THE ROLE OF MENTORSHIP IN ENHANCING ACADEMIC PROFICIENCY, MOTIVATIONAL DISPOSITION AND LEARNING SATISFACTION IN ACADEMICALLY GIFTED CHILDREN.

by
BRENDA GLADYS HULDIS SIMPSON
B.A., Simon Fraser University, 1971
M.Ed., University of British Columbia, 1977

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Department of EDCI

The University of British Columbia
Vancouver, Canada

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ABSTRACT

According to research, the academically gifted child may not have his/her educational needs met in a classroom with his/her age mates. This study was an investigation of the impact of mentorship on academically gifted students in an attempt to adjust curriculum to reflect what the identified gifted child is ready to learn. There is little theoretically-based research on the impact of mentorship on children with advanced academic capabilities. It was hypothesized that academically gifted students who received individualized instruction from a mentor would show positive changes in motivation and that this teaching approach would further enhance their academic proficiency. Learning satisfaction would also be a result of participation in a mentorship program. A multi-case study methodology was employed, including four identified gifted students. Replication of results across cases illustrates an overall improvement in academic competency and motivation. The children involved learned a great deal, evolved as motivated students and had a noticeable sense of satisfaction from participating in the program. Conclusions justify the need for curriculum modification for academically advanced children.
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Chapter One

Introduction

Statement of the Problem

Currently, for the very bright child whose acquired knowledge surpasses educational grade placement and whose intellectual and academic development surpasses chronological age peers, it seems that age/grade placements may not meet his/her educational needs. These needs are desire for academic knowledge and educational challenge. Challenge is an internal appeal to acquire greater understanding and knowledge. The drive for challenge is closely affiliated with motivation. The gifted learner is strongly motivated toward developing his/her potential (Clark, 1992). These motivational attributes directly effect learning satisfaction. "Programs that relate clearly to the differentiating characteristics of this population can most effectively meet the educational needs and nurture the high-level abilities of gifted pupils" (Clark, 1992, p. 240).

According to the British Columbia Ministry of Education (1994), gifted students are defined as follows:

These students give evidence of exceptionally high performance capability with respect to intellect, creativity, or the skills associated with specific disciplines. These abilities are demonstrated on a prolonged basis with extraordinary task commitment. A gifted learner often demonstrates outstanding abilities in more than one area. They may, however, also have accompanying disabilities and should not be expected to have strengths in all areas of intellectual functioning. (p. D28)
Once school personnel identify a child as "gifted" they propose special educational programming. Often, they base this educational planning on a general enrichment class. Such enrichment classes appear to aim at the general knowledge base of the student "without moving to increased levels of complexity and challenge" (Robinson & Robinson, 1982, p. 80). What goes on in general enrichment classes seems to involve creative problem solving strategies, and unstructured time is allowed for the gifted child to pursue his/her own interests. Rarely do the organizers plan this enrichment considering the student's present operative level in a specific knowledge domain. This phenomenon has been referred to as being "intellectually underserved" (Keating, 1980, p.59). The relevance to education of identifying giftedness is whether or not the educational program a student is receiving matches his/her ability in those subject areas where the student excels (Matthews, 1993).

Ideally, educators are obliged to recognize the student's abilities and to attempt to adjust curriculum so that it will reflect the learner's knowledge and current skill capability. Proper curriculum adjustment would eliminate the incongruity between what academically underserved students are taught and what they are ready to learn.

Mentorship as a curriculum adjustment, operating in tandem with the student's school, may help academically gifted students to discover their potential and gain more insight into their goals (Zorman, 1993). Mentors are experts in particular disciplines.
Mentors are enthusiastic about sharing their knowledge and experiences (Timpson & Jones, 1989). A mentor can enhance an academically gifted student’s inclination for challenge and heighten a student’s academic motivation.

However, no systematic research on the effects of mentorship on students’ academic competency, on learning motivation and on learning satisfaction has been done. This study investigated the influence that mentorship would have on the academically gifted student in these three areas.

**Background to the Problem**

Schooling in British Columbia is in the process of undergoing dramatic change. In the "Year 2,000: A Framework for Learning" document (B.C. Ministry of Education, 1989) the authors advocate that education be child centred and learner focused and involve all stakeholders in the process. The goals of schooling include the student’s intellectual, social, and career development. The position statements of the document include active and continuous learning, integration of all learners, curricular integration and educating all children to their potential. Appropriate programming for gifted students therefore appears legitimized.

However, despite the initiatives set out in the *Year 2,000: A Framework for Learning* (1989), it is clear that the needs of academically gifted students are not always being met. Prevailing investigations suggest that the developmental model which advocates an appropriate match between level of ability and instruction appears more firmly rooted in theory than in practise (Keating,
1991). Often, the criterion for giftedness examines only the student's general mental ability and not the precise level of the student's specific academic competencies. Hence, the child who is cognitively superior is placed in an enrichment class which is often not specifically fitted to the student's distinctive strengths.

In The Graduate Program Working Paper: Partnerships for Learners (B.C. Ministry of Education, 1992), students can personalize their educational program in a variety of ways. To facilitate this process, a "Personalized Learning Plan" outlines the learning that the student wishes to engage in. Such a plan may also meet the needs of clearly identified underserved gifted learners of all ages.

The Purpose of the Study

The purpose of this study is to identify students who demonstrate exceptional achievement or extraordinarily high potential and design an appropriate educational program to meet their needs. This study proposes an alternate program for the academically gifted student: a mentorship program. Mentorship attempts to address the child's present understanding in a specific knowledge domain and challenge the student at his/her skill level. A "mentor/mentee relationship is special: The mentor is a committed and nonjudgmental adult who listens carefully and caringly... the child is not a passive partner in the relationship" (Lengel, 1989, p. 28). The student may become more actively engaged in learning. Consequently, in changing the environment,
both teachers and learners are genuinely motivated. "The social environment has an important effect on which type of motivation people will use... Intrinsic motivation is fostered by environments that support autonomy" (Clark, 1992, p. 329). Mentorship is compatible with Keating's (1991) developmental model, which matches the child's education to the child's known knowledge and understanding in a specific subject.

A mentorship program emphasizes a flexible use of school and community resources to accelerate the child in a specific subject. Acceleration in this sense does not mean to speed up the curriculum and hurry the child through the various levels of courses, but rather to match the child's present functional level in a subject with material and instruction that promote further progress in that particular subject. For example, the grade three child who already has an understanding in Algebra will be presented math knowledge which matches his/her present understanding. This student would not be presented the times-tables where his/her age/grade mates' mastery level might be.

Once a student's subject strengths have been identified, the aim is to match the program to the student's ability rather than her/his age, thus encouraging individual development and acknowledging the characteristics of the gifted learner. This level of instruction would be commensurate with the gifted learner's academic levels, so that "they are properly challenged to learn the new material" (Feldhusen, 1989, p. 8).
Rationale for the Study

Students who deviate significantly from the average or who have uncommon potential to produce something of great value may be constrained by most educational placements. Apart from the child's intellectual ability and achievement levels, the second most significant influence in development of gifted learners is the educational placement. The match of educational opportunities to the student's current skill levels provides opportunities where we can then begin to address the needs of the gifted learner (Benbow & Arjmand, 1990).

Declaring that a child is displaying high general ability does not assist with program planning and implementation. Results from cognitive assessments focused on IQ scores do not assist in program planning. Educators do not teach to IQ results but to students whose ability levels are in keeping with designated grade levels. An appropriate program matches the child's individual competencies and interests and arranges the learning environment for the student to learn at the appropriate level. A mentorship program would offer "subject-specific acceleration" (Matthews, 1994, p. 1). Acceleration in this context is defined as "providing instruction at a level and pace appropriate to the child's level of achievement or readiness" (Feldhusen, 1989, p.7). It does not suggest high-level, fast paced instruction with the intent of hastening a child through discreet levels of curriculum.

Those students whose abilities are most markedly domain-specific-- for example, extremely well-developed reading abilities
(reading before kindergarten) and average mathematical abilities, are frequently not well attended to in an age-appropriate classroom. Most often, if they are in enrichment programs, their exceptional language arts abilities and/or mathematical or other academic areas are not being challenged (Matthews, 1994) as enrichment programs have begun with assumptions about the nature of "giftedness." This is usually based on general intelligence or some other cognitive trait such as creativity (Keating, 1991). These assumptions of giftedness center around the child's general intelligence and/or his/her superior creative abilities. Encompassing this assumption is the idea, that across the board, these children are superior to the average child and therefore they need time and special compensation to develop and express this superior intelligence and creativity. Such assumptions do not consider the child's academic knowledge and strengths nor do these assumptions consider an appropriate curricular match.

The intent of this study is to match a student's specific interests and strengths with an adult who holds similar strengths and abilities. The mentor will provide instruction at the child's level. Thus, the designated competencies of the student will be addressed and it is hypothesized that students' motivational attributes will be positively influenced by the satisfaction gained from learning.
**Definition of terms**

The following terms will be used throughout the thesis and are defined as follows:

1. **Academically underserved.** For the academically gifted learner, present academic instruction can be beneath his/her capacity for learning; knowledge presentation is "less than" or subordinate to what is required. The rate or estimate of knowledge and information instruction is too low; teaching does not match the child's current abilities (Keating, 1991).

2. **Aptitude.** Abilities and other characteristics, whether native or acquired, are indicative of an individual's ability to learn in some particular area. "Motivation, anxiety, and many other conative and affective attributes can serve as aptitudes for learning" (McVey & Snow, 1988, p.100.)

3. **Autonomy.** This term implies self-regulation and independence. In gifted education, the student's need for self-expression and desire to direct their education, based on their own prerogatives to design curriculum, is desired. It presupposes self-direction and a continuous interaction with the learning milieu (Clark, 1992).

4. **I.E.P (Individual Educational Program).** This is a special, well-defined instructional plan. It is usually designed around a child's unique learning needs. In the case of a gifted learner, it takes the child's individual strengths into consideration. Usually it is composed with input from teachers, parents and a Learning Assistant teacher. Often the child is encouraged to have input into the plan.

5. **Motivation.** Motivation applies to the feeling or desire that makes a person do what he/she does. It is the act or process of furnishing an incentive or inducement to action.

   **Intrinsic motivation.** This motivation is determined by the inborn, instinctive drive that allows a student to work for the joy and satisfaction of accomplishment without apparent reward. It produces instinctive pleasure (Harter, 1981).

   **Extrinsic motivation.** Extrinsic motivation refers to the student who strives to meet the teacher's expectations. It is the external or outward drive/motivation that is usually followed by grades, prizes or special privileges.
Overview of the study

This paper is divided into five chapters. Chapter One describes the purpose and the rationale of the study and presents definitions of terms. Chapter Two surveys the literature which is relevant to the following: 1) identification of the academically gifted learner; 2) program differentiation for the underserved academically gifted learner; 3) a discussion of motivation (impetus towards learning) as exemplified by many gifted learners; and 4) mentorship as a means of program differentiation. Chapter Three outlines the design of the study and the procedures used in the data collection and data analysis. Chapter Four reports the findings of the study. Chapter Five presents a discussion of the results and conclusions and recommendations emerging from the findings.

Summary of Chapter One

Chapter One presented the perspective of the study. The outline for the research proposal was introduced and the background of the problem and the scope of the intended research disclosed. Literature relevant to the study will be reviewed in the following chapter.
CHAPTER TWO

Literature Review

The intent of this chapter is to review the literature pertaining to the following categories and present the research questions.

I Identification of the academically gifted learner.
II Program differentiation for the underserved academically gifted learner.
III Motivation (impetus towards learning) as exemplified by many gifted learners.
IV Mentorship as a means for program differentiation.
Identification of the academically gifted learner

The term gifted suggests a natural ability or a special talent (Dictionary of Canadian English, 1973). Understanding the term "gifted" is indeed important, yet complicated. "We knew giftedness when we saw it - in the music composed, the formulas presented, the inventions patented. But without the presence of large-scale standardized testing, giftedness, and its definition, was very much determined by a specific society's interpretation of what behaviours and traits were exceptional" (Delisle, 1992, p 18).

In terms of education, the definition of "gifted" that a school district chooses to use will determine which students are selected for special programming. The definition is usually tied into programming practices. No one definition of gifted is universally accepted nor will one description fit all programs and circumstances.

All learners can be seen as falling along a continuum of competence, rather than as being divided into a set of discreet categories (Bachor, 1989). Matching a program to a child's perceived strengths attempts to secure an appropriate education plan for the gifted learner. Accepting the level of demonstrated aptitude of a student in a subject and introducing further learning in that subject allows further development of that student's expertise (Keating, 1991). Students then "would be encouraged to study at their own pace, going through the curriculum as quickly... as necessary" (Matthews, 1993, p. 6).

Information acquired from current standardized achievement
tests tells what achievement levels the child has reached. The tests do not indicate potential achievement. An indication of the child's intellectual ability may give this information.

"A distinction is made between a child's actual developmental level, i.e. his completed development as might be measured on a standardized test, and his level of potential development" (Swanson & Watson, 1989, p. 93). A student's potential may be measured by intelligence tests. "Intelligence tests were designed to fill the pragmatic need of predicting school success. Intelligence tests are composed of items representative of the kinds of problems manifested in the mastering of school curricula" (Swanson & Watson, 1989, p. 92).

Intelligence tests continue to play a prominent role in identification of the gifted learner. They continue to be a virtually indispensable tool in the theoretical examination of intellectual abilities and individual differences (Robinson & Janos, 1987). Despite current deliberation about general intelligence as a concept and with all the "efforts to distort the use of normative assumptions, mental ability is still seen to be a useful concept" (Stanley, 1976, p. 5). The intelligence test predicts long-range, lasting differences in ultimate ability (Stanley, 1976). However, saying a child is exhibiting high general ability does not help with program planning and implementation.

Proper use of IQ tests with gifted or potentially gifted children demands that they be used in conjunction with other tests
and criteria (Kaufman, 1992). A high score on an intelligence assessment indicates a need to look further at the match between the student's ability and the education being provided. Standardized achievement tests are possibly the most reliable direct measure of how well a student is learning, and at what grade level he/she has achieved subject mastery. In ascertaining giftedness in academic areas it is important that the achievement test have a sufficiently high ceiling, so the appropriate match of the curriculum to the child can be realized.

Intellectual ability, theoretically constructed as domain generality, is viewed as "cognitive activities deployed by an individual when engaged in any type of information processing...working memory, and access to long term knowledge..."(Keating & Crane, 1990, p. 412). The range given on an intelligence test helps to distinguish the bright learner from the gifted learner. Domain-specificity, on the other hand, is revealed through a student's accomplishments and completed tasks showing his/her knowledge in a particular academic area. The student's skill level in the domains of reading, language, mathematics, science and social studies need to be known. Keating (1975) purports that this expertise can be ascertained by administering achievement tests that have a sufficient ceiling for adequate evaluation. The ceiling of an achievement test is the upper limit of an ability measured by a test. High ceiling on an academic achievement test may be the best single piece of information about an individual's need for special educational
programming. Standardized achievement tests are the most reliable direct measures of how well a student is learning, and at what grade level he/she has achieved subject-specific mastery of content areas (Matthews, 1993).

In a perfect world, high-ceiling subject-specific achievement tests would be given routinely to all children, and grade-placement decisions would be based on the results. Then students who could handle and benefit from grade 6 work in French or math would be given that, regardless if their age put them into kindergarten or grade 10. (Matthews, 1993, p. 6).

This idea is what current educators consider "continuous progress," that is, moving the child forward from where his/her learning attainment is to promote further learning.

**Program differentiation for the underserved academically gifted learner**

This review suggests that students who have progressed at a remarkably rapid pace will not benefit from instruction and curriculum aimed at their age mates. In the regular classroom the student would possibly be covering material that he/she has already mastered.

Educational acceleration is not only viable but also alluring and motivating for those students who are eager to move ahead. Academic acceleration can be defined as educational flexibility based on individual abilities without regard for age. Prominent methods of acceleration include early entrance to school, grade-skipping, and fast paced classes (Swiatek, 1992). Swiatek (1992) declares that several studies of acceleration, which are unique due
to the longitudinal design employed, were done through the Study of Mathematically Precocious Youth at Johns Hopkins University. These findings suggest that "acceleration does not harm gifted students academically, but that it often helps them establish interests and build a strong foundation for future learning" (Swiatek, 1992, p. 122). Accelerated students viewed acceleration positively (Swiatek & Benbow, 1992).

Despite the propositions that learning is a sequential, developmental process; that effective teaching is to teach above the information that the child has already assimilated; and that there is a substantial difference in learning among individuals of any given age, educational planning for the academically gifted learner appears to ignore the competence and mastery of this population, and utilizes age to rank students for the purpose of their education (Robinson, 1983).

Arguments against acceleration usually centre around the student's social competencies, potential gaps in knowledge in the curriculum and the elimination of nonacademic experiences. The concern that children will be robbed of their carefree childhood and that childhood stress is preventable are also included in these arguments. Confirmatory evidence is difficult to reveal (Robinson, 1983).

However, there is research that substantiates the opposite of this assumption. Leta Hollingworth, as early as 1938, found that forcing students to conform to a age-grade system may have harmful consequences. Tasks that are too easy produce boredom and when
everything comes easily, good study habits or traits of perseverance are not encouraged (Hollingworth, 1942). Students who already know most of the material being introduced in class are very often impartial to the point of boredom. Without curriculum differentiation, a student's effort towards school work, or to even to pass courses, is notably dissipated as she/he gets older (Matthews, 1993).

Acceleration is a competency-based system (Robinson & Robinson, 1982). Acceleration establishes an optimal match between the student and the learning situation. Acceleration, "especially subject-matter acceleration... provides educational challenge commensurate with abilities" (Richardson & Benbow, 1990, p. 468) of the academically gifted student. To evaluate a distinctive curriculum for academically gifted students, Maker (1982, cited in Ellis, 1985) has suggested that "a gifted program should focus on the development of (the students') strengths" (p. 71), as the goal. Acceleration attempts to meet the student's present skill level.

Furthermore, conclusions from well constructed research "are unanimous in their support of the benefits of accelerative alternatives, both academically and social-emotionally" (Keating, 1980). Swiatek's (1992) attempts to "identify nonintellectual factors related to satisfaction with acceleration encountered difficulties because the vast majority of accelerated students were satisfied" (p.123). It is plain that children who choose to be accelerated are motivated to do so. "Willingness is an important factor in deciding who to accelerate" (Swiatek, 1992, p.123).
Motivation (impetus towards learning) as demonstrated by gifted learners

One of the most crucial areas of concern in intellectual development is motivation (Clark, 1992.) Interest in a subject results in motivation to know more and pursue these interests. Motivation, in education, is that emotion that compels students to learn. Motivation involves goal-directed activity. While this is the least well-defined area of human endeavour, it is probably the area that impacts the most on the accomplishments of gifted learners (Clark, 1992).

Included in the construct of motivation is the level or drive for why the child chooses to engage in learning. A subtle distinction is apparent between mastery motivation and achievement motivation. Mastery motivation is implied by the child's desire to learn, "because I need to know this." It is the seeking to acquire knowledge and to master or understand something new. Achievement motivation is "I need to know this, so that I can get my 'A'." This level of motivation is to obtain favourable judgments of one's competence and to avoid unfavourable judgments of one's incompetence (Dweck & Elliott, 1983, cited in Richardson & Benbow, 1990). Both types of motivation have significant and forceful effects on both the gifted learners' academic attainment and their self-concept (Harter & Connell, 1984).

Gifted learners show attributes different from their peers in several areas of performance. The literature examining these distinctions is extensive (Clark, 1992; Colangelo & Davis, 1991;
Cox & Daniel, 1985; Davis & Rimm, 1989; Delisle, 1992; Feldhusen, Hoover & Sayler, 1990). All gifted individuals have their own unique patterns of characteristics and yet no gifted learner exhibits every characteristic in every area. Clark (1992) suggests that motivation of gifted learners can be considered in their "affect-based information" (p. 40) which is observed in the gifted child's traits. Some common traits are: 1) the need to know extraordinary quantities of information; unusual retentiveness, 2) unusual intensity; persistent, goal-directed behaviour, 3) unusual emotional depth to find purpose and direction from a personal value system and to translate commitment into action, and 4) early involvement with and concern for intuitive knowing (Clark, 1992).

Motivation is derived from one's perceived competence in a particular domain, as in the case of the child with exceptional Math ability. The more competent a student feels in his mathematical skill the more intrinsic his orientation and the more he chooses to develop his skill (Harter, 1981). Lack of challenge in a regular classroom may result in lack of motivation, because the child has already obtained proficiency at the instructional level being presented. "I already know this." Therefore, their intrinsic reinforcement is "diminished by their dependence on extrinsic reinforcement" (Rimm, 1991, p.328). "Motivational factors exert a profound influence on children's intellectual performance and achievement" (Dweck & Elliott, 1983, cited in Richardson & Benbow, 1990).
Dweck and Elliott (1983, cited in Richardson & Benbow, 1990) have suggested that matching instruction to the gifted student’s competence levels should enhance gifted students’ achievement motivation. Ostensibly, "growth in achievement motivation arises out of the challenge and satisfaction gained while mastering tasks that 'match' capabilities" (p.464).

One attribute of gifted learners is their early development of an "internal core of control" (Davis & Rimm, 1989, p.24). They show a strong need to have choice, which results in their motivational determinants. The concept of internal core of control ties to Harter’s (1981) theory of motivational orientation. Her construct refers to the child’s orientation toward classroom learning. Does the child engage in learning to obtain external approval or does the child engage in learning because it is challenging and arouses his/her curiosity? Gifted learners need to investigate knowledge for the pure pleasure of it. They get very enthusiastic about learning new information and they glean much gratification from uncovering the resolution to a quandary.

The term "locus of control" is used to express the idea that perceived control can be located either within the child (intrinsically) or externally as when a reward is given for making the choice (extrinsically). Gifted children show themselves to be uniquely different from average learners (Clark, 1992). Gifted children are found to have more inner locus of control at a younger age than average learners. It is one of the conspicuous differences that needs consideration when planning educational
experiences for the gifted. Success in later life is in direct correlation to how much inner locus of control the individual has developed. "This perception of responsibility for and control over one’s life is the single most important condition for success, achievement and a sense of well-being" (Clark, 1992, p. 329).

The relevance of motivation to a child’s learning has widespread appeal among educators (Harter & Connell, 1984). Teachers want to engage the students under their jurisdiction to attend to the instruction being offered. Students will be motivated to focus if the instruction is congruous to their abilities. Impetus towards learning is observed as "one’s motivational and/or informational orientation" ...which is "situation specific, ... rather than as a traitlike construct" (Harter, 1981, p. 310). Reinforcing this understanding is that if the learning environment is manipulated, the motivation of the child will be changed (Harter, 1981).

The global nature of the motivation factor "has precluded any precise operational definition" (Harter & Connell, 1984, p. 220). For the purposes of this study, Harter’s definition of motivation will be used. "Motivational orientation refers to the reason why children prefer to engage in a mastery behaviour. This will reflect either intrinsic interest or extrinsic approval" (Harter, 1981, p. 311).

McVey and Snow (1988) believe that motivation is related to aptitude. Highly able students are motivated intrinsically. In this aptitude construct, it is the "interface between the inner
environment of the individual on the one hand and the outer environment of the learning situation on the other" (McVey & Snow, 1988, p. 100) that program planning needs to address.

An effective way to increase motivation of students is to make students aware of their own power and to allow them to exercise it (Clark, 1992). Therefore, the aim of aptitude theory in teaching is "first to describe the character of this interface between inner and outer environment and then to redesign one or both adaptively to promote higher achievement" (McVey & Snow, 1988, p. 100).

While lists of characteristics of gifted children allude to intrinsic motivation, no systematic research has been done on this characteristic, nor is there evidence which shows that gifted learners are more intrinsically motivated. There is no present research that shows how intrinsic motivation can be addressed through providing appropriate academic challenges. We know that Harter and Silon (1985) used the Scale of Intrinsic versus Extrinsic Orientation in the Classroom (Harter, 1981) to tap the self-system with retarded pupils. Results indicate, although not conclusively, that mentally challenged youngsters score high on the extrinsic pole (Harter & Silon, 1985). Harter's results raise the question of whether gifted youngsters would score high on the intrinsic pole.

Instruction in an environment that is less controlling and less teacher directed, less evaluative and less censured is believed to foster greater intrinsic motivation in students with the result that students establish more autonomy-oriented learning.
Clark, 1992). In individualized instruction, in a one-on-one relationship, the instructor is free from the interruption of "classroom order and discipline" (Lengel, 1989, p. 27) and can focus specifically on the student's strengths and interests. It is hypothesized that mentorship for academically capable children will heighten the student's intrinsic motivation.

**Mentorship as a means for program differentiation**

Mentoring is truly one of the unexplained areas of present day education (Boston, 1976). By definition, a mentor implies a wise and trusted advisor. Throughout articles on the association of mentor and "mentee" such terms as teacher, guide, instructor, master, and coach are used synonymously with the term of "mentor" (Frey & Noller, 1983). However, there is not one precise definition for the term (Beck, 1989).

What the word "mentorship" suggests is not new. The very first documented evidence of this type of instruction existed with the Greek philosophers. Socrates and his pupils Plato and Aristotle are the predecessors of this classification of knowledge exchange (Zorman, 1993).

Throughout the literature (Beck, 1989; Boston, 1976; Frey & Noller, 1983; Gray, 1984; Mattson, 1979; Shaughnessy, 1990; Shore, Cornell, Robinson & Ward, 1991; Timpson & Jones, 1989; Zorman, 1993), it is suggested that the mentor's advocacy improves the student's knowledge, personal impetus for learning and attentiveness to instruction. Shaughnessy (1990) suggests and
promotes mentorship for fostering creativity in prodigies who possess exceptional creative talents. It is inferred that mentorship does develop academic competency but how this develops and transpires is vague. Most references to mentorship are as program descriptions, not practical information about the beneficial changes in students' academic growth. These references include useful information and there is some direct research summarized. However, these mentorship descriptions are primarily in the area of career and interest advancement. Indication of increases in knowledge and skills, and the development of general abilities is also mentioned (Shore et al., 1991), but information available is not conclusive.

Indeed mentorships have long proved valuable in nurturing and challenging young learners. "But while much has been written on mentoring in school and in business, the literature does not include a detailed description of the design, structure, operations and curriculum of school-based mentoring programs" (Reilly, 1992, p. xiii) and their outcomes.

With an expanded awareness of the educational needs of gifted learners, teachers are tending to conclude that these needs can never be completely met in the "mainstream" of education. Recent research indicates that gifted students "received a limited amount of differentiation in reading, language arts, mathematics, science, and social studies instruction" (Westberg, Archambault, Dobyns, & Salvin, 1993, p.3) in regular classrooms. Support in the progression and evaluation of ideas must transcend the regular
classroom and result from the congregation of individuals with like minds and interests (Mattson, 1979). Mentorship is a means of independent study, rich in potential for assistance in idea production and exchange, knowledge acquisition and skill development of recognized gifted learners.

Mentorships continue to be an unexplored area of conventional education, especially in the elementary school (Lengel, 1989). Most mentorships transpire when the student in question has reached maturity or adulthood and the resulting relationships are similar to what exists within any apprenticeship (Timpson & Jones, 1989).

Mattson (1979) suggests that offering a mentorship program as a strategy for gifted children should not be limited to students at high school or college. He suggests that "young children with special interests and abilities may be sufficiently mature and motivated to profit greatly from contacts with a mentor" (p. 35).

The compatibility of mentor and mentee is also significant when considering offering guidance to academically gifted children. Appropriate mentorship match proposes an implied counsel to gifted children to recognize and utilize their abilities and to make satisfying personal adjustments.

The belief that mentorship benefits students in that it provides students with opportunities for cultivating academic competency, knowledge acquisition and skill development needs to be confirmed. Generally, educators who choose to alter curriculum are frequently asked to justify the program modification. Endorsement of mentorship as a means of program differentiation for the
academically gifted student would necessitate evaluation. Evaluation provides evidence for reasoned support for educational alternatives.

Reasoned support for educational alternatives for the academically gifted child can be found in Daniel Keating's presentation of the "Four Faces of Creativity: The Continuing Plight of the Intellectually Underserved" (1980). In his rationale for curriculum differentiation, he asserts that creativity can also be found in cognition. Keating presents this construct as cognitive creativity. Creativity suggests imagination, ingenuity, inventiveness and originality. Teachers frequently consider the term creativity in the realm of the "Arts." Creativity may be manifested in a painting or a poem or a play. Keating's premise is that creativity also encompasses cognition. The creativity of the "mind-make." The "unanalyzed component ... of the activity of the mind when there is no set solution, and perhaps not even a well-defined problem" (Keating, 1980, p. 56). In terms of education and specifically program modification, implications of this theory are useful.

Inclusive in Keating's (1980) study his four faces of creativity are: 1) Content knowledge. This component suggests that the student is able to work rapidly through the content of a specific discipline. It is verified by the student's deep familiarity of the subject; 2) Divergent thinking. This component implies the student's ability to make connections to other ideas from what is known and understood; 3) Critical analysis. This
component verifies the student's ability to "weed out" what is given in a problem and be selective in determining what is needed to find a solution; and 4) Communication skills. This component confirms the student's ability to be accurately understood. Whether the student's idea is spoken, written, presented in any form of production, the student's intent must be clearly communicated.

Keating's (1980) four faces of creativity appear to be examinable as an evaluation tool, when framing the mentorship program. Educational and curriculum implications on what the mentors are able to observe and comment on using Keating's components of creative cognition seem feasible and possibly examinable. For evaluation purposes, at the conclusion of the mentorship program, possibly the mentors will show insight into the child's creative cognition and what is known about gifted learners attributes (Clark, 1992). It seems likely that the mentors who have the most intimate contact with the child's learning would be able to comment on the child's development in these areas.

Selections of mentors based on preferred characteristics

Zorman (1993) reviewed several mentoring programs and summarized attributes necessary for success. "These features include: support by top management, integration into a larger training program, voluntary participation, careful selection, orientation of mentors and proteges, ensuring best fit and clear understanding of roles, encouraging flexibility in using individual
styles of interaction, and consistent monitoring" (p. 737).

The purpose of this assertion is to consider the characteristics necessary to the mentor. Publications addressing mentorship (Boston, 1976; Frey & Noller, 1983; Gray, 1984; Shaughnessy, 1990) refer to two main components consistently. These are the mentor’s dedication of time and commitment to his/her mentee. Inherent in these suppositions is flexibility. Flexibility is the capability to adapt to the time element and to the child’s temperament.

Another fundamental factor is the mentor’s expertise and competence (Boston, 1976; Gray, 1984; Timpson & Jones, 1989). The match of the mentor’s expertise and specialization must fit with the student’s abilities and interests. This match allows for pursuance of a topic with intensity and depth (Shaughnessy, 1990). "People are motivated most to do the things they love and can do best" (Shaughnessy, 1990, p. 13).

The mentor’s ability to instruct and inform the mentee is also crucial. "Most mentors may be accomplished professionals but may not be equally accomplished educators" (Zorman, 1993, p. 732). Gray (1984) talks about the mentor’s ability to understand the distinction between "direct and indirect mentoring" (p.125). The mentor must be sensitive to the student’s knowledge or lack of it. The mentor does not assume that a student knows how to do something, or already understands concepts. The expert mentor provides appropriate instructional input and direction. The ability to prepare instructional materials and "mini-lesson
demonstrations" (p.126) are all vital traits of the mentor (Gray, 1984). In appropriate instruction the mentor is able to ask relevant questions of the mentee and give constructive feed-back.

Apart from knowledge and teaching "know how," the readings show other personal characteristics that mentors possess. "The qualified mentor is described as possessing characteristics in three areas - personal, position and process" (Frey & Noller, 1983 p. 61). Being able to offer encouragement is considered a skill (Shaughnessy, 1990). The successful mentor needs also to teach the skill of interdependence and is able to give freely of the "infinity of their greatest strengths" (Shaughnessy, 1990, p. 14). Leadership is another dimension of the notable mentor-taking charge when the mentee needs direction or cannot seem to "get off the ground" with an agreed-to project (Gray, 1984). "A mentor's ultimate goal is to help each student reach the Independent Student Level at which point the student becomes responsible for and capable of independently initiating and carrying out activities" (Gray, 1984, p. 127).

A mentor with agreeable characteristics such as enthusiasm, empathy, competent judgment, openness, and ability to model are also preferred (Boston, 1976). A committed person who is nonjudgemental and listens carefully and caringly demonstrates the desired affective traits (Lengel, 1989).

Mentorship provides a trusted connection with the student. This connection is exemplified by a sense of security as well as a character model for personality (Zorman, 1993). Mentors have the
faculty of establishing "an harmonious working relationship" (Gray, 1984, p. 125). Mentors do this by discussing and linking with the student, not imposing. The mentor is able to help the student realize his/her own significance (Gray, 1984).

One emerging consideration regarding the selection of mentors and which the writer considers significant is the aspect of safety and trust of the child. This has not been covered in the literature on mentorship. Considering the young age of the case-studies and the amount of time that the child would have with the mentor, unchaperoned, it seems crucial that the selected mentors be implicitly trustworthy. Safety is paramount, and yet appears to be assumed in the mentorship literature. Potential mentors were scrutinized by the writer. Interviews were conducted with several potential mentors. Questions regarding experience and past work with children were asked. Informal chats with present and past colleagues occurred. Mentors registered with a professional body such as B.C. College of Teachers or other professional affiliations were favoured.

In addition, the writer chose adults either currently teaching in some capacity or retired teachers as potential mentors. Presumably, these adults would have traits of integrity and ethics in accordance with formal and professional rules.

"When mentoring programs are established, too often they are perceived as simply asking someone in the work place to mentor a student while offering minimal orientation" (Reilly, 1992, p. xiii), training or consideration around the "special" relationship.
The intent of the proposed mentorship was determined by cautious selection, matching the case studies' domain-specific abilities and interests with similar expertise and interests of the mentor. Interviews with potential mentors judged them to have appropriate affective characteristics. "A critical part of all the advice is attention to the careful selection of mentors (e.g., screening interviews to avoid persons motivated by various proselytizing objectives) and matching with children on the basis of a shared interest and objective" (Shore et al., 1991, pp. 147-148).

As a result of the literature reviewed, three research questions were formulated. Two of the questions concern the effect of mentorship on the student's motivation to learn and learning satisfaction. The third question concerns the effect of mentorship on academic proficiency.

**Research questions**

1. Will there be growth in intrinsic motivation as a result of the mentorship?

2. Will learning satisfaction be evident as a result of participation in a mentorship program?

3. Will a mentorship program enhance students' academic proficiency?

Methodology used to address these questions is discussed in Chapter Three.
CHAPTER 3

Methodology and Procedures

This study was designed to ascertain whether a mentorship program for academically gifted children would result in increases in students' motivation and academic proficiency. A student's learning satisfaction would also need to be indicated. The research methodology for the study is contained in the following five part discussion. The research hypotheses are presented in the first part of the discussion. The second part refers to the methodology used throughout this study. In the third part a description of selected subjects and mentors are included. The fourth part explains the need for Individual Educational Programs. Lastly, in part five, information on the measures used and the analysis of the data are presented.

The chapter will include:

I. Hypotheses

II. Case Study methodology.

III Descriptions of Selected Subjects and Mentors.

IV Individual Educational Programs (IEPs).

V Measures, including: 1) Cognitive measures, 2) Achievement measures, 3) Motivational profiles
4) Mentor's evaluation and 5) Case Studies Summative evaluation interviews.
I. Hypotheses

Hypothesis #1.
Intrinsic motivation profiles of gifted students will be higher than the normed population. The case studies' motivation will be further enhanced after a mentorship program. Post tests results will show elevated scores.

Hypothesis #2.
The Mentorship program will result in academic gains. Post test results in achievement levels will show elevated scores.

An indication of learning satisfaction will be evident after participation in a mentorship program. This part of the study was exploratory; no formal hypothesis is stated. Learning satisfaction will be measured by summative evaluation interviews.

Case Study methodology
Case study methodology attempts to understand the "development across time of an individual, an organization, a program component, or a concept" (Moon, 1990, cited in Buchanan & Feldhusen, 1991 p. 161). It is an especially useful research design when studying highly gifted children. Theory developed by examining concrete instances and "looking for general principles that hold true across those instances" (Moon, 1990, cited in Buchanan & Feldhusen, 1991 p. 158) on special populations such as gifted learners allows the researcher to ground the theory from empirical observations. Case study methods have been a cornerstone of research on giftedness
"because we don't currently understand how to help these students realize their potential" (Lundsteen, 1992, p. 114).

This methodology attempts to use field-based learning to ground the findings. Its aim is to validate theory and enhance educational practice for this population of students who exhibit exceptional ability and extraordinary achievement. "The 'grounded' character of the findings derives from the direct observation of single subjects, acting in their natural context; allowing the researcher to develop an empathic understanding of the unique perspective the subject has on the world and his or her activity in that setting" (Foster, 1986, p. 34).

Yin (1989, cited in Buchanan & Feldhusen, 1991) describes the case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomena and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23).

Case studies are similar to the ethnographic perspective as both involve ongoing interaction between data collection and analysis (Lundsteen, 1991, cited in Buchanan & Feldhusen, 1991). The researcher engages with all participants. This includes participant observation, interviewing, recording student products (Lundsteen, 1991, cited in Buchanan & Feldhusen, 1991) and administering questionnaires.

Research on special populations needs a powerful methodology which incorporates rich descriptions of the students (Yin, 1989, cited in Buchanan & Feldhusen, 1991), their interests, their
motivational traits, their adaptability to change in school settings and articulated programming efforts. Case study style is "eclectic in nature" (Yin, 1989, cited in Buchanan & Feldhusen, 1991 p. 168), as data is collected over time and is miscellaneous and indiscriminate as the case study unfolds. Using the case study methodology allows for this all-encompassing information to be recorded (Yin, 1989, cited in Buchanan & Feldhusen, 1991). "It allows researchers to examine phenomena in context and across time" (Yin, 1989, cited in Buchanan & Feldhusen, 1991, p. 175).

A multi-case study design was selected. Using four case studies follows a "replication logic" (Yin, 1989, cited in Buchanan & Feldhusen, 1991, p. 164). It is similar to four experiments where each experiment, or each case study in this investigation, is expected to produce comparable outcomes and similar results. Evidence gathered from multiple case studies "is more robust" (Moon, 1991, cited in Buchanan & Feldhusen, 1991, p. 175) and vigorous in advancing knowledge in the field of gifted education.

**Descriptions of selected subjects and mentors.**

Prior to commencing this study permission was granted from the Executive Officers of a medium-sized school district in the province of British Columbia. Upon careful deliberation of potential case studies, parents of the children were contacted and permission was granted to commence the assessment procedures. Signed consent forms were obtained from the parents of the children. Psychometric assessments were administered to four
students. Prior to a mentorship, review and approval was received by the Ethics Committee of the University of British Columbia. Several potential adults were interviewed as possible candidates for mentors. Six adult mentors were chosen to work with four case studies; two students had two mentors each.

The mentor search began shortly after the case studies were selected. Several interviews with prospective mentors took place over three months prior to commencement, to determine the match with the case studies. Selection of mentors was determined by the mentors' knowledge and expertise, availability of time, flexibility in teaching style and preferred personal characteristics.

The mentorship program was procedurally co-ordinated each fortnight. The intent of this arrangement was to explore the association of the mentor with the mentee and survey compatibility in the alliance. The strategies employed were either in person, through interviews with the case-studies and/or teachers, or by phone calls to the mentors or the case studies' parents. Formal review of I.E.P.s were analyzed once during the six months of duration. Necessary corrections or modifications were appraised at that time, with mentors, parents, teachers and often students. Principals often attended these meetings as well. Organization around the structure of each separate mentorship with built in review times was necessary. Administrative details were co-ordinated by the writer. Clear communication between school personnel, parents, mentors and case studies was undertaken throughout the duration of the mentorships.
Case Studies.

This study used a purposeful selection of four case studies. The children chosen were thought to have exceptional abilities in some academic areas. Two of the children (case study #1 and case study #2) had been given a test of intelligence early in their school career. The remaining case studies had not been tested, nor were they identified as gifted. These children were reported to the writer by adults in the community who noticed these children as being very bright. Their musical talents and their expressive language skills were acclaimed.

The children’s ages are as follows: Case study #1 (Christopher) age 11; Case study #2 (Richard) age 13; Case study #3 (Peter) age 6; and Case study #4 (Ashleigh) age 9.

Case studies of varying ages were intentionally chosen. Children’s perceptions of themselves change as they get older. Their perceptions of teacher expectations and school system expectations also change. Case studies of varying ages would possibly garner different perspectives of the student’s perceptions of their competencies and educational requirements.

All children involved in the project were of elementary school age. All attended public schools. Three out of the four students attended elementary schools. Case study #1 was accelerated to grade 8, having skipped grade 7.

Children’s cognitive functioning was determined by administering two scales of the Wechsler Test series; the WPPSI-R and the WISC III. All case studies scored within two standard
deviations above the mean.

The Woodcock Johnson- Revised, Tests of Achievement was administered upon completion of the Wechsler Scales to determine the child's academic achievement. Two parts of the test were utilized. The Reading Cluster consists of the Letter-Word Identification, Word Attack, and Passage Comprehension subtests. The Calculation and Applied Problems subtests make up the Mathematics Cluster. All case studies' performance levels on these subtests indicated that their skill level was above their age/grade rank.

Case study methodology includes both quantitative and qualitative data on the subjects being studied (Foster, 1986). Information sought from the student's family members and past teachers offered a reasonably thorough portrayal of each of the case studies. These familial and educational experiences as shared by significant people in the children's lives attempt to present an accurate portrayal of the children being studied.

To ensure confidentiality of the case studies, pseudonyms are used in the presentation of information on the subjects. All students and their prospective mentors have been designated pseudonyms. The age indicated is the student's age at the commencement of this study.
Case Study #1 (Christopher). Male. Age: 11

WISC III results: 93-09-24

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Family Placement. Christopher is the youngest of three male children in the family. Parents were first cognizant of Christopher's academic proficiencies around his second birthday.

Early recollections of advancement. For his second birthday, his parents bought him a computer game. The game involved matching shapes and showing quantities. Before the week was over Christopher had mastered the game. By the age of six, Christopher had written his first computer program.

Christopher was able to figure out the times-tables around his fourth birthday. As early as age four, Christopher was playing cribbage with his father. At age six he was playing bridge with adults. All through early childhood, Christopher was tenacious in working out puzzles. His interest and fascination included all kinds of puzzles, including word searches and anagrams. Adult jigsaw puzzles captivated him for hours.

For the first three years of his life, it was very difficult for the family to engage Christopher to get outside and play. This family is an "outdoor" family and various sports occupy a great deal of their leisure time. With coaxing, they were able to get Christopher involved in skiing and swimming at the age of three. Mother relates that a lot of self-directed learning was happening
at this time and her child would become so engrossed in his projects or just reading that he could not easily become detached.

Play and leisure interests. By the age of five, Christopher was involved in organized sports such as soccer and hockey. He liked to follow professional hockey with his big brothers at a very early age. He started golfing at age six. Softball became a passion at age eight. Christopher continues to play organized hockey and soft ball. He also began piano lessons at the age of nine, and easily accelerated into grade six, "Royal Conservatory of Music" before his twelfth birthday.

In the present, Christopher has several stocks in mutual funds and follows these and the stock exchange carefully. He is very learned about the financial world and adults often ask him for advice.

School history. Christopher was accelerated into grade eight in September, 1993, skipping grade seven. Throughout his elementary school years he won numerous school district Math competitions and placed first in several of the school district's "Science Fairs." Christopher hoped he would be able to be challenged in the computer domain at the high school. Christopher took a regular grade eight program, with the exception of Mathematics 10, and Graphics 9/10 in place of English 8. The latter course was an elective course which focused on presenting the high school newspaper and yearbook.

Academic strength. Christopher’s greatest strength is in mathematics. Related to this is his exceptional understanding of computer science. By age ten he had gone as far as he could in
obtaining instruction in computer programming with the help of a grade 11 student who tutored Christopher at home in the evenings. Christopher excelled in this knowledge. Since that time, the family has not been able to find someone knowledgeable enough about computer programming and who would choose to work with an eleven year old.

**Exhibited personality traits.** Christopher appears to be a contemplative person. He seems to be a compliant student. When he is questioned about his school courses and how he is faring at high school he gives the impression of submissiveness; "They're going fine." Yet parents will share that Christopher is often bored, and shows very little enthusiasm for many of his classes. Christopher appears to show a great deal of idealism. He is a committed youngster and follows through with his obligations. He looks for people who share the same drive and energy. His friends exhibit similar personalities.

**Christopher's Mentorship**

(Christopher had two mentors.)

**Mentor #1.**

As this eleven year old male student's main interest and strength was in mathematics, selection focussed on meeting this need. Two mentorships were established. Both mentors were college professors.

The writer was given this contact at the university-college by a senior high school principal. The first potential mentor was reputed to have a wonderful ability to reach students of all ages.
and he shared his mathematical experience with enthusiasm and zeal. Mr. Fourtier presents as a quiet, sincere, caring man. He is dedicated to his commitments and always has the best interests of his students in mind. As Christopher exhibits the same attributes, it appeared this may be a likely match.

The initial contact with Mr. Fourtier was done in January. This gentleman’s teaching experience was broad. He taught senior mathematics at the high school level prior to his appointment at the university-college. Mr. Fourtier had taught junior high school math early in his career and was familiar with Christopher’s age group.

At the commencement of mentorship, Mr. Fourtier was teaching first, second and third year math classes. After Christopher’s portfolio was shared, Mr. Fourtier agreed to have the student attend his Thursday afternoon statistics class.

Each Thursday afternoon Christopher was driven to the university/college by his mother, where he audited Mr. Fourtier’s Statistics class. Apart from auditing the Statistics class, Christopher also played chess at lunch hours with other mathematics professors. This was a highlight for Christopher. Up until this time, he could not find someone to play with that could be his match. Christopher was also introduced to other Math professors and spent lunch hours playing chess with these instructors and working out the "Math Problem of the Week."

The professor who formulated the "Math Problem of the Week" connected with Christopher on his weekly visitation.
At the end of April, 1994, when the statistics class was completed, Mr. Fourtier finished his teaching assignment. At this time Mr. Fourtier concluded mentoring Christopher.

**Mentor #2.**

Dr. Ward had many exchanges with Christopher while he attended the university/college each Thursday afternoon. Incidental exchanges were made around the "Math Problem of the Week," which Dr. Ward provided for students and staff alike. From these exchanges, an association was fostered. When Mr. Fourtier was not able to continue to mentor Christopher, Dr. Ward volunteered to mentor Christopher until the end of June.

Dr. Ward is head of the Mathematics Department. He also organizes the university/college Math competitions for high school students. This teacher's enthusiasm for his subject is contagious. He has given many public addresses to potential university/college students on mathematics.

Dr. Ward is described by his colleagues as a brilliant mathematician with a quick mathematical mind. He is a "driver" and pushes his students towards excellence. Students report that they enjoy his classes but that Dr. Ward is a task master. He "keeps them on their toes." Dr. Ward demands that assignments be handed in on time.

Dr. Ward's friendly, outgoing nature shows a caring attitude towards his students. Throughout his association with Christopher, Dr. Ward assigned a weekly mechanical math problem. As the mentorship progressed, Dr. Ward became more demanding of
Christopher. The mentor's intent was to keep the student on task. This professor appears to be as persistent as Christopher, when looking for solutions to complex math problems.

Each Thursday afternoon from April until the end of June, Christopher met with Dr. Ward. They spent part of their time going over the solution that Christopher worked out over the week. At first, Christopher was just asked to communicate, using his own words, how he came to the solution to the problem. A new mechanical math puzzle was then introduced. As the weeks went by, Dr. Ward related that mathematicians need to be able to express themselves well with written language. "How else does a math scientist communicate his ideas?" Dr. Ward asked Christopher. Dr. Ward believed that Christopher needed to begin to explain his methodology in finding the solution in writing.

Dr. Ward encouraged Christopher to go beyond what was natural and spontaneous. The mentor's intent was to make Christopher critical and analytical regarding his problem solving methodology. He requested more task commitment from his mentee. Prior to this mentor relation, Christopher used trial and error procedures to discover the answer. Towards the conclusion of the mentorship, Dr. Ward was requesting that Christopher follow up his answer with rigorous proof that followed in a logical sequence. A colleague of Dr. Ward's says that, "This expertise usually does not come before maturity and experience." Christopher rose to the challenge and relished the struggle.
Case study #2 (Richard). Male. Age: 13

WISC III results: 93-10-14

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Family placement. Richard has a younger sister who is nine years old. Richard was born with mild Cerebral Palsy. As a very young child he wore special shoes and had extensive physiotherapy. His parents, particularly his father, were diligent in enforcing therapeutic exercises at home to augment the physiotherapy.

Early recollections of advancement. Richard did not attend kindergarten but was reading before his fourth birthday. His parents relate how easily he remembered things. His tenacity regarding his various interests surfaced early in his development.

Play and leisure interests. Richard's fascination with prehistory began early in his childhood. Like most children he enjoyed studying dinosaurs, but his interest surfaced when he was two years old. By the age of three he could engage anyone in a conversation about these ancient animals. He recognized and showed incredible understanding about prehistory and the changes that occurred on the earth's surface before man. Later his knowledge encompassed ancient civilization. These interests were self-directed. When he visited the library he would spend his time with books which enhanced his knowledge of ancient civilization. Richard continues to be interested in ancient civilizations.

Richard started music lessons at the age of five. He started
with piano and later switched to a wind instrument. His musical talent allows him to be the principal French Horn player for an Intermediate Orchestra. He is also the second French Horn player for a community band. He plays harmony keyboard, and has just successfully completed the grade three harmony exam. Richard has taught himself the trumpet. He continues to take theory, and has been involved in "Music Summer School" for the last three years.

In the spring of 1994, Richard discovered curling. He was asked to participate in a junior bonspiel to make up a team. His team came in first in the division and Richard was thrilled. This school year he was also asked to be on the basketball team, because of his height. He played well. As this child is not medically allowed to be in contact sports he has not had many opportunities to become involved in sports. Belonging to these two teams was a highlight. Richard relates that curling will be his sport in the future.

Richard relishes board games and easily defeats his family members. He follows "Jeopardy," the television competition series, and usually knows most of the answers.

School History. Richard was in grade seven at the commencement of the 1993-1994 school year. Richard at the age of six perceived school as significant only in the realm of social interaction. Richard relates that after his first week of grade one, he knew that he didn't fit. He understood everything and read insatiably before school. Up until this past school year, his social relationships were key to attending school.
It would appear that Richard "marches to a different drummer." School did not always "showcase" his abilities. He didn't get extrinsic rewards or any form of gratification for his progress. Richard relates that when topics in class particularly interested him, he asked permission to do an individual project. His perception was that teachers felt somewhat challenged by his abilities, and thus they insisted that he do the work assigned to every other child in the class. If he completed the assigned work, he could then investigate his chosen field, so, to him, he felt that he was just asked to do extra work, rather than different work. Richard gave up asking.

**Academic strength.** Richard has a wealth of historical knowledge from prehistory up to World War I. He reads voraciously and, without formal instruction, has a sense of the relationship between the music he studies to the period of history in which it was composed. In most school subjects he knows he is advanced, although he has difficulty complying with the need to finish the product in the class. For example, in math class he knows how to find the answer but choses not to write out all the steps to get the answer as his teacher has requested.

**Exhibited personality traits.** Richard gives the impression that he doesn't always express what he is thinking; affect appears hidden. However, when his comfort level increases, Richard's clear sense of humour is exposed. When he talks about school a discouraging attitude surfaces. This is noted not so much in the content of his conversation but more in his body language. Richard
appears competitive with himself; music is his outlet. He plays exceptionally well and is well received by his adult colleagues in the symphony. Richard likes to challenge adult role models, particularly in content areas where he is confident that he is knowledgeable; this is not an endearing trait to many teachers. Richard can appear arrogant. He wants to learn how to approach teachers and authority figures in a more agreeable manner.

Richard has several friends of varying ages. Many of his friends are his age, having been together since grade one. They will all be going to on to high school in the fall of 1994.

Richard's mentorships. (Richard had two mentors)

Mentor #1.

Mr. Campbell is a distinguished teacher who has been teaching most of his adult life. His experiences in teaching include all grade levels from elementary through to grade twelve. In this school district there is a resource centre for environmental studies, situated at a local lake, where elementary children have field trips to study wild life and ecology. Mr. Campbell was instrumental in the resource centre's development and was the teacher attached to the centre for a number of years. His subject speciality is in history and geography.

Mr. Campbell understands the need for curricular modification for gifted learners. In recent years, he taught classes designated for the gifted learner. He has been at the forefront in developing
advanced placement courses in the high school where he currently teaches.

Colleagues describe Mr. Campbell as a master teacher. They like to visit his classroom just to read the ideas he has presented on the blackboard. Mr. Campbell presents ideas to his students from many vantage points. One colleague commented, "He can get the creative juices going in students and staff alike." In staff meetings and at inservice days his ideas are marvellous. His enthusiasm is infectious.

Mr. Campbell is actively involved on many district committees and people want and look forward to his creative thoughts. His sense of humour is a welcome addition to any committee. Colleagues who work with him appreciate him and are cognizant about his lack of organization skills, so they sustain doing the mundane to have his imaginative input.

Mr. Campbell was chosen as Richard's mentor for his celebrated reputation as a teacher, his high knowledge and interest in history and the arts and the fact that he was teaching Advanced Studies 12 and Western Civilization 12 at the high school that was across the playing field from Richard's elementary school. It was decided that Richard would walk over to the high school and join the Western Civilization 12 course when it occurred in the high school time-table, approximately three times a week. This course traces the history of western civilization from the fall of the Roman Empire to the 20th century and attempts to relate historical events by examining the development of new ideas, art, architecture,
literature and music throughout this extended time period.

Mentor #2.

Mrs. Macdonald is the Learning Assistance teacher at Richard's elementary school. She is highly trained in special education and is recognized throughout the district as a knowledgeable, accomplished teacher and innovator of educational change. Through her knowledge and insight, Richard became part of the study. She recognized that Richard was an academically underserved child. There was no established modification to this student's educational program even though, over his elementary years, it appeared that Richard's teachers were aware of his exceptional abilities.

As Richard was far advanced in his mathematical competence, the plan was to have his math program individualized so that a more appropriate course selection could be made the following year, when Richard attended high school. Mrs. Macdonald began tutoring Richard in April, so that he could challenge the Math 9 final in June in the high school. Thus, when starting grade eight, Richard could possibly be accelerated to Math 10.
Case Study #3 (Peter). Male. Age: 6

WPPSI-R results: 93-11-05

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*Full scale score on the WPPSI-R will not be reported as Peter’s profile shows a significant discrepancy between his Verbal scaled score and his Performance scaled score. Caution is advised in interpretation of results, as young children may show a large discrepancy between the Verbal Scale Score and Performance Scale Score, due to timed tasks on the subtests of the Performance Scale. Young children sometimes score less well on timed tasks because of developmental immaturity and/ or motor coordination difficulties. This penalty of time to tasks is often based on the developmental and motor co-ordination maturation of children. (Doppelt, 1989)

**Family placement.** Peter is the youngest child in the sample. Peter is the oldest of three children in his family. He has a sister twenty-two months younger than he and a brother who is four and a half years younger.

**Early recollections of advancement.** As a very young child, Peter would often sing with his mother and could remember all the lyrics of songs. His parents noticed his ability to hold a tune at a very early age. Peter began reading around the age of three.

At eighteen months, his favourite book was a story called "The Little Train" by Graham Greene. It is a fairly sophisticated book for a child. Each evening he wanted his mother or father to read it to him over and over again. Before long he had the story memorized and would recite it for other children. He eventually memorized all his books. One book titled "Have you seen Birds?" showed which bird could be located according to the season. Eventually, on family outings as a toddler, he would look for each
bird described in the book and would notice several depending on the time of year.

His retention of information was recognized before his first birthday, when he learned to speak. At three years old he memorized long poems and could easily recite them for amusement. Mother is bilingual; she speaks French fluently. Peter showed a special interest in learning words in French when he was learning to speak.

**Play and leisure interests.** Peter has enjoyed music from a very early age. Before his fifth birthday he began taking piano lessons. He enjoys performing and will often ask for an audience. His sensitivity to the quality of sound is noted. He is conscious of the mood of a piece of music.

Peter enjoys imaginative play around "Thunder Birds" and "Power Rangers" (two cartoon characters). He also enjoys all sports.

Peter is a voracious reader and especially likes books about dinosaurs. Two of his all time favourites are "Secret Garden" and "Phantom Toll Booth." The latter is around the grade four to grade five reading level. At present, he is reading fantasy novels set in ancient times. The number of pages in these books is approximately two hundred. Peter reads a book of this size in one day.

As a very young child, Peter was sociable and showed a strong desire to be with children. Summer times are "boring times." He wants to see his friends and his parents arrange this.
School history. In September, 1993 Peter was in grade one. It was a split kindergarten/grade one class with 24 pupils. His teacher was highly knowledgeable of his gifts since she had taught him the year before. As there were not sufficient children to make a homogeneous grouping of grade ones in this school, the principal thought it best that the teacher continue teaching Peter because she recognized his talents. However, Peter’s parents did not feel supported in this placement. Some of the informal comments that the teacher and principal made to Peter’s parents were perceived as less than supportive. Apparently, Peter’s attributes and specifically his vocabulary and his conversations with his age mates appeared exceptional. It seemed to the parents that the school’s climate did not foster this talent. Conforming to the regular and "normal" appeared to be the recommendation.

At the start of the year the teacher tried to differentiate the curriculum for Peter, because of his reading ability. This program distinction was perceived as a punishment by the child. He was excluded from circle time when direct teaching of sound-symbol correspondence was occurring. From Peter’s perspective, he was given separate things to do, whereas the other children seemed to be having more fun colouring the letters and practising the sounds the letters made. This separation was not helpful for the child.

Just before Christmas 1993, the parents moved to another location. The decision to move to another school was not hard to make. Understanding his strength in reading the parents chose to place Peter in French Immersion after Christmas. The new principal
was very reassuring to Peter's parents and felt that with the child's exceptional language abilities, Peter might rise to the challenge in French and still be able to pursue his reading and writing interests in English with the potential mentor. Peter's parents felt the school personnel appreciated their child and his heightened language skills. The principal recommended that Peter's exceptional abilities in English be encouraged with a mentor.

**Academic strengths.** Peter's reading is his greatest strength. His ability to communicate in the printed word is also advanced for a grade one child. His ability to retain information or remember events early in his life astonishes his parents. They say, "He has a mind like a steel trap."

**Exhibited personality traits.** Peter has a forceful personality in his family unit. His mother relates that at a very early age he "had an air of determination." His curiosity could not be repressed. He can become emotional. Although Peter is described as sensitive, he keeps this aspect of his personality in reserve. Peter can be volatile when angry. He channels his anger at his sister. There are times that his anger spills over into violence. This displaced anger appears to be based on frustration. As the oldest child, he will often attempt to organize his siblings and especially his younger sister. He will become easily engrossed in home projects and cannot be dissuaded when asked to change his focus when the family needs him to accommodate to a change in circumstance. Peter is methodical in his execution of tasks. He likes things organized and is incensed when "things get messed up."
However, he adapts well to major change. The family’s relocation to another house, and his relocation to another school, five months into the school year, did not appear to daunt him or cause him any discomfort.

His parents relate that he was always extremely mature and that they never really felt that he was "little." Peter was always asking questions and could rationalize at a very early age and seemed to understand why certain things happened the way they did. He was an easy toddler to please and he could disappear for thirty minutes at a time absorbed in a book.

**Peter’s Mentorship**

Mentor #3 volunteered her services in June, 1993. Mrs. Dickson retired that year from elementary teaching. Her career as a teacher was extraordinary. Mrs. Dickson is well respected in the district with both young and mature teachers. She taught every level from kindergarten up to and including grade 12. Mrs. Dickson is enthusiastic, eager and spirited as a person. She maintains a high energy level and her disposition is sensitive and easy-going. Her joviality and sense of fun make her very endearing to young children.

Mrs. Dickson varied her creative techniques as a teacher with the educational changes that occurred over the course of her career. Mrs. Dickson was not ready to retire. She is a life-long learner and continues to pursue her knowledge; over the last year she learned how to speak Spanish and was involved in many recreational pursuits.
Mrs. Dickson talked to the writer often during the three years prior to her retirement about the dilemma of primary children who were reading before entering kindergarten and how she needed to adjust her curriculum to accommodate them.

Before Christmas, Mrs. Dickson spent time in Peter's classroom observing and helping the teacher with all the children. Prior to Peter moving to another school after Christmas, Mrs. Dickson began tutoring Peter in the library on an individual project on lobsters. However, the mentorship program did not officially start until after Christmas. At that time, Mrs. Dickson met with Peter each Tuesday and Thursday morning, for about an hour. Mrs. Dickson met with Peter in the library. Their lessons followed the I.E.P. that was established prior to mentorship commencement.

Mrs. Dickson kept a journal of the mini lessons given on her bi-weekly visits to the school while mentoring Peter. Before commencing the mentorship program, Mrs. Dickson read everything she could about academically underserved gifted children. Mrs. Dickson was aware of Peter's preferred learning style and adjusted her teaching accordingly.

Case study #4. (Ashleigh). Female. Age: 9

WISC III results: 93-10-07

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<tr>
<td>Full Scale</td>
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Family placement. Ashleigh is the only girl in the case study sample. She is in grade 4 French Immersion, and is the oldest of
four children. Ashleigh has two younger sisters. One is seven, and the other is only a year. Her brother is three years old.

Early recollections of advancement. Ashleigh walked and spoke intelligibly before her first birthday. She was interested in vocabulary at a very early age. Before her second birthday she asked her father what the word "infinity" meant. Significant events in her life were recalled with tremendous detail. Around her fourth birthday, her maternal grandmother, a retired teacher, came for a visit and introduced Ashleigh to reading. By the end of the week Ashleigh was reading on her own. Her grandmother commented on Ashleigh's ability to retain information about the "reading rules." Grandmother only had to impart the rule once. Ashleigh retained this information rapidly and conclusively. Since that very early age, she has rarely been without a book. In yearly summer time visits, Ashleigh's grandmother continued introducing Ashleigh to more language arts skills. Ashleigh began composing her own stories the following summer, when she turned five. Ashleigh did not receive formalized language arts activities in school. She entered French immersion and language arts in English are not introduced until grade three. Ashleigh's writing and reading in English was self-directed.

Ashleigh's fascination with puzzles surfaced very early in her life. She mastered these quickly and wanted higher and higher levels.
Play and leisure interests. Sports and movement occupied her time early. As a toddler she had no fear of trying any apparatus in the playground. She loved slides and would try them spontaneously, often making her parents afraid for her. Ashleigh's activity level was very high at this very early age. She has continued to develop a commitment to and interest in sports and recreational activities. Shortly after her fifth birthday she started playing organized soccer. Soon afterwards she took gymnastics and swimming lessons. When she started school she became interested in Track and Field. At the provincial track and field tournament, at the end of June, 1994, Ashleigh broke three records. She placed second overall in all events.

At the age of four Ashleigh began piano lessons. She is currently placed in the grade eight level of "Royal Conservatory of Music." By her sixth birthday she had passed all the levels at swimming. She is now eligible to take her Bronze medallion and then her life-guarding level. However, her age does not permit this. Ashleigh recently completed a special course in jazz theory and finds pleasure in practising tunes using this different method.

At present, when Ashleigh is not practising the piano, or at a soccer practice, she might be swimming or attending gymnastics class. Her "down time" is occupied with reading. She is an insatiable reader and her selection is quite varied. She likes mythology and has read Greek and Indian mythology. She likes mysteries and action books, and books presenting a moral. Ashleigh wants to write a novel.
School history. Ashleigh entered French Immersion at the age of five. Parents report that nothing profound can be chronicled up until this last school year (1993-1994), when the writer commenced the assessment procedure. Her teachers reported that she was doing "fine."

Academic strength. Ashleigh's greatest aptitude appears to be in the language domain. Ashleigh's passion with books and reading at such an early age indicated that her greatest strength may be in the vocabulary and communication areas - both speaking and writing. Her French teachers share that she took to the French language commendably but they were not aware how elevated her English language skills were. This information was noted by her parents who were impressed by the clarity of her writing skills and her elevated vocabulary skills.

Exhibited personality traits. Ashleigh seems a shy child. However, her parents report that their daughter is quite loquacious at home. She is able to appease her younger siblings easily. She is reliable and responsible. In her relations with her peer group she stands out due to her mature attitudes. She has many friends of different ages.

Ashleigh appears to be a sensitive, unassuming child. She scored the winning goal for her soccer team which consequently won the league tournament, but when inquiries are made about this particular skill, she just says that she practises hard and likes the game. In any dialogue with this child, she does not appear self-assured. Her teacher reports, however, that she does share
little successes with her. Ashleigh is very conscious of how she is perceived. She places high demands on herself and is very competitive, more with herself than with others. She exhibits a balance between being competitive and being a team player.

Ashleigh can handle being in the spotlight, but doesn't choose to be there. When performing the piano or kicking the ball to get the final goal, Ashleigh rises to the occasion. However, rather than give herself credit she says that, "It was just luck," and "I am OK at the piano, because I practise a lot."

Mentor #4

Mr. Halverson retired four years ago from an extensive teaching career. This gentleman was an excellent English teacher; students used to line up outside the counselling office at the start of every year to secure placements in his classes. He commenced his teaching career teaching elementary school. He later moved to the senior high school and taught senior English. Subsequently he taught junior high school English. For the last three years of his teaching career, he returned to the intermediate grades at the Elementary level. This decision to return to elementary for the final years of his teaching career was purposeful. Mr. Halverson commented that senior students appeared to have a struggle understanding the style and technique of expository writing. In senior English courses this style of writing is critical. Mr. Halverson wondered whether students would have more of an understanding of expository writing if teachers began formally teaching this technique early in the student's
schooling. Interestingly, he comments that his assumption was correct.

Two years ago, after only being retired for a year, he had a car crash and is now confined to a wheel chair. He is a quadriplegic. His wife shares that his mind had not changed; he was as bright as ever but often suffered from depression and a "lack of purpose."

Before commencement of the mentorship program, Mr. Halverson spoke about the things that he used to do with his class; "Creative Problem Solving" and his work with "Odyssey of the Mind" were a few of the approaches he employed while teaching gifted learners.

Mr. Halverson's experience in teaching literature and teaching writing techniques seemed an appropriate fit with Ashleigh's gifts.

Assessment procedures began in the beginning of November. Mentorship began in January. Mr. Halverson, accompanied by his wife, arrived at Ashleigh's school each Wednesday afternoon. Their learning plan was established by an I.E.P. developed at the beginning of January.

Ashleigh's parents were pleased with the prospect of Mr. Halverson working with their daughter. They applauded Mr. Halverson's involvement and acknowledged his expertise. Mr. Halverson started to direct Ashleigh's leisure reading and assisted her with her writing. The plan was to expose Ashleigh formally to poetry.
Individual Educational Programs (IEPs).

In each analysis of the assessment results, it is shown that the student's cognitive ability is elevated from the norm, the norm being 100, with a standard deviation of 15. More significantly the results of the achievement test used show justification for a distinctive curriculum. All case studies demonstrate a remarkable proficiency in their broad reading and broad math abilities.

In the following chapter a detailed analysis of the assessment results will be presented.

The assessment results indicate the need for a modification to curriculum content. Each case study assessment indicated abilities above the current grade level. It was recommended that each case study have an I.E.P. that would be commensurate with abilities. The I.E.P. is an "Individualized Educational Program." It is the blueprint or design of the educational component of the mentorship program. It encompasses the style and manner in which the program will be delivered and evaluated. The intent of formalizing an I.E.P. is to identify or create a project that the student would find motivating, in that it is related to interest; challenging, as it is reflective of potential and known abilities and manageable, as it would be as complex as or as simple as the child could handle (Ellis, 1985).

"The formalizing of the requirements for the individual mentorship through the development of an individual study contract subscribed to by the student and endorsed by the mentor and program personnel should be established" (Mattson, 1979, p. 34).
people involved and people who are directly supportive of the plan have input into its creation.

Purposeful planning for the mentorship program commenced with a formalized I.E.P. Documentation of the learning experience provides a guideline for the mentor, parents, teachers and students. Parents play an active part in the planning stage. They know their children well, and their input and information is instrumental to success. As advocates for their children, they want "their child's talents challenged by appropriate educational options" (Delisle, 1992, p. 200).

As mentorship programs evolve, beginning with a plan helps to state the goals, schedule the length of the mentorship program and state the methods of evaluation (Mattson, 1979).

The development of the I.E.P establishes the plan, circumvents possible dilemmas and delineates the conceivable outcomes with all stakeholders sharing their considerations. It should not be left to chance. "Planned mentoring responsibilities ... need to be assigned, fostered and evaluated" (Frey & Noller, 1983, p. 62). An I.E.P. in place would also capitalize on the value of presenting a curriculum distinction for academically gifted students.

A formal IEP was established for Richard, Peter and Ashleigh. Christopher's I.E.P was carried out informally. Although documentation was not formal, there was a flexible plan. The mentorship program for Christopher was designed around mentors "with specific interests and passion with people who share their
avocation and domains of strength" (Zorman, 1993, p. 728). For detailed description of the I.E.P.s for the case studies please see Appendix A for Richard; Appendix B for Peter; and Appendix C for Ashleigh.

**Measures.**

**Cognitive ability.**

Definitions of giftedness typically mention the potential for unusually high performance in several areas, and routinely intellectual ability is included among these (Robinson & Janos, 1987). The Wechsler Intelligence Scales are suitable for identifying children of high intellectual ability, for IQ norms range upward to more than three standard deviations above the mean for a child's age-peers (Matarazzo & Prifitera, (Ed.) Weschsler, D.(1991) WISC-III manual).

The Wechsler Intelligence Scales are divided into a verbal scale and a performance scale. The verbal scale and the performance scale each contain five subtests. The verbal scale has one alternate sub test and the performance scale has two alternate sub tests.

Both the WPPSI-R and WISC III used in this study are reliable as they have excellent test design and normative properties (Kaufman, 1992). The psychometric properties of a scale determine, in part, the confidence the examiner can have in the results obtained from a scale. The statistical properties of the WPPSI-R and WISC III commonly used to express a test’s reliability are
reliability coefficients, standard error of measurement and the validity of the test constructs.

The reliability coefficients of the WISC III are as follows: Full Scale Verbal .95; Full Scale Performance .91; Full Scale average .96 (Matarazzo & Prifitera, 1991). The reliability coefficients for the WPPSI-R are as follows: Full Scale Verbal .95; Full Scale Performance .92; Full Scale average .96 (Doppelt, 1989).

The validity of a test demonstrates that the test measures the constructs intended by its design. Intercorrelation studies and confirmatory factor analyses provided strong evidence for the internal validity of the WISC III. Results determined by validity studies suggest the stability of factor scores. "The median correlations among the targeted factor scores were .99 for Verbal Comprehension, .98 for Processing Organization, .98 for Freedom for Distractibility and .93 for Processing speed" (Matarazzo & Prifitera, 1991, p. 191).

The WPPSI-R was compared to the previous scale, WPPSI. The norming sample included 144 subjects. However, several other norming populations in each age group were completed to determine the validity of factors of the WPPSI-R. The results of both the overall and by age groups normings lend support to the interpretation of separate performance and verbal abilities. Studies comparing the WPPSI-R to other scales indicate that the WPPSI-R is a valid measure of intelligence. "The correlations between the WPPSI-R and WPPSI Performance and Full Scale IQs computed separately for each sequence and then averaged, are .82,
All case studies were over two standard deviations from the mean in the Verbal Scaled Scores. Christopher and Richard were two standard deviations above the mean in their performance Scaled Score. Peter, the youngest student studied (age six at the time of assessment) was slightly above the mean on the Performance Scaled Score. Ashleigh was one standard deviation above the mean on the Performance Scaled Score.

Implications of these results indicate that all children involved were cognitively superior on the Weschler scales employed. The results indicate that in all case studies the Performance scaled Scores varied from the Verbal Scaled Scores. Performance results for three out of the four case studies was lower. The WISC III and WPPSI-R have unusually high premiums on speed of responding. Some scaled scores on the Performance subtests of the case studies seem unusually low, given the results of the entire assessment instrument. "It is well known that gifted children, as a group, do not excel quite as much in sheer speed. Coding, largely a measure of psychomotor speed, commonly emerges as a valley in the subtest profiles of gifted children" (Kaufman, 1992, p. 157). There is great variability in the ability levels of individuals who solve problems at different rates of speed, and that variability is undoubtedly due largely to non-intellectual factors such as poor motor coordination or a reflective cognitive style. The speed factor will penalize gifted children who are as reflective as they are bright, or who tend to go slowly for other
non-cognitive reasons such as mild coordination problems.

A suggestion for interpretation of such results is that young children sometimes respond slowly for a variety of reasons that have more to do with maturation or personality than intellect (Kaufman, 1992).

**Academic achievement.**

The *Woodcock-Johnson Psycho-Educational Battery - Revised* (1989); Tests of Achievement-Standard Battery (WJ-R) was chosen to obtain the case studies' ceiling levels in the realms of Mathematics, Reading and Writing Fluency. This assessment is a wide-range, comprehensive set of individually administered tests which allow for "in-depth analysis of three curricular areas: reading, mathematics, and written language" (Woodcock & Mather, 1989, p. 11). The WJ-R has a wide range of subtests and generally a sufficient ceiling which allows the investigator a wide range of information about the learner's current operating level (Matthews, 1993).
The chosen test descriptors are as follows:

Test 22: Letter Word Identification measures the ability to identify isolated letters and words appearing in large type on the subject's side of the test book.

Test 23: Passage Comprehension measures the ability to study a short passage and identify a missing key word. It requires the subject to select a word that would be appropriate in the context of the passage. It is a cloze procedure. Passage comprehension draws on a variety of comprehension and vocabulary skills.

Test 24: Calculation measures the subject's ability to perform mathematical calculations, including addition, subtraction, multiplication, division, and combinations of these operations, as well as some geometric, trigonometric, logarithmic and calculus operations. Calculations involve decimals, fractions, and whole numbers. No decisions about what operations to use or what data to include in the calculations are required.

Test 25: Applied Math Problems measures the ability to solve practical problems in mathematics. In order to solve the problems, the subject must recognize the procedure to be followed, identify the relevant data, and then perform the relatively simple calculation required. Since many of the problems present more information than needed for their solution, the subject must decide not only the appropriate mathematical operations to use, but also which data should be included in the calculation.

Test 26: Dictation requires the subject to respond in writing to a variety of questions requiring knowledge of letter forms, spelling, punctuation, capitalization and word usage. Although the test measures a broader scope of basic writing skills than just spelling, the entire test is administered like a traditional dictation spelling test.

Test 27: Writing Samples requires the subject to write sentences in response to a variety of demands. The test measures the ability to phrase and present written sentences which are evaluated with respect to quality of expression. The subject is not penalized for errors in basic writing skills such as spelling or punctuation (Woodcock & Mather, 1989).

The normative data for the WJ-R were gathered from 6,359 subjects. Test reliabilities on the chosen tests are as follows: Test #22 .91; Test #23 .90; Test #24 .93; Test #25 .91; Test #26
.91 and Test #27 .93 (Woodcock & Mather, 1989, p.100).

Content validity of the WJ-R provides a sampling of skills from simple to complex that relate to scholastic skills and knowledge. The reliability and validity characteristic of the WJ-R meet basic technical requirements. The correlations of the test clusters to other tests of achievement are "typically in the .60s and .70s at the age 9 through to age 17 levels" (Woodcock & Mather, 1989, p.103).

In administering any individual intelligence test or individual achievement test the assessor has the opportunity to closely observe a child's interactive and learning style in a somewhat unique situation. The assessor can get a sense of the child's approach to receiving, processing, planning and conveying of information (Matthews, 1993).

The WJ-R tests of achievement, tests 22 through to 27, was administered as a pre and post test in this study. It was conducted prior to the mentorship and at the conclusion of the mentorship.

Motivational orientation.

The instrument designed to tap this construct is the Scale of Intrinsic versus Extrinsic Orientation in the Classroom (Harter, 1981). This scale is a 30-item instrument designed to tap five different dimensions of a child's motivational orientation in the classroom. Test items are presented in the "structured alternative" format. Using this format, the child is first asked to decide which sort of child he/she is and then the child is
invited to decide whether the statement is sort of true or really true for him or her. For example, "Some kids know when they've made a mistake without checking with the teacher" ...BUT... "Other kids need to check with the teacher to know if they've made a mistake." The child is asked to choose which statement is more suited to him/her and to answer with the response is this... "Really True for Me," or "Sort of True for Me" (Harter, 1981).

Each of the following components constitutes a separate subscale. Definitions of these subscales are as follows:

1. **PC: Preference for challenge versus preference for easy work assigned.** Is the child intrinsically motivated to perform hard, challenging work or does the child prefer to do the easier work assigned by the teacher?

2. **CI: Incentive to work to satisfy one's own interest and curiosity versus working to please the teacher and obtain good grades.** This subscale measures the relative strength of the child's intrinsic interest and curiosity compared to a more extrinsic orientation to obtain teacher approval and grades.

3. **IM: Independent mastery attempts versus dependence on the teacher.** This subscale taps the degree to which a child prefers to figure out problems on his or her own in contrast to a dependence on the teacher for help and guidance, particularly when it comes to figuring out problems and assignments.

4. **IJ: Independent judgment versus reliance on teacher's judgment.** This subscale assesses whether the child feels that he or she is capable of making certain judgments about what to do in the classroom in contrast to a dependence on the teacher's opinion or judgement about what to do.

5. **IC: Internal criteria for success/failure versus external criteria for success/failure.** Does the child have some internal sense of whether he/she has succeeded or done poorly on a test or on a school assignment or is the child dependent on external sources of evaluation such as teacher feedback, grades, and marks?

(Harter & Connell, 1984)
Researchers conducted the test on a norming population of over 3,000 pupils. This population had been placed in regular grades three to nine classes (Harter, 1981). Results from this norming data showed that there are two relatively independent clusters of subscales that emerge, the first factor having a definite "motivation flavour" (Harter, 1981, p. 309) and the second factor tapping a "cognitive-informational structure" (Harter, 1981, p. 309). The first three subscales composed of preference for challenge versus preference for easy work, curiosity/interest versus teacher approval, and independent mastery versus dependence on the teacher comprised the motivational quality. The latter two subscales, independent judgement versus reliance on teacher's judgment and internal versus external criteria for success/failure comprised the second factor — "cognitive-informational structure" (Harter, 1981, p. 309).

Internal consistency reliabilities range from .78 to .84, .68 to .82, .70 to .78, .72 to .81, and .75 to .83, for Challenge, Independent Mastery, Curiosity, Judgment, and Criteria subscales respectively (Harter, 1981).

The **Scale of Intrinsic versus Extrinsic Orientation in the Classroom** (Harter, 1981) was used as a pre and post measure. It was administered prior to the beginning of the mentorship program, as well as at the conclusion of the mentorship program. The purpose of these two administrations was to determine whether there were changes in the child's self-report of the child's motivational factors. "The scale may be fruitfully employed in those program
evaluation efforts in which classroom interventions are designed to influence a child's motivation" (Harter, 1981, p. 311).

**Mentorship Evaluation.**

The intent of requesting the selected mentors to complete an evaluation on each of the case studies was to tap their perceptions of the mentees' learning. The evaluation attempts to answer the questions: What effect has mentorship had in the areas of academic achievement, on learning satisfaction and on motivation to learn? The questionnaire also elicited comments regarding the child's apparent comfort level with the mentor and the process of the mentorship program. Without evidence that the mentorship program addressed the child's competencies and fostered further learning, endorsement for program differentiation is ungrounded. The mentor had the opportunity to work with the child, face to face, free from distractions and day to day classroom organization. The mentors' evaluation provides a rich source of information. The questions (please see Appendix D) were compiled on an evaluation form titled "Mentor's Account of Student's Demonstration of Cognitive, Creative and Affective Skills and Characteristics." The purpose of the questionnaire was to elicit comments regarding: 1) the child's demonstrated knowledge 2) the child's recognizable transference of knowledge 3) the child's critical analysis of what he/she understands and how that can be transferred to new knowledge and information and 4) the child's ability to communicate what he/she had learned.
The content of the questionnaire was based on Keating's (1980) theory of cognitive creativity which includes four components of creativity and what is known about the significance of mentorship on a gifted child's learning and social-emotional development (Beck, 1989; Boston, 1976; Frey & Noller, 1983, Gray, 1984, Mattson, 1979; Shore et al., 1991; Shaughnessy, 1990; Timpson & Jones, 1989; Zorman, 1993). "Our ultimate concern must extend beyond knowledge generation to the educational and psychosocial well-being of the individuals with whom we work" (Foster, 1986, p.33).

Criteria for evaluation were based on the understanding of gifted children; their knowledge; their style of learning; their personality traits, and their motivation (See Appendix D).

Case studies' summative evaluation interviews.

All case studies were interviewed to formulate reference points of learning satisfaction from the mentorship program. For complete text of questions asked of the mentees please see Appendix E. The intent of the interview was to gather student's perceptions of general learning satisfaction. A matrix of data on the students' general learning satisfaction is provided in Chapter Four.
Summary of Chapter Three

Chapter Three was concerned with presenting the methodology and procedures used to test the three research questions. The case study sample and chosen mentors were described and procedures concerned with the administration of assessments were outlined. Results of the data analysis are presented in the next chapter.
CHAPTER IV

Results

Introduction

This chapter is divided into three sections, corresponding to the general research questions. The first section addresses the results of the pre and post tests of Harter’s (1980) scale, *Intrinsic Versus Extrinsic Orientation In the Classroom*. These profiles will show changes in the intrinsic motivation of each student at the completion of the mentorship program. The second section addresses the evidence of learning satisfaction. The student’s perceptions of the mentorship program and their educational preference will be appraised. The third section examines the assessment information from the *WJ-R* achievement results. In this chapter data from these measures will be summarized and analyzed.

This chapter will attempt to direct evidence to the following research questions as presented at the end of Chapter Two:

1. Will there be growth in intrinsic motivation as a result of the mentorship?

2. Will learning satisfaction be evident as a result of participation in a mentorship program?

3. Will a mentorship program enhance student’ academic proficiency?
Motivational profiles

The following tables show pre and post testing results of the Scale of Intrinsic versus Extrinsic Orientation in the Classroom (Harter, 1981). On each graph, lines are included to show comparisons to the norming population for the student’s particular grade levels. Please also note, at the very bottom of the page the student’s pre-mentorship score is subtracted from the post-mentorship score thus delineating a difference in score. Heightened results are indicated with a (+); a lower result is indicated by a (-).
Intrinsic Versus Extrinsic Orientation in the Classroom

INDIVIDUAL PUPIL PROFILE

Name: Case Study #1 Christopher
Gender: Male Age: 12 Grade: 8
First Testing Date: Jan. '94

MOTIVATIONAL COMPONENTS
Preference for Challenge: 3.0 Curiosity Interest: 3.8 Independent Mastery: 3.3

INFORMATIONAL
Internal Criteria: 3.8 External Criteria: 3.0

INFORMATIONAL
Independent Internal Judgment Criteria: 3.3

INFORMATIONAL
External Criteria: 3.5

Pre-Mentorship 3.0 3.8 3.3 3.0 3.8
Post-Mentorship 2.8 3.0 3.3 3.3 3.5
Results: (-.2) (-.8) Same (+.3) (-.3)

Scores obtained from A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom.
Susan Harter, Ph. D., University of Denver, 1980
INDIVIDUAL PUPIL PROFILE

Name: Case Study #2 Richard
First Testing Date: Oct.'93
Gender: Male
Age: 13
Grade: 7

MOTIVATIONAL COMPONENTS
3.0 3.8
Preference Curiosity
for Challenge Interest

INFORMATIONAL
3.0 3.8
Independent Internal
Mastery Judgement Criteria

Average for Grade 7

INFORMATIONAL
3.3 3.5
Independent Internal
Judgement Criteria

Intrinsic
Subscale Score
Extrinsic

Pre-Mentorship
Post-Mentorship
Results:
Preference Easy Work
3.3 2.5 (+.5)
3.8 3.0 (+.5)
Same (+.2)
Please Teacher Get Grades
2.6 3.3 2.5
3.6 3.5 2.8
(+) (+.3)
Dependency On Teacher
Teacher's Judgment
External Criteria
2.6 2.8 2.6
2.6 2.8 2.6
2.5 2.5 2.5

Second Testing Date: June '94

MOTIVATIONAL COMPONENTS
2.8 3.0
Preference Curiosity
for Challenge Interest

INFORMATIONAL
3.3 3.5
Independent Internal
Mastery Judgement Criteria

Norming population means for each subscale by Case Study Grade 7
INTRINSIC VERSUS EXTRINSIC ORIENTATION IN THE CLASSROOM

INDIVIDUAL PUPIL PROFILE

Name: Case Study # 3 Peter  Gender: Male  Age: 6  Grade: 1

First Testing Date: Jan. '94

MOTIVATIONAL COMPONENTS
- Preference for Challenge: Intrinsic (3.17) vs. Extrinsic (3.01)
- Curiosity Interest: Intrinsic (2.96) vs. Extrinsic (1.85)
- Independent Mastery: Intrinsic (2.30) vs. Extrinsic (1.3)

INFORMATIONAL
- Independent Internal Judgement Criteria: Intrinsic (1.3) vs. Extrinsic (1.3)

Scores obtained from A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom.
Susan Harter, Ph. D., University of Denver, 1980

Second Testing Date: June '94

MOTIVATIONAL COMPONENTS
- Preference for Challenge: Intrinsic (3.5) vs. Extrinsic (4.0)
- Curiosity Interest: Intrinsic (3.3) vs. Extrinsic (1.5)

INFORMATIONAL
- Independent Internal Judgement Criteria: Intrinsic (3.0) vs. Extrinsic (3.0)

Scores obtained from A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom.
Susan Harter, Ph. D., University of Denver, 1980

Pre-Mentorship: 2.0 3.0 1.5 1.3 1.3
Post-Mentorship: 3.5 4.0 3.3 1.5 3.0
Results: (+1.2) (+1.0) (+1.8) (+.2) (+1.7)
Intrinsic Versus Extrinsic Orientation in the Classroom

INDIVIDUAL PUPIL PROFILE

Name: Case Study #4 Ashleigh  
Gender: Female  
Age: 9  
Grade: 4

First Testing Date: Jan. '94

MOTIVATIONAL COMPONENTS

Intrinsic

- Preference for Challenge: 3.8
- Curiosity: 3.0
- Independent Mastery: 4.0

Extrinsic

- Preference Easy Work: 2.96
- Teacher's Judgment External Criteria: 2.04

INFORMATIONAL

Intrinsic

- Independent Internal Judgment Criteria: 3.0

Extrinsic

- External Criteria: 3.3

Second Testing Date: June '94

MOTIVATIONAL COMPONENTS

Intrinsic

- Preference for Challenge: 4.0
- Curiosity: 3.5
- Independent Mastery: 4.0

Extrinsic

- Preference Easy Work: 2.74
- Teacher's Judgment External Criteria: 2.04

INFORMATIONAL

Intrinsic

- Independent Internal Judgment Criteria: 3.0

Extrinsic

- External Criteria: 3.3

Pre-Mentorship

- Preference for Challenge: 3.8
- Curiosity: 3.0
- Independent Mastery: 4.0

Post-Mentorship

- Preference for Challenge: 4.0
- Curiosity: 3.5
- Teacher's Judgment: Ceiling (+.3)

Results:

- (+.2) Same
- (+.5) Same

Scores obtained from A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom.  
Susan Harter, Ph. D., University of Denver, 1980
Student perceptions of learning satisfaction.

After careful examination of the transcripts of interviews particular configurations of information were apparent. These patterns of information formed clusters of students' perceptions. The classification of responses are as follows: 1) Achievement satisfaction, 2) Mentor satisfaction, 3) Product satisfaction 4) Setting/milieu satisfaction, 4) Choice satisfaction and finally 5) Student recommendation.

The following matrix represents the comments that were made by each case study during a formalized interview. As each case study's mentorship is unique, comments the children made will show diversity of answers.

All of the student answers centre around the general learning satisfaction that the students felt from the experience of the mentorship program.
# LEARNING SATISFACTION

## Case Study
### #1, Christopher
**Age: 11**

<table>
<thead>
<tr>
<th>Achievement Satisfaction</th>
<th>Mentor Satisfaction</th>
<th>Product Satisfaction</th>
<th>Setting / Milieu Satisfaction</th>
<th>Choice Satisfaction</th>
<th>Student Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;... when Dr. Ward wanted me to tell how I got my answer and how I went about doing problems... he asked me to write them up. It helped me to express, I guess my answers to someone who would not know how to do it, it helps develop my writing.&quot;</td>
<td>Mr. Fourtir played a lot of chess Dr. Ward well he likes Math, too and he actually plays hockey, and he uh, also does likes to talk about sports and things like that. Oh I guess we both like doing Math and Math problems, that's why he became a teacher</td>
<td>We also played a lot of chess, the whole building (math teachers) played a lot of chess. That was really fun, we'd play chess games in the office and then sometimes we'd be at other people's [office] when Mr. Fourtir was at his second session at the beginning part of the year, sometimes I would play chess with someone else in the building</td>
<td>It was fun to do, not just textbooks and things like that but going out and actually seeing stuff like field trips things like that...like the college</td>
<td>Mmmmm and he, I guess, liked to talk about, like, all the things that were going on in sports and things like that we had in common, like the Math problems.</td>
<td>I would say yes. I would encourage. Yeah, I think it's a good idea</td>
</tr>
</tbody>
</table>

### #2, Richard
**Age: 13**

<table>
<thead>
<tr>
<th>Achievement Satisfaction</th>
<th>Mentor Satisfaction</th>
<th>Product Satisfaction</th>
<th>Setting / Milieu Satisfaction</th>
<th>Choice Satisfaction</th>
<th>Student Recommendations</th>
</tr>
</thead>
</table>
| "I have been doing Western Civilization 12. I've been doing projects and the lowest mark I got on a project is a B+" 
"... getting the top mark in Social Studies... (was pretty exciting)." | "Mr. Campbell allowed me to do "Western Civilization 12." That was great!" | "people like me who are really smart and sitting there bored at school, instead of being bored they could do challenging work, they could explore in other areas, like my projects" | (Richard participated in a grade 12 class)  
"It was embarrassing at first, 'cause I'm just the little guy in there, but I got used to it. You have to be very good at socializing with older students." | The first project I did was Roman Ruins and I got a B+ on that, and the next one I did was the Mosaics and I got an A+ on that and for the early middle ages I did Judaism and I got an A- on that and I did Feudalism and that was a bonus, that's just extra and for the Renaissance era. I got an A- for that. For the Baroque and the age of industry, I did a composer project and I got A on that, and for the 20th century I did Salvador Dali and I got an A-. It was great. | "I'd tell them it is really fun and you should it, but it's a lot of work."  
"Yeah, you have to have a lot of work and have to have a lot of free time... you need it."  
"You're not going to have, you need a lot of free time to do it." |
<table>
<thead>
<tr>
<th>Student Perceptions</th>
<th>LEARNING SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Study #3</strong>, Peter</td>
<td><strong>Achievement Satisfaction</strong></td>
</tr>
<tr>
<td>Age: 6</td>
<td>&quot;...because you get to learn things.&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;... you get to learn stuff. Well, I've learned a couple of things on Birds of Prey.&quot;</td>
</tr>
<tr>
<td></td>
<td><strong>Mentor Satisfaction</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;Mrs. Dickson and I went to my favorite place - the library. She helped me do my presentation.&quot;</td>
</tr>
<tr>
<td></td>
<td><strong>Product Satisfaction</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;The really good part was the learning!&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;I learned how to do that, too...a presentation.&quot;</td>
</tr>
<tr>
<td></td>
<td><strong>Setting / Milieu Satisfaction</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;Writing and sometimes the best thing about it was having a break and getting to read the books in the library, I'd always go down to that Dinosaur place and look at the Dinosaur books and see if there's something new.&quot;</td>
</tr>
<tr>
<td></td>
<td><strong>Choice Satisfaction</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;Yeah it was okay, (leaving the class,) I got a rest from all the noise. And, having pencils sharpened, their shavings dumped on my Math book.&quot;</td>
</tr>
<tr>
<td></td>
<td><strong>Student Recommendations</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;Would I recommend it? Yes, I'd recommend it. And I'd ask Mrs. Dickson and if she said yes, I'd tell her that he'd be taking my place.&quot;</td>
</tr>
</tbody>
</table>

| **Case Study #4**, Ashleigh | **Achievement Satisfaction** |
| Age: 9             | "...he would tell me to write a sentence on the board, a few sentences, and they'd both have a word missing, and the word, I'd have to think of a word that would mean the same, that would mean, that would make, complete the sentence, like, the same word. My vocabulary increased." |
|                     | **Mentor Satisfaction** |
|                     | "Well, I learned that I learned that sometimes appearances aren't always what they seem." |
|                     | "...because most people wouldn't think that, someone who was like paralyzed would be able to do very well..." |
|                     | "...but (Mr. Halverson) did really well... he know more than what he looked like he knew." |
|                     | **Product Satisfaction** |
|                     | "The poem? Well, that turned out really well, and it was fun making it, it took a long time on the computer to write it, 'cause it was a really long poem." |
|                     | "...then my teacher sent it to the Young Authors, and then they accepted it." |
|                     | **Setting / Milieu Satisfaction** |
|                     | "Sometimes we went outside and we studied things that we saw, like, we gave like twenty...adjectives for a fence, see what it was like...and bikes and other times we'd just stay inside and we worked on a school writing project that I had to do." |
|                     | **Choice Satisfaction** |
|                     | "I also liked to see how fast I could read, like how many words a minute I could do, every few minutes." (If you had one hour a day to study anything you liked, what would you choose?) "I would choose Birds of Prey, Crocodiles, other reptiles or, and Dinosaurs, and I did do research on Condors." |
|                     | **Student Recommendations** |
|                     | "I'd encourage her." |
|                     | "Yup, if she was really bright." |
Assessment results.

Achievement levels prior to mentorship and at the conclusion.

The Woodcock Johnson - Revised, Tests of Achievement; subtests 22 to 27 were administered as a pre and post tests prior to and upon completion of the mentorship program. Please see the following tables which illustrate the changes in achievement after mentorship.
COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT: CASE STUDY #1 (Christopher)  
Age: 11 years  
TESTED BY: Mrs. Brenda Simpson  
WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY - Revised - (Tests of Achievement)

<table>
<thead>
<tr>
<th>TEST DESCRIPTORS</th>
<th>PRE-STUDY TEST RESULTS</th>
<th>POST-STUDY TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TEST DATE:</td>
<td>TEST DATE:</td>
</tr>
<tr>
<td></td>
<td>Sept. 24, 1993</td>
<td>June 16, 1994</td>
</tr>
<tr>
<td>TEST 22: LETTER WORD IDENTIFICATION</td>
<td>120 90</td>
<td>144 99.8</td>
</tr>
<tr>
<td>TEST 23: PASSAGE COMPREHENSION</td>
<td>138 99</td>
<td>139 99.6</td>
</tr>
<tr>
<td>TEST 24: CALCULATION</td>
<td>153 99.9</td>
<td>160 99.9</td>
</tr>
<tr>
<td>TEST 25: APPLIED PROBLEMS</td>
<td>159 99.9</td>
<td>169 99.9</td>
</tr>
<tr>
<td>TEST 26: DICTATION</td>
<td>107 67</td>
<td>113 80</td>
</tr>
<tr>
<td>TEST 27: WRITING SAMPLES</td>
<td>126 96</td>
<td>160 99.9</td>
</tr>
</tbody>
</table>
COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT: CASE STUDY #1 {CHRISTOPHER}  Age: 11 years
TESTED BY:  Mrs. Brenda Simpson

WOODCOCK - JOHNSON PSYCHO-EDUCATIONAL BATTERY REVISED {TESTS OF ACHIEVEMENT}
## COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

**STUDENT:** CASE STUDY #2 (Richard)  
**Age:** 13 years  
**TESTED BY:** Mrs. Brenda Simpson

**WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY - Revised - (Tests of Achievement)**

<table>
<thead>
<tr>
<th>TEST DESCRIPTORS</th>
<th>PRE-STUDY TEST RESULTS</th>
<th>POST-STUDY TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TEST DATE: October 27, 1993</td>
<td>TEST DATE: June 14, 1994</td>
</tr>
<tr>
<td><strong>TEST 22: LETTER WORD IDENTIFICATION</strong></td>
<td>149</td>
<td>99.9</td>
</tr>
<tr>
<td><strong>TEST 23: PASSAGE COMPREHENSION</strong></td>
<td>144</td>
<td>99.8</td>
</tr>
<tr>
<td><strong>TEST 24: CALCULATION</strong></td>
<td>131</td>
<td>98</td>
</tr>
<tr>
<td><strong>TEST 25: APPLIED PROBLEMS</strong></td>
<td>154</td>
<td>99.9</td>
</tr>
<tr>
<td><strong>TEST 26: DICTATION</strong></td>
<td>119</td>
<td>89</td>
</tr>
<tr>
<td><strong>TEST 27: WRITING SAMPLES</strong></td>
<td>131</td>
<td>98</td>
</tr>
</tbody>
</table>
COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT:  CASE STUDY #:2 {Richard}  Age: 13 years

TESTED BY:  Mrs. Brenda Simpson

WOODCOCK - JOHNSON PSYCHO-EDUCATIONAL BATTERY REVISED {TESTS OF ACHIEVEMENT}
### COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

**STUDENT:** CASE STUDY #3 (Peter)  
**Age:** 6 years  
**TESTED BY:** Mrs. Brenda Simpson

**WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY - Revised - (Tests of Achievement)**

<table>
<thead>
<tr>
<th>TEST DESCRIPTORS</th>
<th>PRE-STUDY TEST RESULTS</th>
<th>POST-STUDY TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TEST DATE: November 5, 1993</td>
<td>TEST DATE: June 24, 1994</td>
</tr>
<tr>
<td>TEST 22: LETTER WORD IDENTIFICATION</td>
<td>197</td>
<td>99.9</td>
</tr>
<tr>
<td>TEST 23: PASSAGE COMPREHENSION</td>
<td>153</td>
<td>99.9</td>
</tr>
<tr>
<td>TEST 24: CALCULATION</td>
<td>139</td>
<td>99.6</td>
</tr>
<tr>
<td>TEST 25: APPLIED PROBLEMS</td>
<td>145</td>
<td>99.9</td>
</tr>
<tr>
<td>TEST 26: DICTATION</td>
<td>149</td>
<td>99.9</td>
</tr>
<tr>
<td>TEST 27: WRITING SAMPLES</td>
<td>135</td>
<td>99</td>
</tr>
</tbody>
</table>

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COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT: CASE STUDY #3 {Peter} Age: 6 years

TESTED BY: Mrs. Brenda Simpson

WOODCOCK - JOHNSON PSYCHO-EDUCATIONAL BATTERY REVISED {TESTS OF ACHIEVEMENT}
COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT: CASE STUDY #4 (Ashleigh)

Age: 9 years

TESTED BY: Mrs. Brenda Simpson

WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY - Revised - (Tests of Achievement)

<table>
<thead>
<tr>
<th>TEST DESCRIPTORS</th>
<th>PRE-STUDY TEST RESULTS</th>
<th>POST-STUDY TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST DATE: Oct. 15, 1993</td>
<td>TEST DATE: June 24, 1994</td>
<td></td>
</tr>
<tr>
<td>TEST 22: LETTER WORD IDENTIFICATION</td>
<td>11.9 149 99.9</td>
<td>16.8 161 99.9</td>
</tr>
<tr>
<td>TEST 23: PASSAGE COMPREHENSION</td>
<td>10.0 134 99</td>
<td>11.0 138 99</td>
</tr>
<tr>
<td>TEST 24: CALCULATION</td>
<td>5.4 130 98</td>
<td>7.0 161 99.9</td>
</tr>
<tr>
<td>TEST 25: APPLIED PROBLEMS</td>
<td>8.0 135 99</td>
<td>8.7 140 99.6</td>
</tr>
<tr>
<td>TEST 26: DICTATION</td>
<td>5.6 115 85</td>
<td>6.4 123 94</td>
</tr>
<tr>
<td>TEST 27: WRITING SAMPLES</td>
<td>16.9 (65) 193 99.9</td>
<td>16.9 155 99.9</td>
</tr>
</tbody>
</table>
COMPARISON OF PRE & POST-MENTORSHIP TEST RESULTS

STUDENT: CASE STUDY #4 {Ashleigh} Age: 9 years

TESTED BY: Mrs. Brenda Simpson

WOODCOCK - JOHNSON PSYCHO-EDUCATIONAL BATTERY REVISED {TESTS OF ACHIEVEMENT}
Gains in achievement as a result of mentorship.

As indicated by the results, all case studies' achievement levels were above their age/grade rank at the commencement of study. Each case study continued their educational placement in their home schools while the mentorship program occurred. With the exception of case study #3, Peter, all were exposed to instruction in all areas of the curriculum. Peter changed to French Immersion at the commencement of the mentorship program. Therefore, Peter did not receive any formalized English Language Arts curriculum, as children in French Immersion do not participate in English Language Arts until grade three. Peter’s gains in his standard scores are significant when comparing pre and post tests of the WJ-R.

When commenting on the results of the WJ-R as a post test measure significant gains are shown in all cases. Results of the post tests cannot clearly be justified as a result of the mentorship program, as research does not give evidence to how much a gifted learner truly develops his/her academic competency in a regular program with his/her age mates. However, significant results in the standard scores show significant growth in almost all subtests.

Please note that with some case studies, their pretest results had already hit the ceiling of the WJ-R, so significant increases can only be shown comparing standard scores and percentiles. Please refer to the tables submitted on pages 84-91.
Evaluation of student learning by mentors

The mentors evaluation demonstrates the close personal relationship that was established between the mentor and the mentee. The mentor and child functioned more as mutual friends or companions who were able to cooperate and work together rather than as a teacher directing a group of students. The basis for the mentorship was not trying to give the other a set of information but instead being able to feel out where they are and in what direction they were headed. The mentor acted as a guide and a facilitator of the child's learning. Therefore, allowing independence and self-direction.

The following information was gathered from an evaluation form that each mentor filled out. Please refer to the Appendix D through to G for complete text of the mentors' evaluations. The intention of collecting the mentor's perceptions of student learning was an attempt to distinguish change and development as a result of the mentorship program. The mentors' judgment was that the children did indeed gain in knowledge and acquired skills. After careful scrutiny of all responses from the mentors two clusters of information from the mentors' evaluation emerged. One cluster suggests that at the beginning of the mentorship the mentors were able to appreciate the knowledge that the child brought to the mentorship. This implied evidence demonstrated scholarship and knowledge that the mentee had acquired prior to the program. The other cluster of information suggests the knowledge and acquired skill that the child learned and
assimilated during the program. Examples will be presented subsequently in the context of different categories of learning.

These responses invoke judgment calls from the mentor. It is a difficult task to determine what knowledge the child possessed and what knowledge the child acquired. The mentorship gave the child the opportunity to demonstrate his/her knowledge. Other significant adults, parents or teachers, apart from the mentor, may not be entirely sure what knowledge the child possessed prior to the mentorship program either. It is safe to suggest that all four case studies were self-directed in their learning prior to the mentorship and what knowledge they accumulated from their individual pursuits of their interests may not be entirely evident, as opportunities to exhibit this knowledge may not have transpired.

**Content Knowledge.**

Comments from mentors suggest that all case studies showed a thorough working knowledge of the discipline the mentor was addressing during instruction. Such comments as "He already has a broad knowledge base in mathematics and is able to assimilate and apply new concepts with ease" show that perhaps the student advanced from his/her prior knowledge. Other comments include, "His high facility with music was a definite asset, but he quickly developed an understanding of art and architecture as they related to the various historic eras we studied throughout the year," and "Has a great quantity of knowledge about his favourite topic of dinosaurs and was able to apply this knowledge
to the comparison of the Condor's head to the skull of the duck-bill and other dinosaurs. These comments suggest that the students moved from their content knowledge and developed further understanding in other knowledge pursuits. Other comments express that the student demonstrated his prior knowledge such as "He has a great deal of general knowledge - rather like a walking encyclopedia."

**Hypotheses information and hypotheses testing.**

These questions attempt to tap the mentor's opinion of how their mentee was able to observe and possibly see further implications and considerations stemming from the known knowledge base. Evidence that in most cases the mentors were able to see this ability includes the following comments: 1) "Every solution he has given me to a problem has been well reasoned and can be further elaborated on several days later." 2) "He was able to demonstrate connections between them (three different composers) through presentation of his research and samples of their music." 3) "She has an acute ability to recognize patterns in reasoning exercises."

**Transfer of Learning.**

This section attempted to draw upon the mentor's awareness of how the student was able to transfer his/her learning to new situations. In all cases the mentors reported that in each case study they had recognized this attribute. For example, 1) "Chess and math contest problems demand lateral decision thinking. He
excels in this." 2) "He was one of the few students who make the connection between the nature and characteristics of an historical period and the art and cultural traits which emerged during that time;" 3) "In the same report, there were many questions about the "helmet" on the Condor's head and he compared the structured feature to the skull of the duck-bill and some other dinosaurs;" 4) "... on any pencil and paper test where she needed to see cause and effect relationships, she was very skilful in getting the correct answer."

Imagination.

The responses from the mentors suggest that the students showed tolerance for ambiguity and were able to see things in a variety of ways. Response include: 1) "Lacking formal background needed for some problems, he often relies on unorthodox, yet successful strategies," 2) "I see his imagination almost all of the time," 3) "Ashleigh has a vivid imagination when it comes to sketching a symbolic representation of the meanings of some words. When we took a simple object such as a cup, she was able to imagine many different and unusual uses for this cup. She enjoyed having to stretch her imagination."

Affective Domain.

Traits in giftedness often include risk taking, high tolerance to change (ability to adjust to new situations) and a sensitivity to social values. Comments include: 1) "I see this ability to adjust to new situation and taking risks almost all of the time;" 2) "I definitely see this trait almost all the time."
3) "He is very definitely a risk taker!! It was no mean feat for a young grade 7 student to enter a grade 12 class, already a term under way, to join them in their studies and get up in front of them to deliver his project presentation;" 4) "Sensitive to ecological issues as indicated in his study of Condors and sensitive to classmates' and school mates' problems of social interaction".

**Communication Skills.**

The explanations from the mentors imply that the students had clear communication skills. Whether through discussion, written reports or presentations, mentors indicated that the mentees showed clear communication. The student's ability to communicate understanding and knowledge to others is expressed in the following comments: 1) "Strong visualization processes, however expository skills lag," 2) "The clarity of solutions is not uniform. Sometimes it is clear and sometimes it requires probing on my part for the concept," 3) "I see his articulation skills as excellent," 4) "General ability to express himself is outstanding, i.e. use and comprehension of words." Through these comments it is determined that in some cases the mentor encouraged and promoted more effective communication. These forms of communication were detected in oral presentations or in written procedures.

**Part II Instructional compatibility**

**Mentorship match.**

The mentorship match was not directly related to the
research questions but during the summative evaluation of the mentorship program it became apparent that success of the procedure also depended on the personality match of the adult and the child. Student and mentor comments encompassed messages containing the "fit" or personality affiliation that they had for each other.

Comments regarding the match of mentor to mentee were sought. Anecdotal comments included the match of the mentor's expertise to the mentee's area of skill and interest, teaching style to learning style, and personality match. Statements include the following: 1) "Excellent match. I am fascinated with games, puzzles, paradoxes, and problem solving. He shares this enthusiasm;" 2) "My style was relaxed and informal. Christopher was always relaxed during our encounters. Neither of us viewed the problems he worked on as "tests," but rather as puzzles from which some learning might occur. Our shared interest in puzzles brought us much closer together;" 3) "Richard was not prepared to accept direct instruction. His attitude was "I know." When I "backed off" then he came to me when he met a difficulty and we worked together in solving the problems and the atmosphere was affable;" 4) "I felt that teaching these basics of research so that Peter is independent in his pursuits, was quite easy;" 5) "My teaching style demands intense involvement first through experimentation of words and sentence styles. Ashleigh, being so young, did not have the necessary maturity or experience to
benefit from such a style."

**Development of independence in learning.**

Questions regarding the change in mentees towards their learning during the span of the mentorship were obtained. This item on the evaluation form attempted to tap the observed change in the mentees' dependency on the mentor to a more self-directed practise which would involve the child taking more risks and challenge in their learning. Comments include: 1) "Problem solving in mathematics develops rational thinking (critical analysis, measurements, evaluation, inductive/deductive reasoning, and synthesis). A valuable attribute in today's world. Christopher shows this," 2) "One of the most significant changes I observed was his willingness to write up a solution to a problem. Initially, there was reluctance, but eventually he started and now we only consider the problem solved once the solution has been written out in full and we have discussed my feedback. As a result he has increased the value he places on English," 3) "He began to acquire the skills of an independent learner," 4) "He already was, to an extent, a self-directed learner," 5) "There was lots of transference of experiential learning: alphabetical order, ... use of measuring tools... details of setting up a letter and writing a letter of invitation or for information. Once he knew these skills he transferred these skills to other areas of his learning," 6) "Our time together was too short to see any evolving of real life skills and competencies, but our exercises in learning how to "see" I
would hope would help to make her future writing more interesting."

Mentors' teaching satisfaction.

Questions include changes in the association and the mentor's satisfaction and/or frustration in the relationship. Comments gleaned are as follows: 1) "My relationship with him was comfortable from the start and remained so throughout the term," 2) "Christopher and I hit it off from the beginning and any nervousness that may have been present on our first meeting was gone by the second," 3) "... (next year) I will encourage him to go beyond the regular content ... and help him develop his organizational skills... (to) ...help him become a fully self-directed learner," 4) "The relationship has been positive and we both enjoyed our meetings. He is always interested in conversing and in telling me about his experiences," 5) "There was no noticeable change in our relationship, except maybe being a little more relaxed with me as we worked together. Ashleigh would answer the questions I asked, but rarely volunteered any personal information," 6) "To have a student who is eager to hear everything you have to say and shares your enthusiasm for your subject is every teacher's dream," 7) "No frustration. I feel, however, my worth as a teacher is more enhanced by getting through to weaker students. He is a pleasure to be with, but my teaching skills are not applicable. He learns too quickly!" 8) "I have been rewarded by my association with him during this past year. His scholasticism stood out in an otherwise disappointing
crop of pupils; ... I was (sometimes) frustrated in my efforts... to help him to organize himself in an effective manner," 9) "There was satisfaction in that he was a happier child and he revealed a pleasant and sweet personality who truly loved mind exercises. It was frustrating in that I couldn't get him to commit a lot to paper," 10) "The age difference between me and Ashleigh was too great. She wanted to do fun things such as riddles and games, whereas I wanted serious in depth emotional responses to complicated situations."

**Summary of Chapter Four**

Chapter four presented the data collected in the study. The chapter analyzed and reviewed pre and post motivational profiles, student perceptions of learning satisfaction, and pre and post assessment results.

Discussion of the results will be presented in Chapter Five.
CHAPTER V

Discussion

Introduction

This chapter presents a summary of the findings of the study and draws some conclusions based on these findings and the relevant literature.

The emphasis for this chapter is on interpretation, discussion, generalization, and drawing inferences and conclusions from the data presented in Chapter Four. Discussion will be in relationship to the presented theory of gifted education, namely a developmental model which suggests an appropriate match between the child's level of ability and instruction (Keating, 1991; Matthews, 1993; Stanley, 1976). Limitations of this study, including potential limitations in the formulation of hypothesis/questions, methods or design, subjects, extraneous factors, and other aspects will also be noted. In addition, the chapter contains recommendations for changes in practice that may help to address the needs of the academically gifted student. Speculations about how the results may have differed if different procedures were used will also be included. Conclusions based on the study and suggestions for further research will be suggested.

Data collected in this study will be discussed. The four clusters of data are as follows: 1) assessment results of both cognitive and achievement abilities, 2) evaluation of student learning by mentors, 3) student perceptions of learning
satisfaction and 4) results of motivation profiles.

Limitations of the study

Because the sample is small (4) it is conceivable that findings might not be representative of all academically gifted children. Gifted individuals differ from each other in more ways than they resemble each other. However, traits of gifted children surface to assist educators to develop appropriate educational experiences (Clark, 1992; Sanborn, 1979). Despite this small sample, the study did collect a considerable amount of data to suggest that the case studies may represent academically advanced students. All students demonstrated acquired knowledge and academic development surpassing their age/grade peers. This was indicated by their WJ-R results at both pre and post assessments. The results of the motivational profiles suggest that all case studies are intrinsically motivated. Throughout the literature (Clark, 1992; Davis & Rimm, 1989; Delisle, 1992) it is suggested that gifted children are inherently intrinsically motivated.

A basic limitation that applies to this study is that the information gained on learning satisfaction was self-reported. All children reported satisfaction. In two case studies (#1 and #4), the children appear to be relatively compliant. They seem to want to please. Whether they related their satisfaction because they wanted to please the co-ordinator or because they truly were satisfied remains to be seen. This manner of self-report may be a possible limitation.
Not all the children in this study had all their interests matched with an expert. Christopher's keen desire to further his computer knowledge and proficiency was not able to be matched with an adult of similar abilities. It surfaced early in the mentorship program that a connection could not be made with a professor at the university/college who had a background in computer technology and who had the time to make the commitment.

The mentorship program addressed in this study was time certain. It began at a particular time and ended at a particular time. Questions regarding the continuation of program modifications for the case studies are not yet determined. The fact that these children are identified suggests that there is a moral obligation to continue some program modification.

**Assessment results**

**Cognitive assessment.**

Interpretation of the results suggest that young children sometimes respond slowly to timed tests for a number of reasons that may have more to do with maturation or personality than intellect. Considerations that gifted children show advanced intellectual skills but may be average or even slow in the development of motor skills cannot be overlooked (Silverman, 1991).

**Achievement results.**

When examining the WJ-R results of all four children noted insights are obtained. On reflection, Christopher's scores in the Mathematics knowledge domain cannot be determined because of
the ceiling set in the WJ-R. If the writer had access to a SAT (Scholastic Aptitude Test), achievement levels in Christopher's profile could have been deduced.

It might be suggested that Christopher's elevated scores in reading (greater than 4.5 years) may be a result of having to write up his Mathematical problem solutions for his mentor, Dr. Ward. Christopher did not receive any formalized English curriculum during this school year. English 8 was substituted for an elective.

Richard's achievement results show noted gains were in Calculation, (greater than 3.6 years) and Dictation (greater than 6.3 years). Richard had two mentors. He was mentored in mathematics by Mrs. Macdonald. This suggests that the mentorship program was quite effective in the Mathematics domain.

Richard's second mentor, Mr. Campbell addressed his interests and abilities in the history area. On deliberation, this child should have been given a pre and post test evaluation in the Social Studies and Science domains of the WJ-R, particularly the former subtest, where the knowledge increase could have been shown.

Peter's results show noted gains were in all subtests except for Passage Comprehension. Standard scores in Letter-word Identification increased from 197 to > 200; Calculation was elevated from 139 to 144; Applied Problems rose from 145 to 161; notable advancement in Dictation from 149 to 167; and most significantly Writing Samples measuring Peter's fluency with the
written word also showed growth.

Peter's change to a vastly different educational placement five months into the school year, at the time when the mentorship program officially commenced, is an indication of success of the mentorship program. Peter was not taught English (Language Arts) formally. Everything presented to Peter in this grade one placement was presented in French. Mrs. Dickson mentored Peter twice a week in the area of Language Arts in English, including reading, writing and oral communication particularly around his presentations. Perhaps her mentoring can account for his increases in the Language Arts domains.

Ashleigh's results demonstrate noted gains in all subject domains, except Writing Samples where Ashleigh had already reached the ceiling on the WJ-R on the pre test indicating her fluency with the written word prior to mentorship. Again, the WJ-R results did not offer enough of a ceiling to show any results that could be determined from the mentoring program. Also creativity with written expression, especially poetry writing, cannot be tapped by this measure.

In conclusion, overall improvement in student achievement suggests support for the efficacy of mentorship.

Evaluation of student learning by mentors

Comments from mentors on their mentees give evidence of the learning that occurred in the mentorship program. Anecdotal details also give information about the child's affective traits. Inferences drawn from the mentors' comments include: 1) All
children showed their levels of knowledge in the discipline the mentor instructed in. What knowledge the child had prior to the mentorship, and what knowledge was developed or acquired during the mentorship appears to be somewhat ambiguous. However, what can be drawn from the comments of the mentors is that these children demonstrated their knowledge and this manifestation was shown throughout the program. 2) All children were challenged at their appropriate level. 3) All children took risks with their knowledge level and showed transference to new learning presented to them. 4) All mentors reported that they observed the child's comfort level increase as the mentorship program progressed; 5) Mentors also related that they noticed their mentee's satisfaction in learning throughout the program duration. Often this was expressed behaviourally by the child's enthusiasm about the subject being studied.

The literature suggests that a mentor's role is one of a facilitator and a source of inspiration. Particular comments regarding the intellectual "kinship" that occurred appeared to show that most of the mentors delighted in the child's acquisition of knowledge and the mentors were able to provide opportunities for the student to enhance their knowledge and develop initiative and imagination. Christopher could talk about how he solved the mechanical math problem with someone who would encourage him to expand his methodology and increase his ability to express his thought processes. Christopher's mentorship demonstrated a kind of congregating of individuals with like
minds and interests. It seemed that Christopher had not had this opportunity before.

Peter could spend time reading research on his favourite topics at his reading level without fear of criticism and looking "different" from his age mates. Encouragement was offered to him to go ahead and complete his large projects. Confidence was apparent as he presented his findings to much older children. They were interested and he was validated for his knowledge.

With Mr. Halverson's encouragement and instruction Ashleigh had her poem selected for "The Young Author's Conference". Each case study progressed at their level and the mentors fostered this potential.

**Student perceptions of learning satisfaction.**

This information contributes personal perspectives from the students, in discussions that were candid. The transcripts of these interviews provide a portrayal of the unique circumstances that the case studies experienced. All case studies were interviewed in their schools in their usual contexts of activity. From these discussions an understanding of the interpersonal intimacy with the mentor is acquired.

This information contributes personal perspectives from the students. Information gleaned from these interviews is based on the phenomenological understanding of the child's reality while participating in the mentorship program.

Throughout the course of the mentorship program the writer spoke to the children frequently. Often, the child's eagerness
and intensity in these conversations were noted. As the mentors also noted, the child's demeanour and behaviour suggested the case studies' sense of satisfaction with having a mentor and being part of the program. Richard's fondness for the text book for Western Civilization 12 was an early indicator of his satisfaction. He related to the writer that he read the entire text book of a week-end, immediately after he had received it from Mr. Campbell. Ashleigh's account to her mother each Wednesday afternoon following the sessions with Mr. Halverson contributed to her sense of contentment with the process. When Peter described the wing span of the Condors he was studying his delight in knowing this information was apparent. As well as these behavioural indicators, the transcripts of concluding interviews provide a portrayal of the unique circumstances that the case studies experienced. The knowledge that the child gained in the subjects being studied was also evident. The Matrix presented in chapter four shows the categories that surfaced from these interviews. The sense of self enjoyment of the program, the process, the achievement gained and the student's product characterise the students' satisfaction.

Motivation profiles

An inquisitiveness in learning and a motivation to explore are crucial to successful education (Hendricks & Scott, 1987). Intrinsic motivation is fostered by environments that support autonomy (Clark, 1992). Utilizing the profiles of Harter (1980) as a pre and post test, all case studies involved in the study
show elevated scores overall when compared to the normed population. One exception appeared.

Peter is the youngest child in the sample and is in grade one. Peter's pre test showed more extrinsic orientation or a strong dependency on outside judgment or teacher approval. This is a developmental characteristic, often shown by young children. This is not surprising as his age/grade levels were not part of Harter's (1980) norming population. The youngest population normed on Harter's (1980) scale were children in grade three. His initial scores were compared to this population. Peter was in grade one. However, on Peter's post test profile, his scores are elevated even higher than the grade three norming population.

This information suggests that gifted learners overall are more intrinsically motivated and the exploratory question that gifted learners' profiles will be higher than those of the average student is confirmed. An examination of individual profiles will follow.

Although Christopher's (case study #1) profiles continued to show a more intrinsic motivation on the post test, there were drops on his profiles in three areas. Major developmental changes occurred in Christopher during this school year, while he attended grade eight in a high school. Harter and Connell (1984) account for changes in the motivational profiles as children get older. This change reflects the tendency for children to adapt to the demands of a school culture which reinforces a relatively extrinsic orientation. With increasing grade level, "...
children's intrinsic interest in learning wanes or is stifled, particularly with regard to preference for challenge, curiosity and desire to independently master material" (Harter & Connell, 1984, p.229).

Christopher's shift in his preference for challenge (-.5); his curiosity/interest (-.8) and his decrease in internal criteria (-.3) from his pre test, may reflect his tendency to adapt to the demands of high school which reinforce a generally extrinsic inclination.

Christopher's increase in independent judgment (+.3) may be a result of Dr. Ward's and Mr. Fourtier's encouragement of Christopher's self understanding and self-judgment. They applauded and advocated his sense of correctness and opinion.

In reviewing Richard's motivational profile from pre to post tests, his scores were elevated across all subscales. Overall, this implies that Richard was challenged by the mentorship opportunity. His achievement motivation may arise out of the challenge and satisfaction gained while mastering the course content of Western Civilization 12. It appears that this course matched Richard's capabilities. Richard was subject-matter accelerated and this educational challenge was commensurate with his abilities.

Any discussion of Peter's motivational profile, both pre and post must be prefaced with the knowledge that the Harter scale (1980) was normed on a population of children in grade three and other advanced grades. Peter's grade (grade one) was not part of
the norming population. Therefore, Peter's scale is speculative. However, his motivation towards his learning is interesting as there is such a noted difference at the close of his mentorship program.

At this early age, age six, it is unlikely that Peter has a true sense of his competency. Young children tend to be more extrinsically motivated, and highly dependent on teacher judgment and teacher approval (Harter & Connell, 1984).

Peter's pre and post motivational profiles, when compared to the other case studies, offer the most dramatic change over the mentorship duration. All his scales are elevated and this suggests that motivation was heightened with Mrs. Dickson's involvement.

Harter and Connell (1984) suggest that an intrinsic motivation orientation is coupled with the child's positive feelings of competence and "perceptions of personal control over outcomes" (p.221). These elevated scores suggest that Peter's ability to achieve is internally recognized. Indeed, his public presentations of his projects to older children showed his assurance and competence. The behaviour Peter showed while giving these presentations displayed self-confidence and maturity usually seen in older children.

Ashleigh's profiles are similar to the preceding three case studies. All her scores are elevated, with the exception of independent mastery, which remained the same. Interestingly, her score on independent mastery is the same as the norming
population of other nine year olds.

Noted gains in Ashleigh's profile show preference for challenge is up (+.5); curiosity is up (+.5); independent judgment is raised (+.2); and internal criteria is up (+.3). Ashleigh, having the opportunity to participate in a mentorship program, appeared stimulated and challenged. This was exhibited in her creative talents in her writing. With encouragement from Mr. Halverson, Ashleigh rose to the challenge and her motivational profile was heightened.

Summary of Motivational Profiles

The results pertaining to motivational orientation are as expected. The case study sample indicates that gifted children vary significantly from the norm. They are generally intrinsically motivated, especially in their preference for independent mastery, that is, doing their own work and figuring out their own learning problems, rather than being dependent on the teacher. They also are more intrinsically motivated to seek challenging work.

Implications of the Motivational Profiles

It emerges that, given the opportunity to seek challenging work, gifted learners will increase their intrinsic motivation. It appears that identifying their curiosity and meeting their needs for knowledge acquisition will encourage their motivation to learn. Research has shown that gifted children who realize their potential must maintain their interest and motivation (Hendricks & Scott, 1987). Presumably, presenting challenging
material to gifted learners will foster intrinsic motivation. As a program modification, a mentorship program may work for gifted students as the case studies' mentorships provided opportunities for independent study and for students to make choices as to their learning. The mentors provided options for their mentees and supported the students' projects under guidance. A mentorship program may work for gifted students.

**Implications for further research**

**Motivation and high school culture**

The change in Christopher's motivational profiles suggests further investigation. Could this result reflect the tendency for children to adapt to the demands of a high school culture which may reinforce a relatively extrinsic orientation? With increasing grade level, "... children's intrinsic interest in learning wanes or is stifled, particularly with regard to preference for challenge, curiosity and desire to independently master material" (Harter & Connell, 1984, p.229). This supposition warrants further examination.

**Mentorship Match**

What emerged from this study regarding the fit between the mentor and mentee is worthy of discussion. Although the relationship between the student and his/her mentor was not a focus of the study, it appears essential to success of a mentorship program.

The cliche that students often learn in proportion to "their like for their teachers" shouldn't be overlooked. Compatibility
of teacher and student ensures the best match. When considering the optimal match between a student's demonstrated need and an academic response, mentorship as a program option may prove viable, providing that both mentor and mentee have similar dispositions and interests. Careful selection for this fit cannot be neglected. In this study, all mentors selected revealed their enthusiasm to instruct gifted children. The fact that the mentors chosen volunteered their time and expertise substantiated their interest.

The matching of students to mentors was carried out by the writer. This matching implies not only the bringing together of two people but considerations around teaching style and learning style also appear to be significant. Care was taken in interviewing both the mentors and selected students to insure compatibility. At some level, both potential mentor and student select each other in the context of the commitment which at the beginning is just being shaped. This match is a difficult matter to assess, yet as the mentorship unfolded, signs and symbols of the mentorship fit were revealed. Both students and mentors showed their enthusiasm when they talked about the progress of the mentorship program.

The intent of the mentoring program was open-ended, suggesting that both the mentor and the mentee be free to allow what happened between them to run its course without regard to interference or direction from the co-ordinator. The I.E.Ps established at the beginning changed and evolved corresponding to
the needs of the student. The mentors adjusted accordingly, depending on the process of the program. Some attention by the co-ordinator was maintained to draw out a sense of the "fit" or compatibility of student and mentor but only at the closing of the program was evidence of success able to be truly appraised. The opportunity to get "inside" this relationship to address possible impasses as the mentorship program progressed was not always available.

Three out of the four case studies reported satisfaction and pleasure overall, in all facets of the mentorship program. All male participants were unanimous with their satisfaction and their accomplishments, as were their mentors. Case study #4, Ashleigh, the only female participant, was somewhat hesitant and wavering in her personal description of success. Although she reported that she enjoyed her time with her mentor and would encourage her friends to take the opportunity of mentorship if they were invited, she also stated, "I kind of would have liked to have some friends come with me, ... there are two kids in my class, they’re really smart...." To Ashleigh, it appeared that her comfort level with her mentor would have been increased if she had classmates participating with her. Mr. Halverson’s comments are also noteworthy; "The age difference between me and Ashleigh was too great. She wanted to do fun things such as riddles and games whereas I wanted serious indepth emotional responses to complicated situations."

Further information contributed by Ashleigh’s mother at the
conclusion of the study is also significant. Ashleigh’s mother expressed the differences between her daughter and Mr. Halverson. Her intent was to explore the physical contrasts of the two. Ashleigh is constantly in motion; her athletic prowess consumes her life. Mr. Halverson, whose physical infirmities have confined him to a wheel chair, makes intellectual pursuits his liberation. Perhaps these differences were too distinct.

Mentors need to see themselves as facilitators of learning not just knowledge experts. Ashleigh’s match with her mentor may have been more conducive if the mentor chosen was a woman. Research suggests that female mentors have more positive effects on gifted female students (Beck, 1989, Howard-Hamilton, & Robinson, 1991, & Zorman, 1993). This is a factor that goes beyond the scope of this study but is worthy of consideration.

Further research is needed to investigate potentially relevant nonintellectual facets of personality match in ascertaining the effectiveness of mentorship.

**Mentorships and acceleration and enrichment for gifted learners.**

Mentorship as a program option for the selected case studies has been shown to be effective. The intent of this study’s mentorship program was to provide an optimal match for the students. It was hoped that the students would be appropriately challenged, that is to be presented with material which was neither so easy for them as to be repetitious, nor so difficult as to be staggering. The purpose of the program, therefore, was a type of acceleration.
All four case studies had elevated achievement competencies and elevated scores in their intrinsic motivational profiles and declarations of learning satisfaction were made. These findings support mentorship programs for gifted children.

In each case study mentorship, the child and mentor became co-learning partners. The child was recognized as an equal partner in the initiation, planning and implementation of the learning experience. The mentorships freed the child to pursue other learning options. Two students (case study #1 and case study #2) had the occasion to leave their regular learning environment and meet with their mentors in different settings. These opportunities showed the children that learning occurs across settings that reach beyond school or the classroom.

As the mentorship progressed mentor-mentee interactions changed. The student was able to take on more responsibility and give more input. An example is represented in Richard engaging in a discussion with two visiting teachers to his classroom. Mr. Campbell's comments verify Richard's input; "Two of the teachers had considerable Western Civilization 12 backgrounds and Richard engaged them in a very interesting dialogue. I was a mere bystander as he discussed with them aspects of an artist and his work, who he had recently made a presentation about, and the comparative music research he was currently working on."

It is a mistaken belief that gifted students in elementary school are capable of carrying out and completing high-quality projects entirely on their own. They appear to need a guided
approach to keep them motivated to complete and present a project, and to get recognition for these endeavours. Mentorship programs can provide such guidance. Applications of the mentoring concept range from programs linking learners with special instructors to suggestions for student-to-student ties. In all case studies, the learning opportunities, the attention, the information sharing and the support the children received extended beyond the classroom.

A distinction between acceleration and enrichment for the gifted learner is needed. Enrichment, for the most part, is keeping children with their own age mates by extending their horizons through special projects. This study attempted to match the child's competencies to a course of studies that promoted their competencies. Acceleration in this case is concerned with more curricular flexibility and flexible pacing (Benbow, Argo, & Glass, 1992). The mentorship design was to expose the child to educational programs intended for older children, as in the case of Peter. Peter could read adult books without fear of criticism or "looking different" from his age mates. He was free to write reports of imposing length and complete large projects that are typically not suggested for six year old children. In this way the mentorship program offered was one of acceleration or pacing the program to Peter's reading and writing abilities.

Enrichment, on the other hand, often emphasizes the creative process, including divergent thinking, problem finding, problem solving and brain storming, but it does not necessarily consider
the child's present operative skill level. Such enrichment programs utilize exercises such as: "Pretend you are the first person to fly. Tell a newspaper reporter about your journey and how you felt. Tape an interview which you have written using a friend as a reporter" (Zorn, 1983, p. 314). These strategies offer pleasure and can provide a contest for sharp minds.

Results of the mentorship program support subject acceleration. Nonetheless, any program modification is encouraged, whether enrichment or acceleration. In either experience, the curriculum is adjusted for gifted learners.

**Educational implications and considerations from the study**

Effective co-ordination and consistent monitoring is needed to make a mentorship program possible. A mentorship program also requires competent communication between all people involved. The co-ordinator must be able to inspire gifted students and their mentors to work well together and have similar goals for the mentorship program. The co-ordinator should also be able to handle unforeseen problems and make necessary changes in consultation with all stakeholders. Administration on the part of the co-ordinator to promote clearly defined structure and intent of the program ensures success. Communication with parents is also important, particularly as the mentorship program develops.

Efficient co-ordination includes personal interviews with mentors, students and their parents, principals and teachers and an understanding of learning styles as determined from the
students. Administrative duties would include the setting up of I.E.P.s and arranging out of school learning opportunities. These responsibilities would be delegated in conjunction with the topics of interest of the student. In a curriculum responsive to student choice, perceptions of those students are an important factor in design of the program.

Duties of the co-ordinator include completion of release forms and waiver vouchers by parents and school personnel when children go on unusual field trips or they leave their home school to meet with their mentors in other settings. Transportation also needs to be secured.

The best possible match for mentor and student is crucial not only to fit the child's interest to the professional expertise but to consider the safety for the child.

Mentorships may be distributed over a wider time span rather than this study's duration of five to six months. Perhaps more flexibility in moving in and out of a mentorship program would help highly precocious children actualize their potentials over an extended period of time. Therefore, mentorship would be conceptualized as a process and, used appropriately, would be adjusted to the developmental phases that the young gifted student exhibits. In the case of Peter, the six year old mentee, this screening procedure would assess Peter's readiness for participation. There may be times in his development that he will not choose to be separated from his class and his age peers.

Not all school personnel involved in the case studies'
scholastic lives acknowledged that these children needed special attention when it came to instruction. Breaking out of the mould that teaching is most efficacious through group instruction given by regularly employed teachers with appropriate certificates appears necessary. Using community resources to enhance educational opportunity is still frowned upon by some educators. Genuine concern regarding mentorship programs are often expressed and, therefore, this educational alternative is not utilized to the extent which appears warranted for young children.

Even when a gifted child has the necessary academic aptitude to be accelerated, concerns are often expressed by current educators that the child’s psychosocial characteristics render any type of acceleration impractical. These opinions need to be confronted if a community based mentorship program is to be established. Literature supports acceleration for academic progress and more effectively facilitating personal and social development, but general consensus among educators and the general public appear to still strongly favour the enrichment model - even for highly exceptional children.

In the building of a constructive, beneficial mentorship program to involve many students, community resources play a key role. This role is especially meaningful in light of contemporary emphasis on community involvement and use of community resources as outlined in the document *Year 2,000; A Framework For Learning* (1989). Mentors’ expertise and experience need to be shared with our gifted youth.
Summary and recommendations.

The methodology used in this study was a multiple-case study approach. Having four children involved in this design is comparable to a series of experiments or examinations. The logic of the multiple-case study is replication reasoning (Moon, 1991, cited in Buchanan & Feldhusen, 1991). Replication of the treatment, in this case involving the children in a mentorship program, implies the question, "Will the result be duplicated in all case studies?" Results from such designs create more substantial evidence to ground assumptions about the academically gifted learner.

From this study, it was determined that all case studies varied significantly from the norm in their desire for independent mastery; they were not teacher dependent. They also preferred challenging work. Overall, their achievement levels rose significantly, given a differential curriculum supplied by their mentor. In all cases, the children reported a heightened learning satisfaction.

Mentorships could be an integral part of gifted programs. Boston (1976) argued that mentorships provided students with an opportunity to learn and experiment, develop their potential skills and gain competencies. From this study it was learned that the mentorship programs effectively helped the students take risks, develop their abilities, learn more advanced subject matter, work independently and utilize research skills. In the case of Christopher, he also was able to examine characteristics
of professionals in the mathematics world. He observed how mathematicians interact with each other and this network fostered future long term friendships. Possible career options were also presented to Christopher. A life-long learning network was established for Christopher. As one mentor suggested, Christopher was considered a colleague and their time together was co-learning, not teacher directed. The premise that schools should teach students to learn to learn and be more concerned with the process than with disbursement of knowledge recognizes the gifted child's capacity for thought and idea exchange.

Unless the special abilities of gifted children are developed during their school years, their special potentials may be lost. Many gifted youngsters are not always afforded the opportunity to fulfill their exceptional capabilities due to inappropriate educational services or lack of special services. Having a designated mentor for these children provides opportunities for the student to enhance, develop and use his/her initiative and self-motivation and advance their originality.

Volunteer mentorships provide a variety of inexpensive enrichment and subject advancement opportunities for academically gifted children. This is important especially in this period of budgetary cutbacks of special programs. To increase the likelihood that gifted learners might reach their potential, attention to their interests and motivation seems critical. Children must learn very early that curiosity and interest are not only acceptable but desirable qualities. "By fourth grade
many gifted youngsters, especially boys, have opted to give up
their curiosity ... in order to fit in and be accepted. By
eleventh grade, one third of all students have dropped out and of
these, six percent are gifted students who have found that school
offers them little (Hendrick & Scott, 1987, p.120).

This study was formulated in an attempt to address the
learning needs of academically gifted children. It was
speculated that changing the learning environment might effect
and increase motivation, learning satisfaction and academic
competency.

Mentorship programs for children can work. The case studies
have learned much, developed as motivated students and have had a
lot of satisfaction participating in the program.

Subsequent research, perhaps in the form of a longitudinal
study of these four children might add further insight into their
development and their potential, now that they have been
identified.

The writer also suggests that further research on relevant
nonintellectual facets is needed in regard to mentorships with
gifted children. The mentorship fit appeared crucial. Case
study #4, the only female participant, may have yielded higher
gains in her motivational profile if her mentor were also female
and had more common interests that were not curriculum driven.
Also, does the high-school culture, as experienced by
Christopher, have a negative impact on a child’s intrinsic
motivation?
It became apparent that appropriate achievement tests need to be employed. As Christopher's mentorship was in the mathematical domain, the SAT may have truly credited Christopher's mathematical prowess. Richard's talent and expertise in the history and science realms was not genuinely tapped, as the appropriate subtests of the WJ-R were not administered.

The limitations of this study suggest possible directions for further investigation.
REFERENCES


Jovanovich.


Appendix A: I.E.P. for Richard

INDIVIDUALIZED EDUCATION PROGRAM/PLAN

DATE: November 29, 1993

STUDENT: CASE STUDY #2

BIRTHDATE: 80.10.27

HOME SCHOOL: ___________ Elementary  PRESENT GRADE: 7

Present:
Mr. & Mrs. ___________; parents
Mrs. ___________; teacher
Mrs. ___________; LAT
Case Study #2
Mr. ___________; Western Civilization 12 teacher

Current Academic Assessment Level:

WISC-III: Performance:
  99th percentile
Verbal:
  99th percentile
Full Scale:
  138

WJ-R: Broad Reading: 16.9 grade equivalency
      Broad Math: 15.8 grade equivalency

SECTION I (To be completed by student)

Things I can do well:

1. I can spell everyday words well.

2. I can do musical theory well.

3. I can beat players in "Jeopardy."

4. I can understand new Math concepts really well. I can do Math problems well.

5. I can read very quickly.
Things I would like to do:

There are so many things I would like to study. I love learning about ancient history.

Three goals for me:

1. I will do my best.
2. I will get my work in on time.
3. I will have a finished product.

Section II

Parents' priorities/goals for this student:

1. For his education to be broadened. And, we mean this horizontally, not vertically. More, to develop an understanding of what he does know. Perhaps to have more of an experiential background.
2. For him to have more of an extension of the product. To go beyond the basics. Perhaps to show his knowledge more in different realms of products.
3. To show a variety of ways of his knowledge.
4. To grow in areas of Math. His knowledge of Math already surpasses his age mates.
5. To somehow learn more empathy skills. Learn to affirm with people and to negotiate respectfully with others.

Section III

Teacher's priorities/goals for student:

I am hopeful that he will deliver work of a top grade seven student. Deadlines are an issue for him; he procrastinates. Checklists of work to be accomplished must be met.

Mentor's priorities/goals for the student:

To develop and deliver an age appropriate program for student at his conception level, recognizing his interests in ancient history. WESTERN CIVILIZATION 12 will be the medium. This course traces the history of Western Civilization from the fall of the Roman Empire to the 20th century and attempts to relate historical events by examining the development of new ideas, art, architecture, literature and music throughout this extended time period. Much of the course is based on the BBC television series.
Section IV

Class Activities or Learning Strategies (possibilities):
(Mentor to help facilitate)

1. Presentations in class have a lot of flexibility for student. There will be a minimum of four presentations on topics that the student chooses to study. These presentations are designed to encourage the student to develop resourceful outlets for his imagination and creativity. For example: Considering his music prowess, perhaps he may choose to build a presentation of how music and art were related in certain periods of history.

2. As well, the student will have chapter readings and small quizzes on each topic.

Section V

Evaluation Procedures and Criteria:

Date Set? During each term there will be an evaluation.

Quizzes of readings and essays based on student’s presentation will be evaluated.
Appendix B: I.E.P. for Peter

INDIVIDUALIZED EDUCATION PROGRAM/PLAN

I.E.P. Review Date: May 18, 1994 Original I.E.P. date: January 26, 1994

STUDENT: CASE STUDY #3

BIRTHDATE: 87-03-21; 6 years 7 months PRESENT GRADE: One

HOME SCHOOL: Lloyd George Elementary, 257 West St. Paul Street

Present: Mrs. ____________, teacher January 26 & May 18
Mr. & Mrs. ____________, parents January 26
Mrs. ____________; mentor January 26 & May 18
Mrs. Brenda Simpson; District School/Family Consultant January 26 & May 18
Mr. ____________, Principal January 26
Mr. ____________, Vice Principal May 18
Mrs. ____________ (Substitute teacher for duration of school year) May 18

Current Academic Assessment Level:

WPPSI-R: Overall: Overall 94th percentile
Performance: 105
Verbal: 135

WJ-R: Broad Reading: 99th percentile
Broad Math: 95th percentile

SECTION I (To be completed by student)

Things I can do well:

I can write well and I can read well. I can also skate well and draw well.
I can run very fast and make things well.

Things I would like to do:

I would like to play and do Math tote trays. I would like to learn French.

Three goals for me:

(I would like to be able to dig up a dinosaur) May 18/94 - Plans to visit Drumheller, Alta. Summer 1994.
I would like to write and read French.
I would like to know more about planets.
Section II

Parents' priorities/goals for this student:

1. To be academically fulfilled.
2. For CASE STUDY #3 to have a sense of belonging with his age appropriate group, but be challenged scholastically.

Section III

Teacher's priorities/goals for student:

January 26, 1994:

1. To develop and deliver an age appropriate program for student at "his thinking level."
2. To be a valued person in an inclusive classroom. To recognize student's age (six and a half,) and allow for appropriate social exchange.
3. To learn and speak French.

May 18, 1994:

1. To develop in CASE STUDY #3 a critical comprehension of the French Language.
2. To extend his learning in the French Language.

Section IV

Class Activities or Learning Strategies (possibilities):
(Mentor to help facilitate)

1. Reactionary Journal: Child writes his reflections on various events he has observed (Young People's Concerts, etc.) or his feelings towards a book he has read.

2. Presentations: To expand child's awareness of how to present and share his knowledge with others. ("Show what you know") Student to develop resourceful outlets for his imagination and creativity. For example: build a model of the rocket ship or write a play script from the most recent novel you have read.

3. To encourage student's vocabulary in the form of creative writing. For example: A computer assisted program for publishing a story.

Section V

Evaluation Procedures and Criteria:

Date Set: On-going weekly

May 18, 1994: Projects and presentations will be shared incidently with his classmates. Class presentation is planned for in late May or early June. Recent research project on "Condors: bird of prey" is close to completion. Presentation due date: June 14.
Appendix C: I.E.P for Ashleigh

INDIVIDUALIZED EDUCATION PROGRAM/PLAN

I.E.P. Review Date: May 10, 1994
Original I.E.P. Date: January 20, 1994

STUDENT: CASE STUDY #4

BIRTHDATE: 1984-05-28

HOME SCHOOL: ________________ Elementary

PRESENT GRADE: Grade 4; French Immersion

Present:

___________ (parents)
Ms. ____________, teacher
Mr. ____________, Vice Principal
Mr. ____________, mentor
Mrs. Brenda Simpson, District School/Family Consultant

Current Academic Assessment Level:

WISC-III-R: Overall: 98th percentile (132)
Performance: 115
Verbal: 126

WJ-R: Broad Reading: 99th percentile
Broad Math: 99th percentile

SECTION I (To be completed by student)

Things I can do well:

Things I would like to do:

Read faster!

Three goals for me:

Section II

Parents' priorities/goals for this student:

1. More exposure for CASE STUDY #4. "To open doors for her." To expose her to different ways of thinking.

2. To offer direction to work through creative problem solving.
Section III

Teacher's priorities/goals for student:

1. To develop and deliver an age appropriate program for student at "her thinking level."
2. For CASE STUDY #4 to write a story coherently; using transitional sentences.
3. Perhaps to do a research paper; to show her inductive reasoning capabilities.
4. To cope with her abilities and handle interpersonal relations.

Section IV

Class Activities or Learning Strategies (possibilities):
(Mentor to help facilitate)

1. Keeping a journal of what she is learning and her comments regarding the process.
2. To discuss language and its power. Perhaps an analysis of simple, compound and complex sentences. To be able to write a simple sentence and expand on it.

Section V

Evaluation Procedures and Criteria:

Ongoing throughout the assigned time.

Product:

CASE STUDY #4 will demonstrate her learning by the products she completes. For example, poem completed for the "Young Author's Conference." Writing samples and class presentations will show her knowledge and expose her achievements.
Appendix D: Christopher's Mentors' Evaluation Questionnaire

D(1): Dr. Ward

PART A  MENTOR'S ACCOUNT OF STUDENT'S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #1
Birthdate: 81.11.01
Gender: Male
Mentor's Name: Dr. Ward
Date: June 24, 1994

Explanation:

Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student's strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skill,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. Student Performance:

I COGNITIVE:

1. Content knowledge - The student shows the ability to "own" knowledge. This encompasses the student's ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

   Scale
   1 - 3
   3
2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

   He ate up material on Graph Theory that I used to explain a complex solution of a tough puzzle.

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

   Every solution he has given me to a problem has been well reasoned and can be further elaborated on several days later.

4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

   I have not observed this as often, because the problems I have given him are usually quite unrelated.

II **CREATIVITY**

1. **Imagination** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

   The ideas are only unique for someone of his age and formal math training.
III AFFECTIVE

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?

   I have never looked for "risk taking" and "sensitivity to social values". The number is a comment more on my observation skills.

IV COMMUNICATION SKILLS

1. Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.

   The clarity of solutions is not uniform sometimes it is very clear and sometimes it requires probing on my part for the concept.
PART B  MENTOR'S TEACHING STYLE AND THE STUDENT'S LEARNING STYLE  
(Anecdotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?

My style was relaxed and informal. This was enhanced by looking first at physical (or mechanical) puzzles before considering word problems. Christopher was always relaxed during our encounters. Neither of us viewed the problems he worked on as "tests", but rather as puzzles from which some learning might occur. Our shared interest in puzzles brought us much closer together.

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?

One of the most significant changes I observed was Christopher's willingness to write up a solution to a problem. Initially there was reluctance, but eventually he started and now we only consider the problem solved once the solution has been written out in full and we have discussed my feedback. As a result he has increased the value he places on English.

3. Your involvement with your student was "term certain." It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

Interestingly I don't recall any significant changes other than those noted above. Christopher and I hit it off from the beginning and any nervousness that may have been present on our first meeting was gone by the second.
4. Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

I have really enjoyed spending time with Christopher and have already arranged to recommence in the Fall. To have a student who is eager to hear everything you have to say and shares your enthusiasm for your subject is every teacher’s dream!

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson
Appendix D: Christopher’s Mentors’ Evaluation Questionnaire
D(2): Mr. Fourtier

PART A MENTOR’S ACCOUNT OF STUDENT’S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #1
Gender: Male
Birthdate: 81.11.01
Mentor’s Name: Mr. Fourtier
Date: June 29, 1994

Explanation:

Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student’s strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skills,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. STUDENT PERFORMANCE:

I COGNITIVE:

1. **Content knowledge** - The student shows the ability to "own" knowledge. This encompasses the student’s ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

   He already has a broad knowledge base in mathematics and is able to assimilate and apply new concepts with ease. In statistics problems, he quickly mastered counting techniques (combinations and permutations) and used them correctly.

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2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

*Enjoys (and solves) tough mechanical puzzles. Chess problems.*

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

*Strong reasoning powers exhibited (eg. chess "battle" plans)*

4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

*As above, chess and math contest problems demand lateral thinking. He excels in this.*

**II CREATIVITY**

1. **IMAGINATION** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

*Lacking formal background needed for some problems. He often relies on unorthodox, yet successful strategies.*

**III AFFECTIVE**

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?

*He is socially adept and personable. Very much at ease with the faculty and students at U.C.C.*
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<th>COMMUNICATION SKILLS</th>
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<td>1.</td>
<td>Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.</td>
<td>1 - 3</td>
</tr>
</tbody>
</table>

*Strong visualization processes, however expository skills lag.*
PART B  MENTOR'S TEACHING STYLE AND THE STUDENT'S LEARNING STYLE
(Anecdotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?

Excellent match. I am fascinated with games, puzzles, paradoxes, & problem solving. He shares this enthusiasm.

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?

Problem solving in mathematics develops rational thinking (critical analysis, measurements, evaluation, inductive/deductive reasoning, synthesis). A valuable attribute in today's world.

3. Your involvement with your student was "term certain." It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

My relationship with him was comfortable from the start and remained so throughout the term.

4. Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

No frustrations. I feel, however, my worth as a teacher is more enhanced by getting through to weaker students. He is a pleasure to be with, but my teaching skills are not applicable. He learns too quickly!

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson
PART A  MENTOR'S ACCOUNT OF STUDENT'S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #2
Birthdate: 80.09.10
Gender: Male
Mentor's Name: Mr. Campbell
Date: June 30, 1994

Explanation:
Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student's strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skills,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. STUDENT PERFORMANCE:

I COGNITIVE:

1. Content knowledge - The student shows the ability to "own" knowledge. This encompasses the student's ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

Scale
1 - 3

3
Introductory Comments:

Case Study #2, a grade 7 student at the adjacent elementary school, undertook the regular Western Civilization 12 course - very quickly establishing himself at the top of this class of 16 students.

WC12 was taught simultaneously with AP European History (the 2 courses were not exactly historically parallel) so both groups of students - there were 6 in the AP course - spent a lost of time in self-directed learning.

In the case of WC12, after a brief overview of the period to be studied, the students were given a reading study guide for the chapter, and the spent the next couple of weeks or so reading and processing the information. At the same time, they were exploring and researching a topic of their choosing from within that historical period, which they would develop and present to their colleagues. Near the end of the time allotted to study that era, the students wrote and self-marked a practice test to help them prepare for a final reading quiz. The subsequent 2 classes saw them deliver their project presentations to their colleagues.

Their contact with me was not extensive, though they could, and did, use me as a resource and a sounding board for their projects and their presentations.

He entered the course just after the start of Term 2, but very quickly adapted to the course content and materials. His facility with music (at a high level) was a definite asset, but he quickly developed an understanding of art & architecture as they related to the various historic eras we studied through the year.

2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

See #3 and #4 below.

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

A specific instance comes to mind - one of his later projects was a comparative music one, in which he compared 3 different composers as representatives of 3 different music eras. He was able to demonstrate connections between them through presentation of his research and samples of their music.
4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

Very definitely. The text (*The Creative Impulse*) addressed era firstly in "Context and Concepts" before moving on to examine art, architecture, literature, music, dance, etc. He was one of the few students who made the connection between the nature and characteristics of an historical period and the art and cultural traits which emerged during that time.

II **CREATIVITY**

1. **IMAGINATION** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

See #3 above. Also, he was present in my room, writing a test, when several visiting North Vancouver teachers were meeting with me. Two of them had considerable W.C. backgrounds and he engaged them in a very interesting dialogue. I was a mere bystander as he discussed with them aspects of an artist, and his work, who he had recently made a presentation about, and the comparative music research he was currently working on.

III **AFFECTIVE**

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?

He is very definitely a risk taker!! It was no mean feat for a young Grade 7 student to enter a Grade 12 class, already a term under way, to join with them in their studies, and get up in front of them to deliver his project presentation.
IV COMMUNICATION SKILLS

1. Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.

He communicated his ideas verbally very effectively and clearly. The mechanics of his delivery (e.g. pacing, volume, etc.) were something that naturally needed addressing and, with the help of his support network, he worked on these aspects throughout the year, showing considerable improvement. His written communication still requires some work (see #3 on following page).
PART B MENTOR’S TEACHING STYLE AND THE STUDENT’S LEARNING STYLE
(Ancedotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?

As noted in the introductory comments, this was a very self-directed course. He needed little specific support from me. Free to pursue topics of his choosing, he did just that - and effectively developed his ideas into excellent projects.

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?

He began to acquire the skills of an independent learner. As already noted, he has an avid interest in the topics offered in this course and he pursued these with considerable perseverance and energy. He already was, to an extent, a self-directed learner. He is also a young teen, with a great diversity of interests and activities and his efforts were not always focused. Attention to details (finishing off mundane tasks, coming to class with necessary materials, etc.) were sometimes problems for him.

3. Your involvement with your student was term certain. It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

Not quite! As he will be enrolling in my Humanities 8 class next year, where he will have further opportunity to pursue a curriculum similar to this year’s one. His I.E.P. for next year will include the skills introduced to all Hum. 8 students, but I will encourage him to go beyond the regular content and have him present his findings to his colleagues. I intend to help him develop his organizational skills to help him become a fully self-directed learner, and will work with him to further develop his writing skills - specifically the preparation of a 5 paragraph essay. With all of this he will also complete, during the coming year, the requirements for full WC12 credit.
Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

I have been rewarded by my association with him during this past year. His scholasticism stood out in an otherwise disappointing crop of pupils (only 2 or 3 others approached their studies in a consistent manner.) I was frustrated in my efforts (along with others in his support team) to help him to organize himself in an effective manner, but I look forward to further working with him to help develop these skills so he's a truly independent learner (or well on the way to being one!) by the end of the next school year.

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson
PART A  MENTOR'S ACCOUNT OF STUDENT'S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #2
Birthdate: 80.09.10
Gender: Male
Mentor's Name: Mrs. Macdonald
Date: June 27, 1994

Explanation:

Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student's strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skill,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. STUDENT PERFORMANCE:

I COGNITIVE:

1. Content knowledge - The student shows the ability to "own" knowledge. This encompasses the student's ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

   He has a great deal of general knowledge - rather like a walking encyclopedia. In Math, he does have excellent reasoning skills and he abstracts at a high level.
2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

He does abstract at a high level. He can reason even though he doesn’t have formal teaching in an area.

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

He reasons and shows evidence of divergent thinking and he constantly challenges. Yet because much curriculum has not challenged him, he gets the main idea, but does not have the idea of mastery learning.

4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

He has no difficulty seeing relationships. The difficulty is when he has to do anything involving written work. Could the cerebral palsy have caused him to have developed an avoidance/aversion pattern early on in his schooling? Perhaps we are looking at a disability masked by high intelligence.

II. **CREATIVITY**

1. **IMAGINATION** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

He shows unique ideas in math. He doesn’t, however, generate a lot of ideas in literacy endeavours. Perhaps it is tied to the writing component?
III   AFFECTIVE

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?

*He has friends although his claims to superiority in areas of knowledge is off putting to some children. When paired with a younger child to do statistics, he cultivated a nice relationship with the child.*

IV   COMMUNICATION SKILLS

1. Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.

*He is articulate and very capable of making himself understood. Sometimes he can be argumentative and make himself unpopular with adults.*
PART B  MENTOR'S TEACHING STYLE AND THE STUDENT'S LEARNING STYLE
(Anecdotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?

CASE STUDY #2 was not prepared to accept direct instruction. His attitude was "I know." We began with Math exams that had multiple choices. When I "backed off", then he came to me when he met a difficulty and we worked together in solving the problems and the atmosphere was affable.

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?

He was quite good at clarifying times that he was to be certain places and when he was to meet with the younger student and to confirm times for classes.

3. Your involvement with your student was "term certain." It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

He loved the ideas surrounding math and enjoyed the reasoning. The problem came when asked to work through equations in written forms. He kept saying "I know, I understand." I tried to explain the need for overlearning before entering a test situation. I also emphasized that he would have to generate complete answers.
4. Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

There was satisfaction in that he was a happier child and he revealed a pleasant and sweet personality who truly loved mind exercises.

It was frustrating in that I couldn’t get him to commit a lot to paper.

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson

I hold out two hypotheses for CASE STUDY #2’s inability to complete written tasks. Had I met him earlier on in his development, I might have realized that he is a child with an invisible disability. Because writing is difficult, often bright children become highly skilled at evasion and there are emotional overtones that accompany this. The lack of motivation may be another symptom of a disability which is masked by high intelligence.

Conversely, it may just be that learning has come so easily, he has never had to strive for in depth mastery.
Appendix F: Peter's Mentor's Evaluation Questionnaire

PART A MENTOR'S ACCOUNT OF STUDENT'S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #3
Gender: Male
Birthdate: 87.03.21
Mentor's Name: Mrs. Dickson
Date: June 22, 1994

Explanation:
Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student's strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skills,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. STUDENT PERFORMANCE:

I COGNITIVE:

1. Content knowledge - The student shows the ability to "own" knowledge. This encompasses the student's ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

   Scale
   
   1 - 3

   - has an excellent memory
   - recall is quick and relevant
   - great quantity of knowledge (facts) about his favourite topic i.e. dinosaurs

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2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

   *CASE STUDY #3’s powers of observation are exceptional - details are very precise, complete and numerous.*

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

   *No answer*

4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

   *In his report he explained why there were no feathers on the Condor’s (Andean) head: the birds are carrion eaters and if they got into carrion with a head covered with feathers, the blood and fluids could present a 'sticky messy' problem. It is nature’s adaptation for Condors. In the same report, there were many questions about the bony "helmet" on the Condor’s head and he compared the structured feature to the skull of the duck-bill and some other dinosaurs.*

   *Scale 1 - 3

II **CREATIVITY**

1. **Imagination** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

   *He likes to be exact and "correct" and requires definite answers. The "literalness" of children his age is evident.*

   *Scale 1 - 3
III AFFECTIVE

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?

- Adjusts very readily
- New home in December
- New school and language focus in December
- Sensitive to ecological issues as indicated in his study of Condors
- Sensitive to classmates' and schoolmates' problems of social interaction

IV COMMUNICATION SKILLS

1. Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.

- In pictures and map work, especially maps of the playground and schools
drawings to show a favourite animal or thing he liked at the Wildlife Park
- explanations are excellent; time and space concepts, too
- have done some teaching of visualization to make sizes more real to him
general ability to express himself is outstanding, i.e. use and comprehension of words
PART B  MENTOR’S TEACHING STYLE AND THE STUDENT’S LEARNING STYLE
(Anecdotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?

I felt that teaching these basics of research so that Case Study #3 is independent in his pursuits, was quite easy.

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?

- use of alphabetical order, index and table of contents
- use of the measuring tools
- use and study of globe and maps
- use of postal code and mail boxes
- details of setting up a letter and writing a letter of invitation or for information
- recording queries for himself to answer from his research

3. Your involvement with your student was “term certain.” It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

The relationship has been positive and we both enjoyed our meetings. He is always interested in conversing and in telling me about his experiences. He really enjoyed the letter writing (his classroom teacher says so, too) and may be a way of capitalizing on his writing skills. He did say he doesn’t really like to write in his journal. He did quite a lot of recording of details from the research and I tried to always extend his thinking skills in the questioning, and use high order skills.
4. Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

My one frustration was that it was difficult to keep Case Study #3 moving out and into depth with the topics; he wanted to always look at the dinosaur books at the same level. Also, every time we met, we would plan ahead and suggest further research or activities. Case Study #3 did NOT follow through on any of these suggested activities, except reading his novel. We need to be constantly aware of his age!

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson
Appendix G: Ashleigh's Mentor's Evaluation Questionnaire

PART A  MENTOR’S ACCOUNT OF STUDENT’S DEMONSTRATION OF COGNITIVE, CREATIVE AND AFFECTIVE SKILLS AND CHARACTERISTICS

Student Name: CASE STUDY #4
Birthdate: 84.05.28
Mentor's Name: Mr. Halverson
Date: June 29, 1994

Explanation:

Case study research is interested in developing a portrayal of the unique contextual circumstances of individual experience within a setting.

The following questions are guidelines to your evaluation. Your personal account, including your observations and surmises to the questions are helpful in determining the student’s strengths. Although a scale is provided for you, please add your personal account.

Please comment on the following:

Please indicate by using the rating scale, the degree to which your student exhibits each of the skills and characteristics listed below:

1. if you have rarely or never observed this skills,
2. if you have observed this skill occasionally,
3. if you have observed this skill almost all of the time.

A. STUDENT PERFORMANCE:

I COGNITIVE:

1. Content knowledge - The student shows the ability to "own" knowledge. This encompasses the student's ability to probe deeply, once the knowledge base is known and understood. A thorough working knowledge of a discipline enables the student to advance from the status quo.

We tried working through three types of sentences, which Case Study #4 found difficult to master. Consequently, I did not see the complexities of sentence structures that I was looking for.
2. **Hypotheses Information** - Has your student demonstrated keen powers of observation and an interest in complex matters? Do you see an indication of him/her thinking abstractly? This aspect allows the student to deviate into further symbolic implications, or further directions that the knowledge base once held.

*Case Study #4 has an acute ability to recognize patterns in reasoning exercises.*

3. **Hypotheses Testing** - If your student has mastered the content knowledge base and is reasonably fluid in considering other possible avenues, have you seen his/her critical judgement? Does the student make judgements and decisions, and reasons things out?

*When we read stories which required a critical moral judgement to a moral dilemma, Case Study #4 immediately offered a standard value judgement. When she was questioned further about the complexities, she could see that her quick answer had some problems which she hadn’t noticed before.*

4. **Decision Making** - Have you seen your student recognize relationships, cause and effect? Has there been indication of transferring learning to new situations?

*Your question on decision making is hard to answer because Case Study #4 was not given to open sharing, but on any pencil and paper test where she needed to see cause and effect relationships, she was very skilful in getting the correct answer.*

II **CREATIVITY**

1. **Imagination** - Does your student show a vivid imagination and perhaps a tolerance for ambiguity? Does he/she see things in a variety of ways? Does he/she perhaps offer unique or unusual ideas?

*Case Study #4 has a vivid imagination when it comes to sketching a symbolic representation of the meanings of some words. When we took a simple object such as a cup, she was able to imagine many different and unusual uses for this cup. She enjoyed having to stretch her imagination.*
III **AFFECTIVE**

1. Does your student adjust to new situations? Have you noticed a sensitivity to social values? Is he/she a risk taker?  

   *In my attempt to get her to explore different ways of writing, I was met with some resistance which suggests that Case Study #4 is reluctant to take risks with her writing.*

IV **COMMUNICATION SKILLS**

1. Have you noticed whether your student's intention is accurately understood? Whatever the creative production, the communication of the idea, or concept must be clearly understood.  

   *Case Study #4 had a very clear idea of what I wanted to do, and she had a very clear idea of what she wanted to do.*

PART B **MENTOR'S TEACHING STYLE AND THE STUDENT'S LEARNING STYLE**  
(Anecdotal Comments)

1. The unique relationship between the mentor and the student is kindled on the basis of shared mutual interests. In the area of gifted education, teachers lament that these students have special needs that are not always met in school programs. While most teachers support the notion of encouraging gifted students to engage in self-directed projects in their areas of interest, all too often teachers of the gifted do not know enough about these specific areas and have difficulty in approaching these areas meaningfully. Please comment on the match that was made with your student. How was your teaching style conducive to learning for your student?  

   *My teaching style demands intense involvement first through experimentation of words and sentence styles. Case Study #4, being so young, did not have the necessary maturity or experience to benefit from such a style.*

2. As educators, the ultimate aim of education is to help students become producers of knowledge. In order to do so, they have to acquire the skills of independent learners. Please comment on the experiential learning that took place in the mentorship. What real life skills and competencies do you see as evolving from your relationship to your student?
Our time together was too short to see any evolving of real life skills and competencies, but our exercises in learning how to "see" I would hope would help to make her future writing more interesting.

3. Your involvement with your student was "term certain." It commenced at a specific time and ended at a specific time. Please comment on how the relationship evolved. Did you see any noticeable changes in your association with your student? Was he/she more risk taking in their idea seeking?

There was no noticeable change in our relationship, except maybe being a little more relaxed with me as we worked together. Case Study #4 would answer the questions I asked, but rarely volunteered any personal information.

4. Research indicates that mentors experience emotional growth and encounter enhanced satisfaction in their own worth as teachers. Please comment on your satisfaction and/or frustrations in your relationship with your student.

The age different between me and Case Study #4 was too great. She wanted to do fun things such as riddles and games, whereas I wanted serious in depth emotional responses to complicated situations.

Please expand on any of the responses you have provided using additional paper, if needed. Thank you.

Brenda Simpson
Appendix H: Text of Questions asked of case studies at the conclusion of program

Date: _______________ Student: _______________

Questions to be asked of the Gifted Learner at conclusion of Mentorship

Definitions:

1. Tell me what you think gifted means.

2. Given your definition, do you feel that you are gifted?

3. How did you find out that you are gifted?

4. How are you the same as, and different from, other children your age?

Interests and Motivation:

1. What are the things you enjoy doing when you have time to spend just as you please?
   - At home?
   - At school?
   - With your friends?
   - With your family?

2. If you could have an hour a day to study anything you wanted, what would you choose?

3. What are your most important strengths?

4. Is there anything you would like to improve?

5. When you grow up, what would you like to be?
6. Describe 1) a typical and 2) a perfect school day.

7. What could teachers do to make school earning worthwhile?

Program:
1. Has this year been different for you? Please explain how different it was.

2. Some schools have special programs and teachers for gifted students. Is this a good idea?

Mentorship:
1. Tell about the time you spent together with ________. Please include how you arranged to spend this time with ________. What setting did you work in together? What recollections do you have over the year that were particularly exciting, innovating, or worthwhile?

2. Tell about the subjects you studied with your mentor. What subjects would you choose to investigate further?

3. What advice would you give a friend who is considering also being mentored?

4. Looking back, tell me the pitfalls, if any, that you experienced, being placed outside of the regular classroom to work with your mentor.