

Torrance, E.P. (1990). Manual for scoring and interpreting results: Torrance tests of creative thinking. Bensenviile, IL: Scholastic Testing Service, Inc.

Treffinger, D.J. (1985). Torrance tests of creative thinking. In J.V. Mitchel Jr. (Ed.), The ninth mental measurements yearbook (pp.1632-1634). Lincoln, NE: Buros Institute of Mental Measurements.

Wechsler, D. (1949). Manual for the Wechsler intelligence scale for children. New York: Psychological Corporation.

Wechsler, D. (1955). Manual for the Wechsler adult intelligence scale. New York: Psychological Corporation.

Wechsler, D. (1967). Manual for the Wechsler preschool and primary scale of intelligence. New York: Psychological Corporation.

Wechsler, D. (1974). Wechsler intelligence scale for children - revised. New York: Psychological Corporation.

Williams, R.H. (1984). Otis-Lennon school ability test. In D.J. Keyser & R.C. Sweetland (Eds.), Test critiques: Vol. I (pp. 127-131). Kansas City, MO: Test Corporation of America.

Witty, P. (1951). (Ed) The gifted child. Boston: D.C. Heath.

Zigler, E. (1970). In H.C. Haywood,(Ed.), Social-Cultural aspects of mental retardation. New York: Appleton-Century-Crafts.

Appendix A

THE START OF THE STUDY

PICTOU DISTRICT SCHOOL BOARD

PROGRAM DEPARTMENT

TO: ALL PRINCIPALS
& GUIDANCE COUNSEI LORS

FROM: Jim Meikle, Acting Supt. of Program

RE: ST. F.X. SUMMER ACADEMY

DATE: February 26, 1990

****

As Acting Superintendent of Program, I am conducting a study of our nominations procedures for Summer Academy. I ask for your co-operation at each stage of the process and in return I promise tc share the results as well as include you in a process of formulating recommendations for the identification of students for Pictou District Gifted/Enrichment Programs.

By March 31, I would ask that you submit to me a prioritized list of nominated students for the Summer Academy 1990. It is expected that you would nominate up to 10% of your Grade 8 student population.

After the completion of this stage, additional data will be requested.

APPENDIX B

PHASE TWO OF THE STUDY

PICTOU DISTRICT SCHOOL BOARD

PROGRAM DEPARTMENT

M E M O R A N D U M

TO: *name*
FROM: *Jim Meikle, Acting Supt. of Program*
DATE: *April 2, 1990*
RE: *SUMMER ACADEMY STUDY*

****

Thank you for your prompt submission of the students to be nominated for Summer Academy 1990. A study on the nomination process for the Summer Academy has been approved by the Education Program Committee and, in order to fulfill its mandate, we require additional pertinent information; we anticipate that your contribution will help to realize our goal.

On the enclosed form, you will note a more extensive list of students than you previously submitted. We have increased the sample size deliberately to fulfill the research mandate. Accordingly, the list of candidates from your school will be comprised of (#) number students.

The enclosed form lists students alphabetically and includes their Grade Point Average (G.P.A.). You will note that the subtests scores for CTBS and CCAT are missing. You are required to record **all this data in percentiles** on this form. Once all data has been completed, you are then asked to nominate students in terms of priority for Summer Academy 1990 on the space provided to the left of each student's name.

In order to maintain time deadlines, it is expected that this data will submitted to Jim Meikle, Program Department, Pictou District School Board **no later than April 12, 1990.** Further collaboration will follow your submission.

As always, your cooperation and contribution are greatly appreciated.

pc: Principal

APPENDIX C

PHASE THREE OF THE STUDY

PICTOU DISTRICT SCHOOL BOARD

M E M O R A N D U M

PROGRAM DEPARTMENT

TO: Guidance Counsellors

FROM: Jim Meikle, Ass't. Supt. of Program (Secondary)

DATE: April 16, 1990

RE: **SUMMER ACADEMY STUDY**

****

Enclosed please find a copy of a letter to be sent home to the parent/guardian of each of the students on your school list; distribute these letters to each of the students allowing one week for their return. Please send the signed letters on to the Program Department by April 23, 1990. Subsequent collaboration will follow.

If all student letters have not been returned within the one week period, please telephone the parent/guardian and request the letter be returned signed with either permission granted or denied. You may sign for the parent/guardian if they so request; however, students who do not have a permission letter on file will be dropped from the study.

Your continuing co-operation in this study is greatly appreciated.

Dear Parent/Guardian:

In an effort to improve Educational Services to our students, we plan to conduct a few surveys to make future decisions. As part of this ongoing process, we are requesting your permission to allow your (son / daughter) gender name to participate in our initial survey. This study is designed to observe the learning process and learning styles of various children so they are related to academic achievement.

We would like to assure you that all information will be kept strictly confidential and anonymity will be guaranteed; furthermore, the data will not be recorded in the students record card.

The survey has been approved by Education Program Committee of the Pictou District School Board. The informational survey will require approximately one and one half hours of your child's time, and will be conducted during school hours in his/her school.

From previous experience, students have found this session to be enjoyable, challenging, and worthwhile; we hope you will acknowledge your permission by having your child return this letter to the School Guidance Counsellor as soon possible.

Jim Meikle,
Acting Superintendent of Program

PARENTS SIGNATURE
Permission granted

PARENTS SIGNATURE
Permission denied

APPENDIX D

GROUP TESTING SESSION

PICTOU DISTRICT SCHOOL BOARD

PROGRAM DEPARTMENT

TO: Guidance Counsellors

FROM: Jim Meikle, Acting Supt. of Program

DATE: May 1, 1990

RE: SUMMER ACADEMY SURVEY

****

Thank you for collecting the letters authorizing the students to participate in the study; we can now proceed to the next stage of our survey.

Please organize a one and one-half hour testing session for the students who have permission to continue participating during the week of May 7 to May 11, 1990. During this session, the students will be asked to complete the Otis-Lennon School Ability Test and a Test of Creative Thinking. The materials necessary for this testing session are either enclosed or will be delivered to you.

Following the test session, please collect the Tests of Creativity and send them to the Program Department for scoring. After this has been completed, score the Otis-Lennon Ability Test and rank order the students based on the Otis-Lennon I.Q. information, as well as all other data on the sheet. Please record your rank order on the summary sheets provided.

When this has been completed (by May 18, 1990), return the summary sheets to the Program Department. Further instructions will follow your submission.

Your continued support is much appreciated!

APPENDIX E

PHASE FOUR OF THE STUDY

PROGRAM DEPARTMENT

TO: Guidance Counsellors

FROM: Jim Meikle, Acting Supt. of Program

DATE: June 4, 1990

RE: SUMMER ACADEMY SURVEY

****

The Torrance Tests of Creative Thinking which you administered have now been scored and the results have been recorded on your list of students.

The test attempts to measure global creativity as assessed along three parameters; relevant fluency, originality, and flexibility.

Relevant fluency is defined as appropriate student responses which attempted to respond to the question being asked. Originality is defined as student responses that were considered to be "original" as compared to a list of average responses. Flexibility is defined as the number of different categories that student responses could be grouped into.

Based on the present Creative Thinking scores and all other available information given, please rank your students for enrichment programming and record their rank in the space provided to the left of the student's name.

Please return your prioritized list to the Program Department by June 9th, 1990. Your co-operation in this study is much appreciated.

APPENDIX F

QUESTIONS ASKED AT GUIDANCE COUNSELLORS' INTERVIEW

QUESTIONS ASKED

1. Please rank your list of students in order of priority based on their grade point average (GPA).

2. Please rank the following tests in terms of usefulness for identifying students for enriched programming:

   Grade Point Average (GPA) _____

   Canadian Tests of Basic Skills (CTBS) _____

   Canadian Cognitive Abilities Test (CCAT) _____

   Otis-Lennon School Ability Test (OLSAT) _____

   Torrance Tests of Creative Thinking (TTCT). _____

3. In what way did you find each of the above tests useful ?

4. What was the role of OLSAT and TTCT in the ranking of students ?

5. Should OLSAT and TTCT be used to assess students in schools ?

6. Did you notice anything happening over the four phases of the study ?

7. If there were no names of students given in the information, would your ratings be the same or different ? Why or why not ?

8. Would it be helpful to have other professionals involved in the rating of students for enrichment programming ?

9. Please rank the following in terms of how you perceive them being helpful in rating students for enrichment programming:

   Teachers _____

   Administrators _____

   Psychologists _____

   Parents. _____

10. Would the ratings of the above individuals differ ?