



Centre of
Excellence for
Children &
Adolescents
with Special
Needs

Learning and Communication
Task Force: Lakehead University

**IDENTIFICATION AND
ASSESSMENT OF GIFTED AND
TALENTED YOUTH
PARTICULARLY IN NORTHERN,
RURAL AND ISOLATED
COMMUNITIES**

Alan D. Bowd



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**Centre of Excellence for Children & Adolescents with Special Needs
Centre d'excellence pour les enfants et adolescents ayant des besoins sp ciaux
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Alan D. Bowd

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RÉSUMÉ

Identification et évaluation des jeunes surdoués en particulier dans les collectivités des régions nordiques, rurales et isolées¹

Alan D. Bowd

Centre d'excellence pour les enfants et adolescents ayant des besoins spéciaux

Au Canada, la santé et l'éducation des enfants et des adolescents surdoués devraient figurer parmi les grandes priorités gouvernementales, tant à l'échelle locale, provinciale que nationale. C'est particulièrement le cas des jeunes habitant les régions rurales, nordiques et isolées, où ils sont plus difficiles à identifier et par conséquent plus susceptibles de devenir des surdoués sous-productifs. La documentation comporte peu d'information sur cette population diversifiée, et ce résumé comprend bon nombre d'extrapolations relevées dans les recherches menées ailleurs en Amérique du Nord et à l'étranger. Le manque de travaux de recherche axés directement sur ces enfants et adolescents témoigne des dons et des talents "cachés" que ces jeunes représentent véritablement, d'où le risque de perdre les contributions qu'ils pourraient éventuellement apporter à la collectivité dans laquelle ils vivent.

¹ L'auteur tient à remercier les réviseurs suivants pour leurs suggestions et commentaires judicieux : Dr S. Bailey, Dr C. Boylan, Dr E. Braggett, Dr G. Chaffey et Dr K. McCluskey. Toute erreur ou omission demeure la responsabilité de l'auteur. L'auteur tient également à souligner la contribution de Beth Noble et Donna Spraggon à la recherche.

Définition

Les moyens classiques utilisés pour définir, identifier et évaluer les enfants et adolescents surdoués se sont révélés inadéquats à l'égard des jeunes vivant dans les milieux ruraux et nordiques. On continue néanmoins de les employer dans de nombreux territoires au Canada en leur apportant seulement quelques modifications mineures. Notamment, l'utilisation de tests d'aptitudes et de rendement standardisés visant à opérationnaliser des définitions biaisées sur le plan culturel pose un problème constant. Les définitions de la douance et des talents spéciaux utilisées par les éducateurs canadiens ne sont pas conformes aux cultures diverses et aux expériences des jeunes des régions rurales et nordiques. Elles reflètent plutôt les valeurs et les traditions des écoles institutionnelles régulières qui desservent une majorité de jeunes de classe moyenne vivant en milieu urbain.

Méthodes de rechange

Les méthodes de rechange utilisées pour contrer le problème complexe de la définition de la douance se sont attaquées au fait que la douance est un concept reconnu par consensus au sein d'un groupe culturel. Les méthodes de Sternberg (modèle triarchique), et particulièrement de Gardner (intelligences multiples), sont prometteuses, en ce sens qu'elles semblent toutes deux pouvoir fournir un fondement conceptuel pour l'établissement de méthodes différentes d'identification des étudiants. La conceptualisation de Gagné de la douance en fonction des habiletés naturelles, et des talents résultant d'expériences en séquence est également pertinente, notamment pour l'identification des étudiants francophones des milieux ruraux et des autochtones. L'emploi de tests standardisés modifiés (p. ex. les traductions des échelles de Wechsler pour les étudiants francophones en milieu rural), et de tests de rendement non verbaux

(p. ex. les matrices de Raven pour les élèves autochtones) est inadéquat, ou du moins de valeur limitée, même lorsque des normes locales ont été établies, car ces tests n'ont pas pu démontrer leur validité et n'ont pas été appliqués dans un contexte de définitions adéquates sur le plan culturel. Une prudence similaire s'applique à des pratiques telles que la désignation par l'enseignant, l'utilisation de listes de contrôle et la question de leur fiabilité.

Surdoués sous-productifs

Le lien qui existe entre l'incapacité d'identifier les jeunes surdoués et la sous-performance est complexe. L'incapacité d'identifier les jeunes est causée en partie par l'utilisation d'outils inappropriés, ce qui peut se traduire par de la frustration, de l'ennui et une sous-performance de la part de ces jeunes. De nombreux enseignants présument toutefois que les élèves sous-productifs sont des étudiants non doués. (En fait, selon certaines définitions actuellement utilisées au Canada, un rendement exceptionnel constituerait un critère essentiel pour identifier un élève surdoué). Les talents manifestes et le potentiel de ces enfants et adolescents demeurent par conséquent cachés, et leurs besoins insatisfaits.

Surdoués souffrant d'incapacités

Difficultés d'apprentissage et de comportement. On a posé comme argument que les enfants doués sont plus susceptibles de présenter des déficits d'attention et des difficultés d'apprentissage. On a néanmoins signalé que les professionnels de la santé et d'éducation spécialisée sont plus enclins à considérer à tort le comportement lié à la douance comme des symptômes de troubles d'apprentissage, d'attention et de comportement. La documentation n'est pas concluante à ce sujet; il semble toutefois que les élèves surdoués ne souffrent pas plus d'incapacités que les étudiants réguliers, bien que la documentation n'est pas concluante.

Déficience auditive. Dans le nord du Canada, les déficiences auditives ont atteint des proportions épidémiques au sein des collectivités inuites, métisses et des Premières Nations. Il est très probable qu'une perte auditive légère à modérée empêche d'identifier une proportion importante des élèves doués. Ces jeunes éprouvent de l'ennui et de la frustration et courent davantage de risques de sous-performance et de difficultés comportementales, en plus de connaître des problèmes connexes tels que l'abus d'alcool ou d'autres drogues, et des tentatives de suicide.

Santé mentale. La proposition selon laquelle il existe un lien entre le suicide et la douance parmi les enfants et adolescents identifiés n'a pas été confirmée, mais il est important de noter que les facteurs de risque environnementaux en ce qui concerne le suicide et les pensées suicidaires (p. ex. la modélisation d'un comportement suicidaire, l'abus d'alcool et d'autres drogues) sont prévalents dans les collectivités nordiques.

Travaux à venir dans ce domaine

Définition. Les problèmes liés à la définition de la “douance” ou des “surdoués” proviennent du fait que:

1. Le concept n'est pas scientifique et est relatif à la culture.
2. Les définitions actuellement utilisées pour identifier les élèves doués dans le système scolaire varient d'une province à l'autre et sont intégrées aux règlements scolaires. De façon générale, ces définitions font référence à des concepts tels que l'habileté intellectuelle et à un rendement scolaire supérieur, laissant entendre que des tests standardisés sont nécessaires à l'identification.

Les méthodes de recherche à l'égard de la définition doivent être approfondies dans le

contexte de populations diversifiées du point de vue culturel et social. Le modèle d'intelligences multiples de Gardner et le modèle triarchique de Sternberg, par exemple, semblent pouvoir fournir des modèles souples pour la description interculturelle du comportement du surdoué. Les différences provinciales allant de définitions très étroites (p. ex. en Ontario) à des définitions plus vastes comme en Colombie-Britannique, signifient que diverses populations sont identifiées d'un territoire à un autre. La plupart des définitions utilisées au Canada sont cependant fondées sur la notion selon laquelle la "douance" est liée uniquement à la cognition et que les talents font référence à un rendement supérieur souhaitable sur le plan social, par exemple les aptitudes en matière de leadership ou de musique. La distinction que fait Gagné entre la douance à titre de talent manifeste et le potentiel à titre d'habiletés développées systématiquement jette un éclairage plus logique sur la compréhension de ces concepts. Un effort coordonné visant à rationaliser les définitions dans tous les aspects exceptionnels, dont la douance, est nécessaire, en particulier pour fournir des services appropriés aux enfants appartenant aux minorités linguistiques et culturelles.

Prévalence. Il a été impossible de trouver des données sur la fréquence d'identification de jeunes surdoués dans des régions géographiques précises au Canada, ou parmi des populations culturelles ou linguistiques spécifiques. Par exemple, on n'a trouvé aucune information relative au nombre d'enfants surdoués identifiés dans les écoles des Premières Nations ou dans celles administrées par le ministère des Affaires indiennes et du Nord du Canada. Des travaux de recherche doivent être entrepris à ce sujet car selon les données provenant d'études menées aux États-Unis et en Australie, les jeunes autochtones surdoués de ces pays sont identifiés beaucoup moins fréquemment que d'autres enfants.

Évaluation standardisée. L'utilisation de la plupart des tests standardisés d'aptitudes, de rendement et de créativité devrait être restreinte en ce qui concerne l'identification des jeunes autochtones surdoués. D'autres travaux de recherche sont nécessaires pour établir la validité des mesures restreintes en matière de culture, telles que les Matrices progressives de Raven, pour des groupes culturels différents. Ces tests sont lents et non verbaux, conduisant certains chercheurs à présumer qu'ils constituent des indicateurs de rendement valides. Il est nécessaire de mener des recherches sur leurs propriétés psychométriques qui sont pertinentes en matière d'identification des enfants surdoués chez les populations inuites et des Premières Nations. Il est également important d'entreprendre des recherches sur la fiabilité de la désignation par les enseignants, notamment sur les effets de la stéréotypie des enseignants à l'égard de la douance et du potentiel.

Méthodes d'évaluation de rechange. L'évaluation multidimensionnelle tient compte des aptitudes et des valeurs significatives d'un groupe culturel particulier (généralement évaluées par des échelles de désignation et de pointage), ainsi que des habiletés cognitives mesurées au moyen d'outils standardisés. Des travaux de recherche sont nécessaires pour établir la validité de cette approche, en particulier l'utilisation d'échelles de pointage tenant compte de la culture par des représentants du groupe culturel spécialement formés. De même, une évaluation fondée sur le rendement est prometteuse comme approche d'identification tenant compte de la culture; elle est cependant confrontée aux difficultés associées à l'assurance de validité et de fiabilité, ainsi qu'aux problèmes pratiques car elle est exigeante en main d'oeuvre et en temps. La recherche pourra aider à établir et améliorer la validité.

Une évaluation dynamique comportant l'établissement d'un ensemble de points de référence statiques, suivie des interventions comprenant la médiation, et le rendement d'une

mesure de “modifiabilité” à la suite d'une mesure de suivi, a été utilisée avec un certain succès en Israël (le modèle eureka) et avec les enfants autochtones australiens. Cette approche, combinée à un modèle qui tient compte de la culture pour déterminer des points de référence et des interventions appropriées (p. ex. intelligences multiples de Gardner), pourrait fournir un moyen viable d'identifier des jeunes différents sur le plan culturel et linguistique. Des recherches seront nécessaires pour adapter cette approche au Canada, en particulier dans le cas des groupes indigènes et des enfants francophones des régions rurales.

Jeunes surdoués des régions rurales. La recherche portant sur l'Amérique du Nord rurale tendait à présumer de déficiences de ressources pour l'attribution de services aux étudiants présentant des besoins spéciaux, dont les enfants surdoués. Des travaux de recherche doivent être menés pour étudier la validité de cette affirmation dans les régions nordiques et rurales du Canada, et pour déterminer si des méthodes de rechange d'évaluation sont appliquées avec succès en ce qui concerne l'identification des enfants doués. Des recherches visant à déterminer les limites de l'évaluation traditionnelle ont été menées aux États-Unis, mais les jeunes des régions rurales représentent un groupe très diversifié et des travaux de recherche sur les limites des tests standardisés avec les jeunes Canadiens des régions rurales sont nécessaires; l'étude de méthodes de rechange pour l'identification des élèves francophones en milieu rural est particulièrement importante à cause de la faiblesse des outils traduits actuellement utilisés.

Enfants surdoués atteints d'incapacités Aucune donnée canadienne n'a été trouvée sur la prévalence d'incapacités chez les enfants doués, et les recherches menées aux États-Unis sont concluantes à ce sujet. À la lumière du taux très élevé de déficiences auditives dans le nord, il semble raisonnable de conclure que de nombreux enfants doués demeurent non identifiés à cause

des problèmes d'élocution et d'alphabétisation consécutifs à une baisse d'audition. Ces élèves sont à risque élevé de sous-performance et peuvent exprimer leur ennui et leur frustration par un comportement oppositionnel, l'abus d'alcool et d'autres drogues et parfois le suicide. Il est nécessaire de mener des recherches pour étudier ces liens possibles, en particulier chez les jeunes Inuits et des Premières Nations. On ne connaît que partiellement les causes complexes de la sous-performance, en partie parce que le travail dans ce domaine important a été grandement corrélationnel. Des recherches permettront de faire la lumière sur les causes de la sous-performance et aideront à fournir des interventions pouvant éventuellement renverser ce comportement.

Certaines caractéristiques associées à la douance peuvent être prises pour des symptômes de difficultés d'apprentissage, de comportement et d'attention par les professionnels de la santé et d'éducation spécialisée. La recherche empirique permettrait d'établir l'existence et l'ampleur de ce problème car l'information dont on dispose actuellement est incomplète et grandement fondée sur l'expérience clinique. L'éducation en cours d'emploi à l'égard de ces questions est essentielle pour ces professionnels, de même que pour les enseignants des classes régulières. Lorsque le diagnostic de difficultés d'apprentissage, de comportement ou d'attention est correctement posé, les professionnels semblent souvent se montrer moins enclins à considérer un possible diagnostic mixte de douance. L'étendue de ce problème exige également un examen plus approfondi.

Santé mentale. La santé mentale des jeunes surdoués est un domaine empreint de controverse. Certains chercheurs ont suggéré que les adolescents doués présentent peu d'aptitudes sociales, souffrent plus souvent de dépression, et font davantage de tentatives de suicides. D'autres ont cependant un point de vue contraire et les questions sont toujours non résolues.

Compte tenu du manque de données, il existe peu de raisons de présumer, à l'heure actuelle, que la santé mentale des jeunes doués soit différente de celle des jeunes non doués. Il est nécessaire de se pencher sur les facteurs de risque de suicide dans les collectivités nordiques et leurs implications pour les jeunes doués.

On ne pourrait passer sous silence le fait que les jeunes surdoués sont aussi présents dans les collectivités nordiques, rurales et isolées que dans les milieux urbains du sud. Le principal problème est l'absence presque totale de données concernant l'identification et l'évaluation de ces enfants et adolescents. La sous-performance, les difficultés comportementales et les problèmes de santé mentale figurent parmi les conséquences de l'incapacité de répondre aux besoins spéciaux de ces jeunes. Ce n'est là qu'une partie de l'équation, l'autre étant la perte considérable que constituent leurs contributions éventuelles à leur collectivité, et à leur nation.

Identification and Assessment of Gifted and Talented Youth particularly in Northern, Rural and Isolated Communities²

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Historically, there has been a tendency in North America to underestimate the needs of gifted and talented children and adolescents, and to regard special education provision for them as a low priority in comparison with youngsters who have disabilities (Hallahan & Kauffman, 2000). This has been particularly so for children who live in northern, rural and isolated communities, including Inuit, First Nations and Metis youngsters. In the United States approximately 2% of Native American students participate in gifted and talented programs. The figure for other American children is more than four times as high (Callahan & McIntire, 1994). No national figures for Canada were located.

The present review will discuss difficulties associated with definitions of gifted and talented individuals for these groups, along with problems encountered in attempting to identify them using instruments and procedures that are culturally and linguistically inappropriate. Some difficulties encountered in service delivery in remote and rural settings will be reviewed, and programs designed to meet the needs of youngsters living in these environments will be briefly described. The educational and mental health implications of failure to adequately meet the special needs of these children and adolescents, including those who also have disabilities, will be discussed.

² The author wishes to thank the following reviewers for their helpful comments and suggestions: Dr S. Bailey, Dr C. Boylan, Dr E. Braggett, Dr G. Chaffey and Dr K. McCluskey. Any errors and omissions remain the author's responsibility. The research assistance of Beth Noble and Donna Spraggon is gratefully acknowledged.

Definitions

Traditional Approaches

Definitions of “giftedness” and of “gifted and talented” as a special needs category abound, however most current formal approaches to defining these terms reflect cultural and economic realities shaping the delivery of educational and social services within specific jurisdictions. In Ontario, for example, giftedness is defined as:

An unusually advanced degree of general intellectual ability that requires differentiated learning experiences of a depth and breadth beyond those normally provided in the regular school program to satisfy the level of educational potential indicated (Ontario Ministry of Education, 2001, p. A20).

Notably, “gifted” and “gifted and talented” are imprecise terms, and the Ontario definition of giftedness simply in terms of intellectual aptitude reflects a common distinction that has been made between intellectual giftedness and high talent in specific performances (Gagné, 1991).

Ontario legislation recognizes gifted children, along with those who have disabilities, as exceptional students, and therefore entitled to additional resources. The narrow definition, confined exclusively to intellectual ability, accepts that giftedness is a special education category, and that identified students have special needs entitling them to funded programs.

The other provinces and territories employ a number of broader definitions, including children and adolescents with special talents in specific academic areas, and those demonstrating high creativity. Specially talented individuals are usually identified for achievement in art, music, dance, leadership and occasionally, athletics (Bowd, McDougall & Yewchuk, 1998). Both Newfoundland and Alberta include special talents and creativity in their definitions of giftedness,

while Yukon has adopted Renzulli's (1978) model based on high intellectual ability, task commitment and creativity (Winzer, 1999).

The British Columbia definition of gifted students is representative of those used in many provinces, and recognizes that these students may demonstrate discrepant abilities, and may sometimes have disabilities:

A student is considered gifted when she/he possesses demonstrated or potential abilities that give evidence of exceptionally high capability with respect to intellect, creativity, or the skills associated with specific disciplines. Students who are gifted often demonstrate outstanding abilities in more than one area. They may demonstrate extraordinary intensity of focus in their particular areas of talent or interest. However, they may also have accompanying disabilities and should not be expected to have strengths in all areas of intellectual functioning (British Columbia Ministry of Education, 2002, p. 1).

Numerous lists of traits considered to be associated with gifted and talented youngsters have been developed (e.g., Gifted Children's Association of British Columbia, 1999; Hallahan & Kauffman, 2000; Reis & McCoach, 2000; Rogers & Silverman, 1997). However, most of the traits listed include characteristics of some individuals who do not have special needs, and frequently fail to take account of cultural experience affecting attitudes, values and behaviour.

It should also be noted that the identification and service provision for gifted and talented children is not universally recognized as part of special education. In Australia and New Zealand, for example, gifted education is increasingly being approached in the mainstream context of

curriculum and pedagogy, with differing perspectives on identification and services for gifted indigenous children and adolescents (Braggett, 2002).

Prevalence. It is very difficult to find accurate and comprehensive statistics relating to the numbers of identified gifted and talented students in Canada. Since education is a provincial responsibility, there are no national data regarding the numbers of identified children. A study conducted by the Council for Exceptional Children for the U.S. Office of Education reported that 39 American states had legislation recognizing and defining giftedness (Zettel, 1980). At that time, all these states defined giftedness in terms of intellectual ability, 75% also included creativity as a criterion, 67% included leadership, and 67% artistic talent.

American Indian students are under represented among the gifted and talented. Figures gathered by the U.S. Department of Education in 1982 indicated that American Indians comprised 0.8% of public school students, but only 0.3% of those in gifted programs. The comparable figures for Caucasians were 73.3% and 82% (Florey & Tafoya, 2001). Several studies in a variety of communities have reported under representation of American Indians among identified gifted students (Christensen, 1991; Hartley, 1991; Knutson & McCarthy-Tucker, 1993).

Definition in Cultural Context

Callahan & McIntire (1994) attempted to address the cultural context of giftedness, and constructed a list of characteristic traits of American Indians and Alaska Natives that should be considered in the identification of gifted and talented children. The educational implications of traits like “reticent” and “non-assertive” were described, along with the instructional implications of child-rearing practices such as “discouraged from drawing attention to self.” The interaction

between traditional culture (“students may gossip about or tease students who excel”) and the school (“students may be reluctant to draw attention to any excellence in performance in academics”) was outlined, along with suggestions for practice (Callahan & McIntire, 1994, p. 42).

It has been noted that giftedness or talent is whatever educators choose to make it, that it is invented, not discovered (Howley, Howley & Pendarvis, 1995). There is no inherent validity to the definitions employed by professionals and different education authorities, because giftedness is not a scientific construct (in the sense, for example, that Down Syndrome may be considered one). As Hallahan and Kauffman (2000) pointed out, “Some definitions may be more logical, more precise, or more useful than others . . . We have to struggle with the concept of gift and talent and the reasons for identifying individuals with these gifts or talents before we can make any decisions about definition” (p. 470). Clearly, the outcome of any process of selecting such a set of skills and aptitudes is a function of cultural expectations and assumptions. Formal definitions issued by governments and professional organizations (such as the Council for Exceptional Children) reflect the cultural norms of the dominant society, which in Canada is southern, English or French-speaking, middle-class, and urban.

Alternative Approaches to Definition

The narrow, traditional definitions of giftedness have given way to broader conceptualizations, recognizing that giftedness should not be defined only in terms of high IQ scores and superior academic achievement (Braggett, 1985; Gibson, 1999).

Renzulli's three-ring conception. A very widely applied model of giftedness in school systems is the *three-ring conception of giftedness* developed by Joseph Renzulli (1978, 1986,

1999). In essence, giftedness is viewed as having three interlocking components: high intellectual ability, creativity, and task-commitment (i.e., motivation and perseverance). Several researchers have criticized the model because of the inclusion of task-commitment, arguing, for example, that it “overlooks many gifted children who, for a variety of reasons, are unwilling to demonstrate their talents in the ways being measured” (Webb, Meckstroth & Tolan, 1982, p. 49). In particular, critics have pointed to children of low socioeconomic status and those from cultural minorities, sometimes referred to as “gifted underachievers” (e.g., Gagné, 1985; Reis & McCoach, 2000). Renzulli has countered by pointing out that his original definition included youngsters “*capable of developing* this composite set of traits and applying them to any potentially valuable area of human performance” (1999, p. 10). Applied cross-culturally, and to economically disadvantaged youth, Renzulli’s model presents the added problems of determining the constituents of creativity and task-commitment in different environments, over and above the difficulty of determining what may constitute “intelligence”.

Renzulli has claimed that there are two kinds of giftedness. The first he termed “schoolhouse giftedness”, representing the kinds of abilities most valued in traditional, academic school learning situations, and measured by cognitive aptitude tests. The second, “creative productive giftedness” refers to successful performance in activities “where a premium is placed on the development of original ideas, products, artistic expressions, and areas of knowledge that are purposefully designed to have an impact on one or more target audiences” (Renzulli, 1999, p. 9). Renzulli noted that both kinds of giftedness are contextual and domain specific. This suggests caution is advisable in employing these definitions within a cross-cultural context.

Sternberg's triarchic model. Sternberg (1997) has outlined a theory of intelligence that suggests three principal kinds of giftedness:

- *Analytical giftedness* refers to the individual's ability to examine a problem in terms of its constituent parts, an ability measured by traditional, culturally biased intelligence tests.
- *Synthetic giftedness*, in which the individual approaches novel situations and employs insight and creativity in dealing with problems, most typically in science and the arts.
- *Practical giftedness* is perhaps more readily applicable in situations that are not representative of the dominant culture. It refers to the application of both analytic and synthetic skills to the problems of everyday life. Examples cite success in careers; however, this definition may be applied to problems and tasks valued within other cultural environments (e.g., skills associated with successful hunting and fishing).

Sternberg and Zhang (1995) argued that giftedness is defined by a consensus within cultural groups. They claimed that people intuitively share a common belief in five criteria defining giftedness, assuming that the construct has meaning in most (or all) cultures. Briefly, the five criteria proposed for judging gifted behaviour are:

1. *Excellence.* The individual is clearly superior to others in performance of a valued skill.
2. *Rarity.* The level of skill performance is achieved by very few members of the cultural group.
3. *Demonstrability.* The individual must be able to demonstrate the skill, not simply claim to have it.
4. *Productivity.* The individual's performance must lead, or potentially lead, to some valued product.

5. *Value*. The skill or characteristic is highly valued within the society.

The criteria for judging whether an individual's behaviour is gifted or talented are assumed to be culturally universal:

In one culture, the gifted individual might be a hunter; in another, a gatherer; and in a third, a student. The first two cultures might not even have any form of formal schooling. Just as cultural standards for beauty may vary, so may cultural standards for giftedness. We do not suggest that within a culture no objective criteria for giftedness can be defined. We do suggest that the criteria are determined by one's external culture rather than by one's internal physiology (Sternberg & Zhang, 1995, p. 88).

Sternberg and Zhang emphasized that excellence should be considered independently of rarity, as educators tend to seek out rarity because of the system's inability to serve all students who may have "very impressive potentials" (1995, p. 93). However, they did not discuss the fact that some cultures – many Aboriginal North American groups, for example – share a collective or cooperative ethic which may not value "excellence" in the same way as Sternberg and Zhang defined it. More recently, Sternberg has advanced the view that abilities might most usefully be conceived of as "developing expertise". This is defined as:

. . . the ongoing process of acquiring and consolidating a set of skills needed for a high level of mastery in one or more domains of life performance. All skilled performances go through a process of acquisition by which expertise develops over time, with one or more rates of learning, to an asymptote (which represents a stable, although not necessarily maximal, level of expertise) (Sternberg &

Grigorenko, 2001, p. 338).

It is recognized that the performances valued in one culture may differ from those valued in another, and hence the assessment and identification of giftedness and talent will vary cross-culturally.

Gardner's multiple intelligences. Howard Gardner's approach to intelligence, and to giftedness, has stressed the limited nature of traditional IQ measures, which he pointed out assess academic intelligence only. Gardner's (1983) theory originally proposed the existence of seven "intelligences" (by implication, more complex constructs than abilities), which he claimed had cross-cultural application. More recently the original seven has been extended to nine (Armstrong, 1999; Gardner, 1999). In summary, these are:

- *Linguistic.* Effective use of language, both orally and in writing;
- *Logical-mathematical.* Effective use of numbers and the ability to see logical relationships;
- *Spatial.* The ability to visualize objects in space and to orient oneself in the world;
- *Bodily-kinesthetic.* Physical and psychomotor skills including creative self-expression, physically;
- *Musical.* The capacity to perceive, discriminate, transform and express musical forms;
- *Interpersonal.* The ability to perceive and understand different moods, intentions and feelings in other people;
- *Intrapersonal.* Self-knowledge and the ability to act adaptively on it;
- *Naturalist.* Expertise in the recognition and classification of the numerous species – the flora and fauna – of the environment;

- *Existential*. The ability to locate oneself with the most existential features of the human condition (life, death, eternity and profound experience).

Gardner's multiple intelligences may be manifested in different kinds of behaviour, depending upon that which is valued within the individual's cultural group. It has been described as a useful conceptual framework for examining giftedness and talent among minority students (Maker, 1996). This assumption is also true of Sternberg's practical intelligence, but Gardner's model appears to be more comprehensive. For example, in a hunting-gathering society naturalist intelligence may be demonstrated by an ability to recognize animal tracks and to follow them, or to identify many kinds of wild plants and their medicinal applications. In contemporary western culture it might be expressed by choosing to study veterinary medicine, or by becoming a forest ranger (Armstrong, 1999).

Attempts to operationalize Gardner's theory for culturally diverse populations have met with limited success. For example, Plucker, Callahan and Tomchin (1996) investigated the validity and reliability of the multiple intelligences assessment technique, a battery of performance-based activities, teacher ratings and observational checklists corresponding to four of the multiple intelligences. Participants in the study were members of a large, multi-ethnic sample of American children. Reliability was found to be generally adequate; however, validity evidence was questionable. Plucker and his colleagues remarked on the dilemma involved in seeking evidence for concurrent validity for measures of multiple intelligences:

On the one hand, the definition of logical-mathematical intelligence and linguistic intelligence would lead us to expect that ability in these areas would correlate with high scores on achievement tests which assess outcomes relating to high ability in

those areas. On the other hand, the writings of Gardner . . . are clearly critical of traditional assessment tools as being too narrowly conceived to capture the richness of aptitude and performance (Plucker, Callahan & Tomchin, 1996, p. 87).

Gardner's conceptualization has significant implications for the traditional view of giftedness and talents within special education. (The distinction between intellectual giftedness – “intelligence” and special talents, such as creativity, leadership and so on). The nature and origins of the distinction between giftedness and talents have been examined in some depth by Gagné (1999).

Gagné's Natural and Systematically Developed Abilities. François Gagné (1993, 1999) has argued that giftedness should be applied to innate or “natural” abilities, which may be grouped in several ways, one example being Gardner's nine intelligences. Gagné argued that “systematically developed abilities” arise as a consequence of a structured program of learning, training and practice which creates new abilities or improves existing ones. He has noted that both kinds of abilities are modifiable through experience, but that some natural abilities may be more resistant to change because they are more directly influenced by genetic inheritance.

Gagné pointed out that because of differences in the ease and pace of learning, the performance gap between the faster and slower learners increases relative to the time spent in “situations of unrestricted learning opportunities” (1999, p.126). He argued that the term “giftedness” should not be used to designate outstanding systematically developed abilities:

Consequently, it [giftedness] should NOT be used to qualify excellence in occupational fields (e.g., a gifted musician, athlete, or mechanic), unless one wants to stress some NAT [natural] or innate component in that person's

accomplishments. In all these cases . . . giftedness is *implicitly* recognized by the talent label (1999, p. 128).

Gagné (1995) claimed that the term “natural talent” might be preferable to “gifted”, but speculated that any effort to modify the terms as currently used would likely fail because the term is embedded in the popular language. He has pointed out that the term “gifted” has often been employed by educators as if there was only one type of giftedness, usually cognitive. However, “domains of giftedness abound, not only general ones like cognition, social behavior, or physical abilities but also more specific ones within each domain” (1999, p.131).

Gagné’s reservations about the “gifted” label are shared by others. Feldhusen (1996), for example, observed that the identification of a child as “gifted” often fails to provide the child, family and teachers with information as to what specific talents, aptitudes or abilities are in the process of emerging in the child:

. . . it is essential for long-range talent development that youth begin to learn at an early age what their specific emerging talents are. With that emerging knowledge they can begin an integrative process in which they link that knowledge of their talents to long-range educational and career goals (p. 125).

Gagné’s approach is consistent with Gardner’s and others models which offer a wider view of outstanding ability in many fields. The chief advantage of Gagné’s distinction between gifted (innate, or natural) and talents (learned performances) is that it promotes the distinction between external catalysts to development of talents (social and cultural environment) and internal ones such as self-esteem and motivation.

Cultural and Social Limitations in Defining and Identifying Gifted and Talented

Standardized Assessment

The procedures used to identify gifted students depend on the definition of gifted and talented employed by the education authority. The most common methods include an IQ criterion, with a cut off conventionally set at 130 (most tests used are speeded and with a large verbal component, contributing to cultural bias). Both individual and group tests are used, along with standardized achievement tests (which increase the likelihood of exclusion of underachieving gifted students). Checklists, anecdotal reports of parents, teachers, peers and the child under review, along with evaluations of the student's work or performance are also widely employed, with the emphasis being placed on early identification (British Columbia Ministry of Education, 2002; Hallahan & Kauffman, 2000; Heward, 2003).

The limitations of standardized measures of "intelligence" (such as the Wechsler Scales) are well established, and their validity with cultural and linguistic minorities is doubtful at best (Bowd, McDougall & Yewchuk, 1998; Wilgosh & Mulcahy, 1993; Wilgosh, Mulcahy & Watters, 1986). Furthermore, programs to establish local norms for standardized aptitude tests do nothing to enhance the validity of the resulting scores, although they may prevent the misclassification of Aboriginal children as intellectually disabled (Wilgosh, Mulcahy & Walters, 1986; Wilgosh & Mulcahy, 1993).

Nonverbal, untimed measures of general reasoning ability, such as Raven's Progressive Matrices (Raven, Court & Raven, 1983), have frequently been suggested as an alternative to traditional tests like the WISC-III with Native North American populations and other cultural

minorities (e.g., MacAvoy, Orr & Sidles, 1993; Robinson, 1990). However, these tests also suffer from several shortcomings. Ravens' Matrices was originally designed as a measure of inductive reasoning and spatial ability, so that its predictive validity with populations of culturally different gifted students is generally unknown. It is clear that there is no such thing as a "culture-free" test; however, it must be recognized also, that there is no such thing as a "culture-fair test". There is evidence that North American Native students and other children living in rural and isolated communities perform better on nonverbal, untimed tests, like Raven's Matrices (MacAvoy, Orr & Sidles, 1993; McShane & Plas, 1984) and that these measures, while preferable to traditional intelligence tests, should be regarded as "culture-reduced".

A recent review of psychological and educational assessment with North American Aboriginal children by Lipinski Amos (1997) cautioned against placing confidence in tests developed and standardized using non-Aboriginal populations. Citing early research in northern communities (e.g., Berry, 1971; Bowd, 1974; Kleinfeld, 1973), she pointed to a consistent body of evidence that North American Aboriginal populations test higher in spatial-perceptual skills and lower in verbal-sequential skills. She suggested that greater consideration be given to different patterns of ability development, cautioning that apparent ability strengths and weaknesses may reflect different problems associated with cultures in rapid transition. One example cited was otitis media (middle ear disease), extremely prevalent among the Inuit (Bowd, 2002), and linked to hearing loss and difficulties in verbal ability (Lipinski Amos, 1997).

The traits associated with the construct of giftedness are by no means shared by all First Nations and other Aboriginal groupings. Common & Frost (1994) used structured interviews to help describe the conception of giftedness within four Anishinabek First Nations communities in

Manitoulin Island, Ontario. The traits that emerged, in order of importance, were “self-directing”, “quiet and reflective”, “excellent interpersonal skills”, “curious and interested”, “creative thinker”, “talented in the visual or performing arts”, “good communication skills and bilingualism”, and “relative intelligence”. The researchers discussed the proposition that a reflective cognitive style would make traditional IQ and standardized achievement measures largely invalid, because most are speeded. Common and Frost concluded that:

. . . most means used to identify giftedness in Native children are unfair and their use should be discouraged. In their place, untimed tests containing items and language that would be fair to Native students should be used, if indeed tests must be used at all. We favour nomination on the basis of the identified characteristics and placement in an enriched program of study (1994, p. 262).

Others have suggested teacher nomination, using a list of identified characteristics, as an alternative to standardized tests in identifying gifted and talented students (e.g., Rohrer, 1995). However, there is evidence that stereotypes significantly influence teacher judgments (Powell & Siegle, 2000), a factor that may be equally problematic to the use of standardized tests in the identification of gifted students in culturally-diverse populations.

Teacher nomination is an element in the identification process for gifted students in each province. Apart from reliability issues, teachers are likely to place major emphasis on actual achievement rather than aptitude, which may be masked by underachievement. Teachers teach and then evaluate student achievement to see how well they have taught. When students do well on teacher tests they are said to be high achievers, and by some teachers, “gifted”. Teachers nominate students who have learned best those things that the teachers themselves think it is

important for them to learn. In effect, teachers nominate students who agree with them and what they teach (Braggett, 2002).

The eminent psychologist, Anne Anastasi, summed up the issue of cultural relativity and the measurement of abilities nearly a half century ago:

Each culture, partly through the physical conditions of its environment and partly through social traditions, "selects" certain activities as the most significant. These it encourages and stimulates, others it neglects or actively suppresses. The relative standing of different cultural groups in "intelligence" is a function of the traits included under the concept of intelligence, or, to state the same point differently, it is a function of the particular culture in which the test was constructed (Anastasi, 1958, p. 566).

In summary:

- Standardized assessments using aptitude/achievement instruments designed and normed on non-Aboriginal populations are of very limited use (if any), in identifying gifted and talented students, including when local norms are applied;
- Culture-reduced instruments that are nonverbal and untimed may be of value, however their predictive validity within each cultural group should be established and local norms developed;
- Teacher nomination is of limited value because of the shortcomings of checklists of gifted characteristics, and a tendency to stereotype.

Gifted and Talented as a Valid Category

Two fundamental propositions emerge from the debate about culture, giftedness and “the gifted”:

- 1. It is recognized that “gifted” and “talented” skills and behaviour are defined and valued differently, from one culture or social group to another.*
- 2. It must also be recognized that the notion of identifying a discrete category of exceptional children, in schools, as “gifted students”, is one that may be quite foreign to the values and norms of some, but not all, Aboriginal cultural groups.*

The latter point has been illustrated by Peterson (1999), who quoted the reactions of a small group of American Indian tribal leaders who declined to identify anyone in their community as gifted:

One explained, “You don’t put yourself above anyone.” Another said, “The idea of helping - we work together. The projects - when we get through, it’s not ‘my project.’”

Someone else summarized: “We’re taught not to put ourselves above others.

Obviously there are people who have come to the forefront, doing good for people, providing leadership. They do it quietly” (p. 368).

Peterson (1999) also interviewed low-income Anglo Americans, who tended to describe giftedness in terms of helping others, child-rearing, practical manual and artistic skills, rising above adversity, and academic ability with practical application (“gifted at math - did all the accounting for my lawn business, saved me some money”, p. 370). Similarly, reporting on the question of identification of giftedness among the Keresan Pueblo Indians in New Mexico,

Romero (1994) noted that:

Giftedness is viewed as a global human quality encompassed by all individuals and manifested through one's contribution to the well-being of the community . . . Unique and special cultural abilities, traits and talents . . . are not utilized as a basis for distinction or highlighting one individual over another. The concept of possessing unique and special abilities or talents in specific areas is meaningful only as they are applied and utilized in a way which benefits others (pp. 4-5).

The traditional values of the Inuit also imply that gifts or special talents have a different meaning and place in an egalitarian and cooperative society. DeMerchant and Tagalik (2000) observed that:

All Inuit children and youth are looked at by their elders as having a gift(s) to share and contribute to the well-being of the community . . . Students are therefore required to learn not only the surface knowledge of their culture, but also to be well grounded in the deeper aspects of their beliefs and practices so that they can identify, enhance and share these gifts between their peers and community (p. 99).

The traditional definitions of giftedness used within most school systems have limited currency among Aboriginal peoples wishing to maintain their cultural heritage.

New Zealand perspectives. There are several parallels between the conceptions of special abilities held by the Maori people of New Zealand and indigenous North Americans, particularly the multidimensional approach toward abilities reflecting the community served (Rymarczyk

Hyde, 2001; DeMerchant & Tagalik, 2000). McKenzie (2002) noted that in contrast to high academic ability, the perception of Pakeha (Caucasian) teachers, Maori conceptions ranged across a range of talents including social, intuitive, creative and service to others. "Maori view giftedness as being owned by an entire group, for the benefit of all" (p. 1). She went on to briefly discuss alternative methods of identifying these children, rejecting the two most commonly used approaches: teacher nomination and standardized testing.

McKenzie argued that teacher education is the fundamental barrier to providing appropriate services to Maori Children with Special Abilities (MCWSA – the term is preferred to "gifted").

The skills valued by Maori need to be identified and then these skills looked for in Maori children. Identification will be made easier for teachers once appropriate training . . . has been undertaken. This will allow the strengths and gifts of Maori pupils to be recognised. Tests need to be supplemented with non-test measures such as observations, checklists, rating scales and inventories, and result should only be used as a lower boundary of what a child is capable of (p. 4).

Systemic barriers also exist which make it less likely that gifted Aboriginal students will be recognized and served appropriately. Bevan-Brown (2000) listed five such barriers she determined existed in New Zealand and contributed to the limiting of resources and programs for Maori students. These barriers are also evident in Canada (read "Aboriginal" for "Maori"):

1. Negative and stereotyped attitudes toward Maori children, their parents and families;
2. Low teacher expectations of Maori children;

3. School personnel not recognising the importance of culture in the provision of programmes and services for Maori children;
4. Principals believing culturally appropriate services need only be provided where there are large numbers of Maori students;
5. School personnel blaming parents for their children's special needs

(Bevan-Brown, 2000, p. 3).

During the 1990s New Zealand's education system experienced significant reforms, several of which resulted in more appropriate identification and service provision for Maori Children with Special Abilities and led to an overall increase in programs for the gifted (Moltzen, 1996). The first major change was significant decentralization, giving parents and schools (and hence the communities they represented) a large role in decision making, and independence in the acquisition and distribution of resources. Moltzen (1992) commented that "no longer can the schools excuse themselves for not doing anything. Previously it was easy to blame the Department of Education" (p. 122). In contrast, the Canadian trend has been toward greater centralization, particularly in Ontario, New Brunswick and British Columbia.

Education in New Zealand came to function as a partnership between parents and schools, with community consultation through public forums hosted by boards of trustees (Moltzen, 1996). This in turn led to an increase in gifted programs reflecting the cultural heritage of local communities (Moltzen, 1996). The chief implication of this for education of the gifted in northern and rural Canada is that establishing appropriate identification and the provision of culturally sensitive enrichment must be planned within a larger administrative and political context.

Multidimensional Assessment

Aboriginal North American students, children who are economically disadvantaged, and those living in rural and isolated communities are under represented among identified gifted and talented youth. This is a consequence both of the definition, and methods of screening and identification that have been employed. Kirschenbaum (1988) attempted to resolve the difficulties by arguing that definitions should be based on “a general theory of exceptional ability that can apply to all cultural groups” (p. 54), and that identification should incorporate “those behavioral characteristics which are considered by the members of the culture to be important to the continuing viability of the culture” (p. 55). He claimed that information-processing models have universal applicability (citing Sternberg’s approach to giftedness), a position which, in retrospect, appears difficult to sustain. However, referring to research on the development of gifted and talented Navajo children (Tonemah, 1987) Kirschenbaum described four broad characteristics of these students:

- *aesthetic abilities*, including artistic talent and creative expression;
- *acquired skills*, such as language and traditional technology;
- *tribal/cultural understandings*, for example, knowledge of tribal traditions and ceremonies;
- *personal/human qualities*, including intuition, intelligence, leadership and creativity.

These criteria were derived from a self-report instrument based on the values of the Navajo people, the *Gifted Inventory for Navajos* (Abbott, 1983), and a model for identifying gifted and talented Navajo students (Brittan & Tonemah, 1985). Kirschenbaum quoted several items from the test, including the following: “Are there some children who think better than

others? If so, what kinds of things make them think better? What kinds of things do they do that make you know they think better?" (1988, p. 56). Thinking "better" in the Navajo cultural milieu implied approaching life according to the teachings and philosophy of Navajo tradition, which Kirschenbaum attempted to link with the education system's notion of being gifted. Accordingly, he argued:

Being gifted and talented for a Navajo means doing things that are constructive and responsible, helping your family, and *learning quickly how to do things and doing them well* (1988, p. 56, italics added).

However, the italicized phrase is difficult to justify for a culture that emphasizes cooperation (rather than competitive individualism), and taking care (rather than working at speed).

Kirschenbaum's attempt to find a compromise between Aboriginal culture and traditional western conceptions of giftedness and talent, by mixing the two, remains problematic.

A similar approach, for screening potentially gifted American Indian students, was developed using descriptors from special programs predominantly located in the midwest (Montgomery, Bull & Salyer, 1990). The researchers used teacher ratings of already identified American Indian students, producing a scale for which some statistical evidence was cited as to ability to discriminate between identified gifted and unidentified students. Six "tribal cultural characteristics" emerged: linguistic ability, internal motivation, creative ability, leadership, learning style preference and personal orientation. However, these characteristics are broadly described and based upon ratings from culturally divergent communities in five states. The validity of this approach to sampling must be judged questionable.

Multidimensional assessment, as advocated by Kirschenbaum (1988) and Tonemah

(1987), takes account of skills, attitudes and values considered important within the individual's cultural group, as well as those measured by standardized tests. However, the former are difficult to define and measure reliably. The use of culturally-sensitive rating scales requires selection and training of Aboriginal judges capable of assessing students' artistic and creative performance, their attitudes, and values. This remains a complex problem.

Performance-Based Assessment

Performance-based assessment (also referred to as "authentic assessment") directly measures student performance on a variety of tasks, and has been suggested as an alternative, or supplement, to standardized tests with North American Native children (Bordeaux, 1995).

Performance standards refer to concrete examples and explicit definitions of what students have to know, and be able to do, in order to be identified as gifted and talented. Performance-based assessment includes student portfolios (collections of work completed), interviews, work samples, group assessments and observations of performance by teachers (Bordeaux, 1995). The most evident shortcoming of this approach is the degree of subjectivity it involves to determine what constitutes a superior performance, and in deciding which items should be included within an assessment. A further practical difficulty is the fact that the method can be particularly time-consuming (Hallahan, Kauffman & Lloyd, 1999).

DISCOVER assessment. Based on the general framework of Gardner's (1983, 1999) theory of multiple intelligences, DISCOVER is a performance-based assessment designed to identify gifted and talented children from culturally diverse groups. The approach was developed by Maker, Rogers and Nielson (1994) with the acronym standing for Discovering Intellectual Strengths and Capabilities through Observation while allowing for Varied Ethnic Responses.

The focus of DISCOVER assessment is on solving problems efficiently (choice of best solution), effectively (choice of best strategy), and economically (solution is reached within the least amount of time) in spatial, mathematical and linguistic intelligences (Maker, 1996; Sarouphim, 1999). The approach uses intelligences that are closely linked to the traditional “basics” in the curriculum, and employs the ability to work at speed as a criterion for giftedness. Although designed to reduce cultural bias, the method cannot be accurately described as culture-fair. Sarouphim (1999, 2000) described DISCOVER assessment as “promising”, while expressing strong cautions regarding the limited evidence available concerning the validity of the approach.

Dynamic Assessment

A relatively recent alternative approach to assessment and identification of the gifted and talented involves instructing students how to perform certain tasks, and later measuring their progress at solving similar problems. Lidz (1991) has summarized dynamic assessment:

The specialist first administers a static pretest to establish a level of performance, then provides interventions to try to produce changes in the examinee, and then retests on the static test to assess degree and nature of change . . . A second definitive characteristic of a dynamic assessment is the focus on learner modifiability. “Modifiability” involves both the amount of change made by the learner in response to the interventions provided, and the learner’s increased implementation of relevant metacognitive processes in problem solution (pp. 4-5).

Static and dynamic assessment complement one another, according to Kirschenbaum (1998). Static assessment provides a profile of developed abilities, indicating relative areas of

strength and weakness. Dynamic assessment may provide a profile of abilities, but its primary purpose is to detect inefficient problem-solving strategies that are responsive to instructional intervention. Inasmuch as the skills measured and the forms of intervention are culturally appropriate, the approach has promise in the identification and enrichment of culturally different learners and those of lower socioeconomic status.

The eureka model. The eureka model (Zorman, 1997), an applied dynamic assessment program, is used in Israeli schools with socioeconomically disadvantaged and recent immigrant children. All children receive enrichment in a variety of areas of talent, and their work is evaluated consistent with the dynamic assessment approach, over a two-year period, in grades one and two. Student performance over time is assessed using portfolios, with the emphasis on science and artistic abilities. (The domains identified, grade levels and assessment tools will vary, depending on the cultural background of students). Because this form of intervention and assessment involves all children, it may be potentially appropriate for use with First Nations, Metis, and Inuit youngsters as well as rural Francophone students. Renzulli's popular *revolving door identification model* (Renzulli, Reis & Smith, 1981) is also designed to provide enrichment in specific skill areas for all children, not only those who are identified as gifted using traditional measures.

Few studies involving dynamic assessment have been conducted in gifted education, but positive results have been reported with young, rural, poor children (Kirschenbaum, 1998). Robinson-Zanartu (1996) suggested that dynamic assessment might offer a more culturally appropriate way of questioning than do standardized tests. Tests typically involve direct, and often abrupt sequences of questions and answers with timed responses. However, dynamic

assessment involves “mediation” – structuring a supportive social and learning environment to reveal and help develop abilities and skills. The interactive and responsive nature of mediation allows for appropriate variations in cultural patterns of behaviour (for example, eye contact and loudness of voice) and language.

Chaffey and Bailey (2000) implemented an ongoing project to identify academic giftedness with Australian Aboriginal children, using a dynamic assessment approach similar to the eureka model. As in North America, attempts to identify gifted Indigenous students using standardized tests have been unsuccessful. The researchers employed the test-intervene-retest design of dynamic assessment, with Raven’s Standard Progressive Matrices the chosen measure of cognitive change. Measures of self-concept and academic locus of control were also used. Eighty-four rural Aboriginal children aged 8-11 participated. Students were assigned randomly to experimental and control groups. A number of initiatives were developed to respond to cultural differences:

- The intervention (mediation) was conducted in groups of four to minimize shyness, facilitate interactions with the investigator, and to allow for cooperative activities;
- An Aboriginal adult assisted in all intervention and data collection sessions;
- Sport activities were used as an “icebreaker” to help build trust;
- To limit the potential for “shaming”, the intervention groups were formed on the basis of the pretest Matrices scores, reducing the possibility of a more able peer standing out above the others;
- Fun and mutual respect were emphasized and practised

(Chaffey & Bailey, 2000).

The authors contended that Raven's Matrices "is recognised as a suitable instrument for use with culturally different people" (p. 2), however, as discussed earlier, untimed test items may reach a fairer assessment but remain, by the very nature of a standardized test, culturally biased. Furthermore, Chaffey and Bailey operationalized their definition of "intellectual giftedness" by performance on this instrument, and recognized that skills valued within Aboriginal culture are very much broader.

Preliminary results indicated improvements in post-test scores in the experimental group (Chaffey & Bailey, 2000). The authors noted that students with high academic potential would not have been recognized by a single pre-test measure, their abilities only becoming apparent after the dynamic application of the instrument. Chaffey and Bailey concluded that

Dynamic assessment seems to offer hope of a more realistic appreciation of the occurrence of academic giftedness in Australia's Indigenous population and may be seen as a worthy addition to any 'multiple methods' approach to the identification of students from culturally different backgrounds, especially other indigenous populations (2000, p. 5).

Ukrainetz and her colleagues have investigated the use of dynamic assessment as a less biased approach for measuring language learning ability with native American kindergarteners (Ukrainetz, Harpell, Walsh & Coyle, 2000). Participants were 27 Arapahoe and Shoshone youngsters and their teachers (who were also Arapahoe or Shoshone). The program was designed to teach beginning aspects of the Shoshone language, as the children spoke only English, and was implemented in a culturally-appropriate manner. The children responded positively to instruction, with those who were considered to be initially stronger language learners showing greater gains

than weaker language learners. Ukrainetz et al. (2000) noted that the approach, while an improvement over traditional assessment methods, was nevertheless not without cultural limitations:

Dynamic assessment arises from Western views of teaching/learning competence, and questions may still be raised regarding our cultural value for learning behaviors, such as seeking help when having difficulty, or verbalizing the goal of the learning activity. Our ways of mediating may also be questioned, such as making the child feel competent in the task and communicating feelings of caring and enjoyment. However . . . dynamic assessment has a variety of applications within both minority and mainstream assessment (p. 151).

Certainly it would appear to be potentially useful with both Aboriginal and non-Aboriginal students in remote, rural and northern Canadian communities.

Rural and Remote Gifted and Talented

Definition and Context

Rural. The term “rural” is a complex one, and attempts to define it solely in population terms are inadequate. The Government of Canada uses “rural” to apply to communities of fewer than 10,000 (Government of Canada, 2001) and strongly suggests “that the appropriate definition should be determined by the question being addressed” (p. 1). In 2001, 30.4% of Canada’s population lived in predominantly rural regions. The Atlantic provinces, Saskatchewan, Yukon, Nunavut and the Northwest Territories all had more than half their populations living in rural regions (Government of Canada, 2002).

In the United States federal agencies use definitions ranging from 2,500 to 50,000

(Spicker, Southern & Davis, 1987). The National Rural Development Institute defined a rural area in the United States as one with a population density of fewer than 150 persons per square mile, or located in a county where 60% or more of the inhabitants live in communities of 5000 or less (Pendarvis, Howley & Howley, 1990). Matthews (1982) observed: "The key to definition is not in numbers but in the relationships between people and between people and the land" (p. 1627), focussing on land-use for purposes of primary production. However, although this approach to defining "rural" is helpful, the term is clearly a relative one.

Remoteness. The Australian Federal Government in collaboration with the Centre for Social Application of Geographical Information Systems has developed an index of remoteness which has had useful application in several areas of health and medicine (Australian Department of Health and Ageing, 2002). A feature of the Accessibility/Remoteness Index of Australia (ARIA) is that it does not attempt to define the term "rural" in an absolute fashion. For health and social services to be tailored to best meet the needs of rural and remote communities, remoteness was considered in terms of lack of accessibility to services considered "normal" in large cities. ARIA is a strictly geographic measure. It is a comparative index for all populated communities in Australia, employing a continuous variable scaled from 0 (high accessibility) through 12 (high remoteness). Scores are based on road distances from 11,338 towns to 201 service centres across the country (Centre for Social Applications of Geographical Information Systems, 2002). Given the geographical similarities between Canada and Australia a parallel approach may have useful national application in this country.

Rural schools. Cross and Dixon (1998) reviewed the research on gifted students in rural schools, noting three basic themes:

- An assumption that rural schools are deficient in resources and facilities, combined with the notion that a critical mass of gifted students is necessary for adequate service provision;
- A tendency to conduct research on targeted sub-populations of gifted and talented students, such as indigenous peoples, with the assumption of rural school deficiency less obviously underpinning studies (McIntire & Plucker, 1996);
- Explorations of the lives of gifted rural students and the nature and quality of their experience.

The assumptions of rural school and resource deficiencies should not be taken for granted. Rather than presuming that libraries and museums are necessary for appropriate enrichment, it should be recognized that rural environments provide other resources that are not available in cities. It should also be noted that the development of the Internet has vastly increased enrichment opportunities for gifted students in rural and some isolated communities.

Diversity. It is hazardous to generalize findings about gifted and talented youth from one rural environment to another because of educational, socioeconomic, cultural and linguistic differences between populations. Educationally, for example, gifted rural students may experience the whole configuration of schooling, from K-12 schools with low enrolment through to large, consolidated high schools (Cross & Dixon, 1998).

To illustrate, studies conducted in the American southwest are likely to include Hispanic students who are poor, speak English as their second language, and who have other cultural

differences that affect performance in school. This population, of course, is very different from students living, for example, in rural Newfoundland. A study by Pugh and her colleagues illustrates the problem. The researchers examined differences in self-concept for rural and urban gifted high school students, and differences between teachers' perceptions of these two groups of students (Pugh, Lindow, Cage, Stone, Richardson & Erskine, 1990). In brief, it was found that urban students had higher self-concepts than rural students, a perception shared by their teachers. However, generalization of results to rural youth in general is hazardous, because the samples examined were from rural northeast Louisiana, a culturally distinctive region.

The difficulty in generalizing about rural youth is also illustrated in the following quote from a paper produced by scholars at the Rural Center, Appalachia Educational Laboratory in Charleston, West Virginia:

Backman (1990) believes a rural-urban dichotomy attributes inferiority to rural place. The slurs are known universally, of course: 'hicks', 'rednecks', 'plowboys', 'bumpkins' and 'hillbillies'. Backman asks pointedly, however, 'Where does a comparable list exist that contains negative stereotypical terms for urban people?' (Howley, Harmon & Leopold, 1997).

The negative terms used, and perhaps the stereotype they reflect, are not of course, "universal", but originate, and are widely applied, in the southeastern United States.

Access to resources. Students in rural and isolated communities often have limited access, because of geographic location, to a full range of schooling and the breadth of curriculum available to urban children. Because schools are smaller, fewer support personnel such as counsellors and subject specialists are likely to be available to support special programs

(Carmichael, 1982). Other resources for enrichment, such as libraries and the performing arts are also much less likely to be available in comparison with urban centres. However, as previously mentioned, rural environments provide different resources than urban ones, and the rapid growth of the Internet has meant that gifted rural students need not necessarily be considered resource-deficient.

Gifted Underachievers

Like Aboriginal youngsters who are gifted and talented, rural Canadian gifted students are frequently under served because they are not identified and may underachieve in school (Bowd, McDougall & Yewchuk, 1998). Gifted underachievers are characterized by a significant discrepancy between their aptitude and scholastic achievement. In some cases low performance may be a consequence of unsupportive school practices. Davis and Rimm (1994) found that a lack of respect for students, an overly competitive classroom environment, rigidity and unchallenging tasks and activities foster underachievement among gifted students.

Massé (2002) hypothesized that gifted and talented adolescents might be at risk for underachievement as a reaction to the expressed envy of their peers in regard to their special skills. Studying 689 Quebec high school students, she found that academic and athletic talents were the most envied. However, most talented students were found to regard this reaction positively, and responded by managing information about themselves so as to minimize visibility and downplaying their abilities. Underachieving was not considered a significant problem.

Teachers' stereotypes of gifted children include high achievement (Kolb & Jussim, 1994), and they tend to be more punitive of students perceived as failing due to lack of effort as opposed to lack of aptitude (Weiner, 1994). As noted by Baker, Bridger and Evans (1998): ". . . teachers

may not tolerate challenging behavior or failure from gifted students and may distance themselves from these children” (p. 13). Spina and Crealock (1985) surveyed Ontario school boards and found few procedures in place to identify gifted underachievers. This problem is unlikely to be limited to Ontario, as most definitions of giftedness used in Canada imply concomitant high scholastic achievement.

Identification of Rural Gifted Students

Five factors hampering the identification of gifted students in isolated communities have been identified by the Western Australia Department of Education (2001). These are also applicable in Canada’s north:

- The small size of the community. (Hence there are fewer human and material resources for enrichment);
- The socioeconomic status of the community. (Most isolated northern communities have high rates of unemployment and low income levels since much employment is seasonal);
- The Aboriginality of students. (Cultural differences affect definitions, the identification process and programs);
- The language background other than English;
- The newly graduated teacher. (Northern communities have a high rate of teacher turnover and employ more inexperienced and newly graduated teachers).

The Identification Process

Rural students, and particularly those in remote communities, have different educational and life experiences to urban youngsters. Standardized tests and identification checklists for the gifted have an urban bias which can lower test scores and limit opportunities for rural children,

regardless of culture (Spicker, Southern & Davis, 1991; Suzuki, Short, Pieterse & Kugler, 2001). The identification of gifted and talented children in rural and isolated communities should include non-traditional methods. The use of untimed, nonverbal intelligence tests, measures of spatial abilities, and greater emphasis on analysis of students' products and anecdotal information have been advocated as alternatives (Spicker, Southern & Davis, 1987).

Swanson (1995) investigated the utility of non-traditional methods of identification in a project designed to serve potentially gifted African-American children in the rural South. Methods included the *Ravens Coloured Progressive Matrices* (Raven, 1976), a nonverbal measure of inductive reasoning for children, the *Characteristic Rating Scales* (designed to assist teachers rate young students for ability), a measure of creativity, *Thinking Creatively in Action and Movement* (Torrance, 1981) and a peer-nomination interview. The upper 11-15% of students showing exceptional performance in at least three of the areas assessed were identified as "potentially gifted". However, final identification, along with evidence for validity and reliability, was to be based on gain scores and was not reported.

Identification of Gifted and Talented Youth in Rural Francophone Communities

Gifted and talented youth in rural French-speaking Canadian communities may be less likely to be identified than their rural English-speaking peers. Massé (1998) prepared an inventory of techniques used in the identification of gifted and talented Francophone children. It included information from subjective approaches and instruments objectifs (standardized tests), similar methods to those employed with non-francophones. Subjective methods were: autobiographical information, a written expression of personal values, teacher, peer and parent nominations, observational records, expert judgment (for special talents), and student products

(e.g., an art portfolio). The testing methods reviewed by Massé along with some of her noted limitations were:

- *college entrance exams*: a risk was noted that these might underestimate student potential for students from different cultural environments, and those from inferior schools.
- *tests of creativity*: three tests were provided as examples, all translated from English.
- *culture-fair tests (test culturellement équitable)*: examples cited were performance tests with directions translated from English.
- *group intelligence tests*: the example cited, Test d'habilités intellectuelles is a translation of the Otis-Lennon test of mental abilities.
- *individual intelligence tests*: Massé noted that "certains items sont biaisés culturellement surtout en ce qui a trait aux habiletés verbales" (1998, p. 10) (certain items are culturally biased, particularly those reflecting verbal abilities).
- *external/Ministry tests*: examples include departmental final examinations.

Massé noted several shortcomings and advantages for each approach; however, her review did not specifically refer to the use of standardized tests and written examination results in the identification of gifted rural youth. Nor did it refer to the identification of those First Nations and Inuit children for whom neither French nor English is a first language.

Translation of tests. Translation of tests from English to French (or any other language) is complex, and fraught with problems. Padilla (2001) argued that it has not generally been a satisfactory solution to the problem of inappropriate assessment for the following reasons:

- Test directions are often too technical and stilted to permit accurate translation.
- Translated tests are seldom translated back and forth to ensure equivalent meanings in

both languages.

- The psychological constructs assumed in the translated tests may not be culturally universal.
- The content of achievement tests can differ in many ways for different linguistic groups.
- The test-taking behaviour of examinees (including past experience and attitudes) may vary for different cultural and linguistic groups.
- Effective translation procedures and standards for systematically judging the equivalence of translations have not been developed.

Bracken and Barona (1991) argued that a back-translated version of a test should be compared with the original version for grammatical structures, conceptual equivalence, complexity of vocabulary, similarity of meaning and format. This requires fully bilingual translators who are familiar with the psychological concepts and technical language employed in the source test's manual and materials. The process has been characterized as "difficult, time consuming, very expensive to complete and inherently error prone" (Padilla, 2001, p. 21).

Gifted and Talented Youth with Disabilities

Many gifted and talented children and adolescents are at risk of being mis-diagnosed by special education and health care professionals, particularly for learning disabilities, behaviour disorders and mood disorders. This is because of "ignorance among professionals about specific social and emotional characteristics of gifted children which are then mistakenly assumed by these professionals to be signs of pathology" (Webb, 2002, p.1). Furthermore, there are situations in which gifted children have received a correct diagnosis, with giftedness still remaining a factor, calling for a dual diagnosis. In these situations the child's giftedness typically is

overlooked, due to a lack of training and understanding by health care and education professionals (Webb & Kleine, 1993).

It has been claimed, based on professional experience and case studies, that gifted children with disabilities tend to evaluate themselves on the basis of the things they are unable to do, rather than on the basis of their talents (Whitmore & Maker, 1985). This may well be true, because persons with disabilities are infrequently recognized as being gifted and talented.

However, members of this population have not generally been identified in southern and urban regions, and in northern, rural and isolated communities they are very unlikely to be identified.

As Whitmore and Maker (1985) observed:

Giftedness has been identified in disabled persons when they have distinguished themselves by high levels of success attributed to superior intelligence. When young children are placed in educational programs designed to ameliorate the handicapping condition, it seems unlikely that behavioral indicators of giftedness will be elicited (p. 283).

Obstacles to Identification

Whitmore and Maker (1985) noted four major obstacles to the identification of giftedness among children and adolescents who have a disability:

3. Stereotypic expectations. The prevalent misapprehension of the gifted (stemming from longitudinal studies in the twentieth century) is that gifted children excel on all developmental norms; that they are high achievers with a desire to excel in school; that their language skills are advanced, appropriate, and fluent and the best single indicator of intellectual aptitude; that they are independent, mature and self-directed learners. The

stereotype of gifted students held by their teachers makes it particularly unlikely that gifted underachievers will be recognized (Powell & Siegel, 2000).

4. Developmental delays. Specific disabilities result in developmental delays in certain areas, for example, language (for hearing impairment) or abstract thinking (for visual impairment). For assessment purposes, children with disabilities should be compared with other youngsters having a similar type and degree of disability.
5. *Incomplete information.* Limited exchange of information among health care professionals, mental health professionals and special educators can result in inaccurate assessment and inappropriate educational planning. For example, educators frequently prepare individual education plans in the absence of medical information that might be important in determining the appropriateness of the plan.
6. *Absence of opportunity to demonstrate superior intellectual aptitude.* Gifted children with severe levels of disability (e.g., severe cerebral palsy, deafness or blindness) are sometimes placed in segregated social and educational settings where there is a lack of opportunity to develop and demonstrate exceptional intellectual abilities and talents.

There is a need for research on identification and programming for gifted children and youth with disabilities since most of the existing work addressing these issues has been conducted with adults, who, because of their accomplishments, became recognized as highly gifted and talented (Maker, Redden, Tonelson, & Howell, 1978).

It is important to appreciate the barriers to identification and the research difficulties confronting investigators when examining issues relating to the identification of gifted children with specific disabilities. This review will confine discussion to gifted children with hearing

impairment, learning disabilities and attention-deficit hyperactivity disorder. Dual diagnosis is also important in the case of children with other exceptionalities (e.g., cerebral palsy). However, the problems of misidentification are most salient for three disabilities to be reviewed, and have immediate relevance in the context of northern, rural and isolated communities.

Gifted Children with Hearing Impairment

Conductive hearing loss due to middle ear disease in infancy and early childhood is the most prevalent cause of disability in Canada's North, particularly among Indigenous peoples (Bowd, 2002). Data concerning hearing loss have not been systematically gathered at a territorial or provincial level and comes from a variety of studies in different communities. For example, Moore (1989) found conductive hearing loss among 67% of children she examined in the high arctic, and figures in excess of 15% in several Metis and Dene communities.

The World Health Organization has estimated the prevalence of chronic otitis media at 12-60% for Inuit, and at 4-8% for Native North Americans (WHO/CIBA, 1996) although specific studies have found higher rates (e.g., Ayukawa, Bruneau & Proulx, 2001; Julien, Baxter, Crago, Illecki & Therien, 1987; Scaldwell & Frame, 1985). Chronic otitis media nearly always results in some degree of hearing loss. Usually this is mild to moderate; however, even losses considered mild, between 16 and 25dB (Martin & Greer Clark, 2000) frequently impede communication and learning in the classroom (Kaderavek & Pakulski, 2002). This makes it less likely that gifted students with mild hearing loss will be identified as gifted, or, for that matter, as hearing impaired.

The practical problems involved with screening and evaluation of gifted children with hearing loss have been reviewed by Rittenhouse and Blough (1995). The primary problem was

determined to be the selection of an appropriate reference group in the identification process: gifted children, hearing children, or other children with hearing impairment. The issue was not resolved, but it was pointed out that the placement and program for each individual student is unique in situations where limited numbers of gifted students are to be served. The authors noted that definition and assessment, as well as the determination of an appropriate reference group, were issues to be examined by teachers in circumstances “where the awareness level is sufficiently heightened to suggest that deaf students may also be gifted and talented” (p. 51). It seems probable, because of the prevalence of hearing loss in northern Canada, that many hearing-impaired gifted and talented children are not identified and their needs not met.

Gifted Children with Learning Disabilities

Learning disabilities refer to difficulties in specific areas of learning such that the individual achieves significantly below the norm in that area despite having average or above average aptitude. The common definitions of learning disability employ an exclusion clause, namely that the low performance is not a function of sensory or other disabilities, and assume some neurological or cognitive processing problem (e.g., Hallahan & Kauffman, 2000; Heward, 2003; Ontario Ministry of Education, 2001). For the purposes of this review dyslexia (involving reading difficulties) and sensory-processing or perception difficulties (e.g., central auditory processing disorder) will be included within the discussion of research on gifted students with learning disabilities.

Individuals who are intellectually gifted and identified as learning disabled (G/LD) often remain unrecognized by traditional identification approaches using standardized aptitude and achievement tests. The presence of a learning disability can depress both aptitude and

educational achievement test scores, thus disqualifying students from being provided with a gifted program (Silverman, 1989). The problem is greater in northern, rural and isolated communities where traditional assessment methods lack validity.

Gifted students may be more likely to be identified as learning disabled because of two factors: aptitude-achievement discrepancy and regression toward the mean (Heath & Kush, 1991). Individuals scoring at the upper ranges for cognitive tests would typically demonstrate greater discrepancy between measures when compared with individuals scoring in the average range. Heath and Kush (1991) have suggested statistical modification to reduce the problem, and have cautioned against the not uncommon practice of employing a single measure of aptitude, commonly, the WISC-III. In a study of learning disabled college students with and without giftedness (Ferri, Gregg & Heggoy, 1997) it was found that G/LD students tended to be identified later (in high school or college), and that this trend was more evident for women than men. Differences in patterns of cognitive abilities were noted; in particular, the G/LD profile was associated with a pattern of high verbal comprehension and abstract thinking, although it was not claimed that there was a single profile for these students.

A study by Hannah and Shore (1995) compared the metacognitive skills of G/LD, gifted, and learning disabled elementary and secondary students. The metacognitive performance of the G/LD students more closely resembled that of the gifted students than that of the children and adolescents with learning disabilities. High verbal ability and comprehension have been found to be predictive of employment success among adults with learning disabilities (Faas & D'Alonzo, 1990). However Holliday, Koller and Thomas (1999) found that the majority of G/LD adults they tested presented significant strengths in the performance subscales of the WAIS-R, although

LaFrance (1997) did not find a verbal/performance discrepancy for groups of elementary children characterized as gifted/dyslexic, gifted, and dyslexic. The G/LD population would appear to be a heterogeneous one. There is a significant need for sensitive assessment to identify giftedness “even when it is camouflaged by learning disabilities” (Ferri, Gregg & Heggoy, 1997, p. 558).

Behaviour issues. Behaviour problems are often cited as characterizing students with learning disabilities, and there is no reason to suppose that G/LD individuals should be an exception. Behaviour problems stem from difficulties with self-esteem and frustration, and are secondary to the disability (Hallahan & Kauffman, 2000). Udall (1991) noted that G/LD students tend to be more disruptive, less socially accepted, and more likely to see themselves as “academic failures” (p.12), compared with students who are either gifted or learning disabled. Several writers have claimed that G/LD students who are unrecognized, and consequently misunderstood, are at risk for poor self-esteem, lower achievement, low self-confidence, and diminished career aspirations (Starnes, 1988; Udall, 1991; Vail, 1989). Suter and Wolf (1987) concluded that behaviour problems in this population arise from the incongruity between the individual’s own advanced levels of cognitive abilities and his or her difficulty in mastering particular academic skills.

Gifted Children with Attention Deficit Hyperactivity Disorder

Several writers have proposed that a disproportionately large number of gifted and talented students have problems of impulsiveness, hyperactivity, and sustaining attention (e.g., Gordon, 1990; Webb & Latimer, 1993). These claims are based largely on clinical experience and empirical evidence is lacking. Nevertheless, theories have been developed to account for “the increasing incidence of hyperactivity and attention problems of gifted youngsters” (Baum,

Olenchak, & Owen, 1998). These include the role of presumed “excitability” among gifted children (Piechowski & Colengalo, 1984), and models focussing on environmental factors such as adult reactions to precocity (Rimm, 1994) together with the consequences of unchallenging learning tasks (Rief, 1993).

Webb (2002), however, has proposed that many gifted children are being mis-diagnosed with ADHD:

The gifted child's characteristics of intensity, sensitivity, impatience, and high motor activity can easily be mistaken for ADHD. Some gifted children surely do suffer from ADHD, and thus have a dual diagnosis; but in my opinion most are not. Few health care professionals give sufficient attention to the words about ADHD in DSM-IV (1994) that say ‘inconsistent with developmental level’. The gifted child's developmental level is different (asynchronous) compared to other children . . . if the problem behaviors are situational only, the child is likely not suffering from ADHD (p. 4).

Whether more gifted children have ADHD, or whether they are more likely to be mis-diagnosed remains a contentious issue. It does seem likely that some are mis-diagnosed, and the case for increased prevalence of ADHD in gifted populations appears tenuous.

Social and emotional issues. Little research has been conducted on social and emotional issues for children identified as gifted and with ADHD, and much that has been published depends on clinical records and case studies (e.g., Moon, Zentall, Grskovic, Hall and Stormont 2001; Carmond, 1994; Flint, 2001; Zentall, Moon, Hall & Grskovic, 2001). To illustrate, Moon, Zentall, Grskovic, Hall and Stormont (2001) found that individuals identified as both gifted and

having ADHD had difficulties regulating their emotions, lived in families under stress, and exhibited poor relationships with peers. They concluded that “giftedness appeared to exacerbate the social/emotional difficulties associated with AD/HD rather than serve a protective function. The findings suggested that AD/HD is a risk factor for psychosocial adjustment difficulties in young boys who are intellectually gifted” (p. 207). Participants in the study were 3 boys with dual diagnosis, 3 gifted and 3 with ADHD. The limitations of the comparative, multiple case study design were noted.

There is evidence that referrals for attention disorders among gifted children have been increasing (Webb & Latimer, 1993), but this must be considered within a context of “ ‘professionals’ lack of clear definitions for ADHD, giftedness, creativity and a variety of other behavioral characteristics” (Baum, Olenchak & Owen, 1998, p. 96). The problem is a serious one when account is taken of the fact that the most frequently prescribed intervention for ADHD is psychostimulants such as Ritalin-AE. Baum et al. (1998) have pointed out that:

No conclusive research exists to explain the impact of such medication on various thought processes, including those related to potentially creative, productive thinking. Perhaps even more worrisome is that the behaviors thought to signal a disorder might sometimes be the result of an environment where bright but reluctant youngsters are expected to conform to a sluggish and boring curriculum (p. 97).

Mental Health Issues

There is limited empirical research dealing with the mental health of gifted children and adolescents. Most research with gifted youth has focussed on abilities and school achievement,

with little attention being paid to personality factors accompanying high intelligence and creativity (Webb, 2002). Even less attention has been paid to the hypothesis that personality factors are likely to be of greater intensity, and to impinge more forcefully on the individual's life for persons with IQs above 130 (Winner, 2000).

It has been claimed that gifted underachievers may have poor self-concepts, poor study habits, and exhibit inappropriate classroom behaviour such as acting out and oppositional behaviour (Bowd, McDougall & Yewchuk, 1998); however, the evidence appears to be sparse. It would seem logical to hypothesize that not meeting the needs of gifted and talented students through failing to challenge them at school will result in frustration and boredom, which may in turn, lead to aggressive behaviour, acting out, and depression. These may subsequently result in alcohol and substance abuse, or suicide. However, the hypothesis essentially remains untested, since the population in question is largely unidentified.

Historically, intellectually gifted persons were stereotyped as bordering on insanity (Solano, 1987); however, that image was dispelled by the longitudinal studies of Terman (1954) and others in the first half of the twentieth century, indicating that the gifted were generally well adjusted and successful. Stereotypes of the gifted persist, however. There is evidence that, in the latter half of the twentieth century, they tended to be perceived as less popular in school less likely to marry (Solano, 1987), and as aloof, conceited, impatient, self-centred and opinionated by peers in high school (Solano, 1977). However, a more recent study contrasted gifted adolescents' perceptions of their own social behaviour, which were positive, with the less positive perceptions of non-gifted peers (Field, 1998). Gifted children have also been reported to have fewer symptoms of social-emotional difficulties than non-gifted controls (Merrell, Gill,

McFarland & McFarland, 1996), and to perceive their own stress, depression and suicide ideation similarly to non-gifted peers (Metha & McWhirter, 1997). The gifted perceived their friendships as more intimate, and themselves as having better social skills. Little research exists, however, on the implications of stereotypes and beliefs for the ways in which their peers behave socially toward the gifted and the actual social behaviour of gifted and talented students.

Underachievement and Adjustment

McCluskey and Treffinger (1998) pointed out that underachievement among high ability students is a major concern, there being no doubt that some “tune out” and underperform:

Many simply leave the education system. Despite the common misconception that the bulk of our dropout population represents below-average students, there is a large body of evidence to suggest that academically able students, as well as those with considerable talent in a variety of specific domains, are at risk as well (McCluskey & Treffinger, 1998, p. 215).

The social and emotional needs of gifted children and adolescents are essentially the same as those of other children. The same developmental stages are experienced by gifted children, although frequently at an earlier age (Webb & Kleine, 1993). However, some needs and problems have been claimed repeatedly in the literature to more often characterize gifted children. (These claims are often conceptual and based on clinical observation). The following list is considered representative (Webb, 1995):

- *Uneven development:* The advanced cognitive development of gifted children is not matched by the development of fine and gross motor skills, possibly resulting in frustration and emotional outbursts, especially in early childhood.

- *Peer relations*: Gifted children are claimed to emphasize “rules” in an effort to obtain consistency, and may attempt to organize their age-peers, resulting in resentment.
- *Excessive self-criticism*: The notion that gifted children employ an idealized image of self and they blame themselves for failure to attain it.
- *Perfectionism*: Gifted children have been characterized as avoiding tasks in which they expect to deliver a less than perfect performance. The avoidance of risk-taking may result in underachievement.

As alluded to earlier, lists like the preceding have tended to be accepted by professionals working with gifted and talented children, despite limited empirical data. For example, one paper describing strategies for counselling gifted students to reduce stress listed perfectionism and excessive self-criticism as signs of “burnout”. Its authors concluded that:

School counsellors have the resources and the opportunities to work closely with gifted students to help them learn to cope with *the many stresses in their lives*.

Copout and burnout as forms of underachievement and overextension are inappropriate coping strategies that gifted students *often adopt to deal with the overwhelming pressure placed on them by themselves and others* (Kaplan & Geoffroy, 1993, p. 251; emphasis added).

The impression of gifted individuals presented in the preceding quotation is open to dispute in light of limited data supportive of the writers’ conclusion. However, it should nevertheless be recalled that about ten percent of all children exhibit some form of mental health problem (Konza, 1999), with males outnumbering females four to one (Cullinan, Epstein & Sabornie, 1992). It is not known how many of these children and adolescents may be gifted (Sisk, 1999).

Winner (2000, 1996) has observed that gifted children have a “deep intrinsic motivation to master the domain in which they have high ability and are almost manic in their energy level” (2000, p. 162). She argued that this “rage to master” (2000, p. 163) is characteristic both of children labelled gifted, by virtue of high IQs, and those classified as talented, who excel in specific domains such as art, music, or athletics. When youngsters like these are not identified at school, or when they are not sufficiently challenged, they are likely to lose their motivation and become underachievers.

Winner (2000) is critical of the use of single IQ measures as an entrance criterion for gifted programs. Gifted children frequently show wide differences on subtests of standard aptitude measures, often resulting in a significant discrepancy between verbal and performance IQs. (This issue was noted previously in regard to the mis-identification of gifted youth as learning disabled). Winner, however, points out that the specific domain in which the child excels should be a prime consideration in developing the educational program, rather than treating a child with mathematical gifts identically to one with high verbal skills.

Depression and Suicide

There is limited empirical research dealing directly with depression and suicidal ideation among gifted adolescents. One reason for this is the small yet diverse population referred to as gifted and talented, together with the fact that suicide is, statistically, a comparatively rare event. These two facts combined make the gathering of reliable empirical data difficult. In consideration of northern, rural and isolated communities the issue is complicated by the fact that very few students are formally identified, meaning that more gifted and talented children are likely to become “gifted underachievers”. Conceptually, at least, it seems reasonable to expect these

youngsters to experience frustration and boredom, possibly making them more susceptible to depression and its negative consequences, including suicide ideation and attempts.

It is unclear whether gifted and talented adolescents represent a population that is at increased risk for suicide, an issue that had been raised early in the 1980s (Lajoie & Shore, 1981). Dixon and Scheckel (1996) have pointed out that the evidence supporting such a link is largely conceptual, rather than empirical. In other words some characteristics often associated with increased risk for suicide, also have tended to be associated with giftedness and talent.

These characteristics include:

- Unusual sensitivity and striving for perfection (Delisle, 1986);
- Social isolation and introversion, poor peer relations (Kaiser & Berndt, 1985; Dixon & Scheckel, 1996);
- “Over-excitabilities” (Dabrowski, 1964; Piechowski, 1979; Tucker & Hafenstein, 1997): these include impulsive physical actions, sensory and sexual over-indulgence, introspection and avid curiosity, vivid imagination and strong affective memory.

Cross (1996) reported qualitative data concerning commonalities among three suicide cases at a school for the gifted, relating directly to their giftedness. She employed a method called “psychological autopsy” (Ebert, 1987) which involves systematic interviews with family members and peers of the victim, together with archival information (e.g., test results, school records, diaries). Emergent themes are then described. Cross’s description included the following themes emerging across the three cases, which she argued were directly related to the victims’ giftedness:

- Subjects expressed intense emotion, had minimal prosocial outlets, had difficulty

separating fact from fantasy, felt conflicted, and devalued emotional experience except for pain;

- Subjects expressed polarized, hierarchical and egocentric value systems;
- Subjects discussed suicide with peers as a viable solution;
- Subjects showed evidence of excessive introspection and obsessive thinking;

All three individuals suffered from depression, and “suicide contagion” seemed evident in that the three discussed suicide and the sequence of their deaths was related to this discussion. Cross (1996) considered the social component important because discussion within the group presumably reduced the taboo associated with suicide. Finally, the cultural component of suicide was noted (in this case a specific genre of rock music, and preoccupations with addictions, occult literature and horror movies).

During the decade of the 1980s there was considerable speculation, based on limited data, that proposed links between giftedness in adolescence, depression and suicide. Hayes and Sloat (1989) observed that for gifted adolescents:

Their increased perceptiveness and sensitivity are not always coupled with emotional maturity commensurate with their intellectual levels. They may, therefore, lack the maturity and judgment to deal successfully with many problems and issues of which their less capable agemates may not even be aware (p. 102).

They cite some empirical work as evidence of a link between “high ability” and suicide. For example, Harkavy and Asnis (1985) reported a suicide attempt rate of 9% among students at a high school for the gifted, while Hayes and Sloat (1990) found that 19% of suicides and suicide

attempts reported in a survey of counsellors involved students of “high ability”. In an early study Seiden (1966) found that 91% of undergraduate students attempting or completing suicide at a large American university had above average grades, while several other studies have linked above average ability to suicide and suicide attempts (e.g., Shaffer, 1974; Sargent, 1984). Later analyses of the data from the Terman genetic studies of genius (Shneidman, 1971; Tomlinson-Keasey, Warren & Elliott, 1986) did not report an elevated suicide rate among the highly gifted, but noted several risk factors which differentiated men and women who committed suicide from those who did not. The best predictors were poor physical health, early loss of the father, family stress, mental health issues and alcohol abuse.

Recently the assumption that gifted adolescents are more likely to experience depression and to engage in more suicide attempts and completions has come under critical examination.

Cross (1996) noted a tendency in the earlier literature:

. . . for authors to make conclusions and recommendations about the incidence and nature of gifted suicide without supporting data. Moreover, general findings from marginally related studies were used to support the contention that the rate of suicide among gifted adolescents is the same as, or lower, than the larger population of adolescents. Again, these statements were based on no direct evidence (p.46).

In a similar vein, the research methods employed in earlier studies have been criticized and their conclusions regarded with some skepticism by other writers (e.g., Baker, 1995; Gust-Brey & Cross, 1999). Cross (1996) noted a tendency for some authors to cite studies based on speculation, rather than upon empirical data. She characterized the effects of this practice as “a

reification of speculation” (p. 47). Further, she observed a tendency of authors, in research reports, to advocate on behalf of gifted children, criticizing them for stepping aside from the role of a dispassionate social scientist.

Environmental risk factors. Children and adolescents in rural, northern and isolated communities are exposed to a larger range of risk factors for suicide than are southern urban youth. Among these are:

- Major affective illness (e.g., severe depression, alcoholism, psychosis): depression may be expressed through anger, rebelliousness, running away or drug abuse (Morrisey, 1994);
- Family violence and abuse, disturbed family functioning, family psychiatric history and rates of separation and divorce (Spirito, Brown, Overholser & Fritz, 1989);
- Modelling of suicidal behaviour: Gould, Shaffer, Fisher, Kleinman and Morishima (1992) found that 40% of suicide completers had a parent, sibling, aunt, uncle or first cousin who had attempted or completed suicide.
- Parental psychopathology, substance abuse, antisocial disorder and suicide attempts (Brent, Perper, Moritz & Baugher, 1993);
- Drug and alcohol abuse within the family (Crumley, 1990);

According to Dixon and Scheckel (1996) “the empirical tie between giftedness and suicide is strongest when looking at the creatively gifted” (p. 389). However, the design of studies cited by them is weak, or the research is not directly related to gifted adolescent suicide. For example, Ludwig (1995) studied eminent people, finding that “artistic types” were more likely than any other group to commit suicide before age 30, and Jamison (1995) concluded from a biographical study of artists and writers that they showed up to 18 times the rate of suicide

found in the general population. Other studies of gifted people and suicide also suggest a higher rate than for non-gifted, but were subject to similar design problems (e.g., Lester, 1991; Shneidman, 1993; Tomlinson-Keasey, Warren & Elliott, 1986).

Cross (1996) has concluded that, because of the paucity of hard data concerning suicide among gifted adolescents, “. . . nothing should be concluded at this point. In other words we cannot know” (p. 47).

Summary. Suicide among gifted and talented children and adolescents in Canada's northern and rural communities is an issue that has received little attention in the literature. However, it is an important consideration for several reasons:

- There is evidence that gifted and talented youth are represented among populations of attempted and completed suicide, but it is not clear whether they are over-represented.
- Gifted and talented youth are frequently not identified in northern and rural communities, and consequent failure to provide services may contribute to frustration, depression and, in some circumstances, suicide.
- The environmental risk factors for adolescent suicide are particularly evident in many northern and isolated communities (for example, substance and alcohol abuse, family violence and abuse together with an elevated prevalence of suicide among family and peers).

Appropriate definition, identification and enrichment for gifted and talented youth in the North and in rural Canada may be considered one tool among several to help prevent mental health difficulties for these children and adolescents with special needs.

Conclusion

As Bailey (2000) observed: “A crucial first step toward achieving an optimal classroom environment for the identification of emotional well-being of gifted children from diverse cultures is the rejection by teachers of a deficit-based view of these children” (p. 93). This should begin within the faculties of education in Canada, all of which should mandate course-work in the teaching of culturally diverse students.

The health and education of children and adolescents who are gifted and talented should be matters of high priority at the local, provincial and national levels of government in Canada. This is particularly so in the case of youth living in rural, northern and isolated communities who are less likely to be identified, and therefore more likely to become gifted underachievers. There is little information in the literature concerning this diverse population, and in this review there has been frequent extrapolation from research conducted elsewhere in North America and abroad. The dearth of research dealing directly with these children and adolescents speaks to the fact that they represent truly “hidden” gifts and talents. This, in turn, implies a risk of losing the contributions they are potentially able to make to the communities in which they live.

Traditional approaches to the definition, identification, and assessment of gifted children and adolescents have been inappropriate for rural and northern youth. However, they continue to be applied with only minor modifications in many jurisdictions in Canada. In particular, the use of standardized aptitude and achievement tests to operationalize culturally-biased definitions is a continuing problem. The definitions of giftedness and special talents that are employed by Canadian educators fail to reflect the cultures and experiences of youth in rural areas and the north. Rather, they reflect the values and traditions of formal, academically oriented schools

serving predominantly middle class children in urban areas.

Alternative approaches to the complex definition issue have attempted to confront the fact that giftedness is a construct recognized by a consensus within a cultural group, assuming that it has meaning at all. The approaches of Sternberg (triarchic model), and particularly Gardner (multiple intelligences), have promise, inasmuch as both appear able to provide a conceptual basis for the construction of alternative means of identifying students. The employment of modified standardized tests (e.g., translations of the Wechsler scales for rural Francophone students), and nonverbal performance tests (e.g., Raven's matrices for Aboriginal students) is inappropriate, or at least of limited value, even when local norms have been established. This is because they have failed to demonstrate validity, and have not been applied within the context of culturally appropriate definitions. A similar reservation applies to such practices as teacher nominations, the use of checklists, and the question of their reliability.

The relationship between failure to identify and underachievement is complex. A failure to identify occurs, in part, because of the use of inappropriate tools, with the likely consequence frustration, boredom and underachievement. However, students who underachieve are supposed by many teachers not to be gifted. (In fact, some definitions currently used in Canada assert that exceptional achievement is a necessary criterion for identification as gifted). Therefore the gifts and talents of these children and adolescents remain hidden, and their needs are not met.

An argument has been advanced that gifted children are more likely to have attention deficits and learning disabilities. However, it has also been pointed out that health care and special education professionals are likely to mistake behaviour associated with giftedness for the symptoms of learning, attention and behaviour disorders. The literature is inconclusive; however,

it appears that gifted and talented students are probably no more and no less likely than their regular peers to suffer from disabilities, although the literature is inconclusive.

In Canada's north hearing impairment has reached epidemic proportions within many Inuit, First Nations, and Métis communities. It is very probable that a significant proportion of gifted students remain unidentified because of mild and moderate hearing loss. These youngsters experience boredom and frustration as a consequence, and are at increased risk for underachievement and behavioural difficulties, together with associated problems including substance abuse and possibly suicide. The proposition that there is a link between suicide and giftedness among identified children and adolescents remains unconfirmed, however it is important to note that environmental risk factors for suicide and suicide ideation (e.g., modelling of suicidal behaviour, substance and alcohol abuse) are prevalent in northern communities.

Future work in this field

Definition. The problems with defining "giftedness" or "gifted and talented youth" stem from the fact that:

7. The construct is not a scientific one, and is culturally relative.
8. Definitions currently used for purposes of identification within school systems vary from province to province, and are embedded in educational regulations. These definitions typically refer to constructs such as intellectual ability, and to advanced academic achievement, implying that standardized tests are necessary for identification.

Alternative approaches to definition need to be investigated within culturally and socially diverse populations. Gardner's multiple intelligences and Sternberg's triarchic model, for example, appear to have promise in providing flexible models for describing gifted and talented

behaviour cross-culturally. Provincial differences in definition, ranging from the very narrow (e.g., Ontario) to broader approaches, such as in British Columbia, mean that different populations are identified from one jurisdiction to another. However, most definitions used in Canada are based on the notion that “giftedness” has to do with cognition alone, and that talents refer to socially desirable areas of high achievement such as leadership or musical skill. Gagné’s distinction between giftedness as natural ability and talents as systematically developed abilities provides a more logical way of understanding these constructs. A coordinated effort to rationalize definitions in all exceptionalities, including giftedness, is needed, particularly in order to provide appropriate services for children belonging to cultural and linguistic minorities.

Prevalence. No data were located describing the frequency of identification of gifted and talented youth in particular geographic areas within Canada, or among specific cultural or linguistic populations. For example, no information was found regarding the numbers of children identified as gifted and talented in First Nations schools, or those administered by the Indian and Northern Affairs Canada. Research is needed in this field, since data from studies conducted in the United States and Australia indicate that Aboriginal youth there are identified as gifted far less frequently than other children.

Standardized assessment. The use of most standardized aptitude, achievement, and creativity tests should be curtailed in the identification of gifted and talented Aboriginal youth. Further research is needed to establish the validity of culture-reduced measures, such as Raven’s Progressive Matrices, for culturally different groups. These tests are untimed and nonverbal, leading some researchers to assume they are therefore valid predictors of achievement. However, research concerning their psychometric properties relevant to the identification of gifted and

talented Inuit and First Nations children is required. There is also a need for research concerning the reliability of teacher nomination in the identification of gifted children, including the effects of teacher stereotyping of the gifted and talented.

Alternative approaches to assessment. Multidimensional assessment takes account of the significant skills and values of a particular cultural group (usually assessed by nomination and rating scales), as well as cognitive abilities measured using standardized instruments. Research is needed to establish the validity of this approach, particularly the use of culturally-sensitive rating scales by trained representatives of the cultural group. Similarly, performance-based assessment has promise as a culturally sensitive approach to identification; however, it also suffers from difficulties associated with ensuring validity and reliability, as well as practical problems because it is labour-intensive and time-consuming. Research is needed to help establish and improve validity.

Dynamic assessment, involving the establishment of a set of static benchmarks, followed by interventions including mediation, and yielding a measure of “modifiability” after a follow-up measure, has been used with some success in Israel (the eureka model) and with Aboriginal Australian children. This approach, combined with a culturally sensitive model for the determination of benchmarks and appropriate interventions (e.g., Gardner’s multiple intelligences), may provide a viable way of identifying culturally different youngsters. Research to adapt this approach within Canada is needed, particularly in the case of indigenous groups, recent immigrants, and rural Francophone children.

Rural gifted and talented. Research in rural North America has tended to assume resource deficiencies for the provision of services for students with special needs, including the gifted and

talented. Research is needed to investigate the validity of this assumption for northern and rural Canada, and to establish whether alternative approaches to assessment are being applied successfully in the identification of gifted children. Research establishing the limitations of traditional assessment has been carried out in the United States, but rural youth represent a very diverse group and research on the limitations of standardized tests with Canadian rural youth is needed. In particular, investigation of alternative approaches to the identification of rural Francophone students is important because of the shortcoming of the translated instruments currently in use.

Gifted and talented children with disabilities. No Canadian data were found for the prevalence of disabilities among gifted youth, and research in the United States is inconclusive. In view of the very high rate of hearing impairment in the North, it seems reasonable to conclude that many gifted children remain unidentified because of the language and literacy consequences of hearing loss. These students are at high risk for underachievement and may express their boredom and frustration through oppositional behaviour, substance abuse and sometimes suicide. Research is needed to examine these possible links, particularly with Inuit and First Nations youth. The complex causes of underachievement are only partially understood, in part because work in this important area has been largely correlational. Research is needed which sheds light on the causes of underachievement and helps provide interventions that are eventually capable of reversing this behaviour.

Certain characteristics associated with giftedness may be mistaken for symptoms of learning, behaviour and attention difficulties by health and special education professionals. Empirical research is needed to establish the existence and magnitude of this problem, as present

information is incomplete and largely based on clinical experience. In-service education regarding these matters is essential for these professionals, as well as regular classroom teachers. When students are correctly diagnosed with a learning behaviour or attention difficulty, professionals frequently appear to be unlikely to consider a possible dual diagnosis with gifted. The extent of this problem also requires investigation.

Mental health issues. The mental health of gifted and talented youth is a field fraught with controversy. Some investigators have suggested that gifted adolescents have poor social skills, are more likely to experience depression, and to attempt and complete suicide. However, others have taken a contrary view and the issues remain unresolved. In consideration of limited data, there is little reason to assume, at present, that the mental health of gifted to be any different from those who are not gifted. Research is needed concerning the risk factors for suicide in northern communities and their particular implications for gifted youth.

Finally, it must be stressed that gifted and talented youth are present to the same extent in northern, rural and isolated communities as they are the urban south. The chief problem is an almost complete absence of data concerning the identification and assessment of these children and adolescents. Underachievement and possible behaviour and mental health problems are among the consequences of failure to meet the special needs of these youngsters. That is one half of the equation. The other is the considerable loss of their potential contributions to their own communities, and to the nation.

References

- Abbott, J.A. (1983). *The Gifted Attitudes Inventory for Navajos: Directions for administering and scoring the GAIN, and Technical Supplement*. Unpublished manuscript. The Dine Bi'olta Research Institute, Farmington, NM.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed., 1994). Washington, DC: American Psychiatric Association.
- Anastasi, A. (1958). *Differential psychology* (3rd ed.). New York: Macmillan.
- Armstrong, T. (1999). *Seven kinds of smart: Identifying and developing your multiple intelligences* (Revised ed). New York: Plume.
- Australian Department of Health and Ageing. (2002). *Accessibility of services for rural Australia*.
<http://www.ruralhealth.gov.au/policy/accessibility.htm> (Retrieved November 25, 2002).
- Ayukawa, H., Bruneau, S. & Proulx, J.F. (2001). *Evolution and impact of chronic otitis media in Inuit children in Nunavik (Northern Quebec)*. Paper presented at the 2001 XXV International Association of Logopedics and Phoniatics (IALP) World Congress.
 Abstract retrieved June 14, 2001 from the Canadian Association of Speech and Language Pathologists <http://www.caslpa.ca/ialp/HTML/00000427.htm>
- Backman, K. (1990). *Rural and urban youth programs*. Clemson, SC: Clemson University Regional Resources Development Institute. (ERIC: ED 337 337)
- Bailey, S. (2000). Culturally diverse gifted students. In M.J. Stopper (Ed.) *Meeting the social and emotional needs of gifted and talented children*. (pp. 80-98). London: David Fulton.

- Baker, J.A. (1995). Depression and suicidal ideation among academically gifted adolescents. *Gifted Child Quarterly*, 34(4), 218-223.
- Baker, J.A., Bridger, R. & Evans, K. (1998). Models of underachievement among gifted preadolescents: The role of personal, family and school factors. *Gifted Child Quarterly*, 42(1), 5-15.
- Baum, S.M., Olenchak, F.R. & Owen, S.V. (1998). Gifted students with attention deficits: Fact and/or fiction? Or, can we see the forest for the trees? *Gifted Child Quarterly*, 42(2), 96-104.
- Bevan-Brown, J. (2000). *Why are learners with special needs from ethnically diverse groups missing out on effective, culturally appropriate services and what can be done about it?* Paper presented at the International Special Education Congress 2000, University of Manchester, U.K. www.isec2000.org.uk/abstracts/papers_b/bevan_brown_1.htm (Retrieved November 18, 2002).
- Berry, J.W. (1971). Psychological research in the north. *Anthropologica*, 13, 143-157.
- Bordeaux, R. (1995). Assessment for American Indian and Alaska native learners. *ERIC Digest*. EDO-RC-95-6. www.awl.org/eric/digests/edorc956.htm (Retrieved September 20, 2001)
- Bowd, A.D. (1974). Practical abilities of Indians and Eskimos. *Canadian Psychologist*, 15, 281-290.
- Bowd, A.D. (2002). *Otitis media: Its health, social and educational consequences particularly for Canadian Inuit, Metis and First Nations children*, Thunder Bay, ON: Centre of Excellence for Children and Adolescents with Special Needs, Lakehead University.

- Bowd, A., McDougall, D. & Yewchuk, C. (1998). *Educational psychology for Canadian teachers* (2nd ed). Toronto: Harcourt Brace Canada.
- Bracken, B.A. & Barona, A. (1991). State of the art procedures for translating, validating and using psychoeducational tests in cross-cultural assessment. *School Psychology International, 12*, 119-132.
- Braggett, E. J. (1985). *Education of gifted and talented children from populations with special needs: Discussion documents*. Canberra: Australian Schools Commission.
- Braggett, E. J. (2002). Personal communication.
- Brent, D.A., Perper, J.A., Moritz, G. & Baugher, M. (1993). Stressful life events, psychopathology, and adolescent suicide: A case control study. *Suicide and Life-Threatening Behavior, 23*, 179-187.
- British Columbia Ministry of Education. (2002). *Special education services: A manual of policies, procedures and guidelines*. www.bced.gov.bc.ca/specialed/ppandg/planning-5.htm (Retrieved February 10, 2002).
- Brittan, M. & Tonemah, S. (1985). *American Indian Gifted and Talented Assessment Model (AIGTAM)*. Norman, OK: American Indian Research and Development (AIRD).
- Callahan, C.M. & McIntire, J.A. (1994). *Identifying outstanding talent in American Indian and Alaska Native students*. Washington, DC: Office of Educational Research and Improvement.
- Carmichael, D. (1982). The challenge of rural education. *The Rural Educator, 4*(1), 5-10.
- Carmond, B. (1994). Attention-deficit hyperactivity disorder and creativity - what is the connection? *Journal of Creative Behavior, 28*(3), 193-210.

Centre for Social Applications of Geographical Information Systems. (2002). *ARIA methodology:*

Introduction.

http://www.gisca.adelaide.edu.au/web_aria/Rural_Health/aria_rrma/aria_1.html

(Retrieved November 25, 2002).

Chaffey, G. & Bailey, S. (2000). Identifying academic giftedness in indigenous Australian children: A dynamic assessment approach. Wallace Research Symposium, University of Iowa, 18-20 May. <http://fehps.une.edu.au/F/S/curric/SBailey/h.html>. (Retrieved January 10, 2002).

Christensen, R.A. (1991). A personal perspective on tribal-Alaska Native gifted and talented education. *Journal of American Indian Education*, 31(1), 10-14.

Common, R.W. & Frost, L.G. (1994). *Teaching wigwams: A modern vision of native education*. Muncey, ON: Anishinaabe Kendaaswin Publishing.

Cross, T. (1996). Examining claims about gifted children and suicide. *Gifted Child Today*, 19, 46-48.

Cross, T.L. & Dixon, F.A. (1998, February). On gifted students in rural schools. *Bulletin of the National Association of Secondary School Principals*, 119-124.

Crumley, F.E. (1990). Substance abuse and adolescent suicidal behavior. *Journal of the American Medical Association*, 263, 3051-3056.

Cullinan, D., Epstein, M. & Sabornie, E. (1992). Selected characteristics of a national sample of seriously disturbed adolescents. *Behavioral Disorders*, 17, 4, 273-280.

Dabrowski, K. (1964). *Positive disintegration*. Boston: Little, Brown.

Davis, G.A. & Rimm, S.B. (1994). *Education of the gifted and talented*. Boston: Allyn & Bacon.

- Delisle, J. (1986). Death with honors: Suicide and the gifted adolescent. *Journal of Counseling and Development, 64*, 558-560.
- DeMerchant, D.M. & Tagalik, S. (2000). Building Inuit Qaujimajatuqangit Schools in Nunavut. *Agate, 14*(2), 98-103.
- Dixon, D.N. & Scheckel, J.R. (1996, Spring). Gifted adolescent suicide: The empirical base. *Journal of Secondary Gifted Education, 386-392*.
- Ebert, B. (1987). Guide to conducting a psychological autopsy. *Professional Psychology: Research and Practice, 18*, 52-56.
- Faas, L.A. & D'Alonzo, B.J. (1990). WAIS-R scores as predictors of employment success and failure among adults with learning disabilities. *Journal of Learning Disabilities, 23*, 311-316.
- Feldhusen, J.F. (1996). Talent as an alternative conception of giftedness. *Gifted Education International, 11*, 124-127.
- Ferri, B.A., Gregg, N. & Heggoy, S.J. (1997). Profiles of college students demonstrating learning disabilities with and without giftedness. *Journal of Learning Disabilities, 30*(5), 552-559.
- Field, T. (1998, Summer). Feelings and attitudes of gifted students. *Adolescence*.
http://www.findarticles.com/cf_0/m2248/n130_v33/21072036/print.html (Retrieved May 28, 2002).
- Flint, L.J. (2001). Challenges of identifying and serving gifted children with ADHD. *Teaching Exceptional Children, 33*(4), 62-69.
- Florey, J. & Tafoya, N. (2001). Identifying gifted and talented American Indian students: An overview. *ERIC Digest*. <http://ericae/edo/ED296810.htm> (Retrieved October 11, 2001).

- Gagné, F. (1985). Giftedness and talent: Reexamining a reexamination of the definitions. *Gifted Child Quarterly*, 29, 103-112.
- Gagné, F. (1991). Toward a differentiated model of giftedness and talent. In N. Colangelo & G.A. Davis (Eds), *Handbook of gifted education*. (pp. 65-80). Boston: Allyn & Bacon..
- Gagné, F. (1993). Constructs and models pertaining to exceptional human abilities. In K.A. Heller, F.J. Monks & A.H. Passow (Eds), *International handbook of research and development of giftedness and talent*. (pp. 69-87). Oxford: Pergamon.
- Gagné, F. (1995). Hidden meanings of the “talent development” concept. *The Education Forum*, 59, 350-362.
- Gagné, F. (1999). My convictions about the nature of abilities, gifts, and talents. *Journal for the Education of the Gifted*, 22(2), 109-136.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Gardner, H. (1999). *Intelligence reframed: Multiple intelligences in the twenty-first century*. New York: Basic Books.
- Gibson, K.L. (1999). Aboriginal populations: Australia. In A.Y. Baldwin & W. Vialle (Eds), *The many faces of giftedness: Lifting the mask*. (pp. 45-64). Belmont, California: Wadsworth.
- Gifted Children’s Association of British Columbia. (1999). *Young Gifted Children*, 1(1), 1-4.
- Gordon, M. (1990). *The assessment and treatment of ADHD/hyperactivity*. Keynote address, annual meeting New York Association for Children with Learning Disabilities, Syracuse, NY.

- Gould, M.A., Shaffer, D., Fisher, P., Kleinman, M. & Morishima, A. (1992). The clinical prediction of adolescent suicide. In R.W. Maris, A.L. Berman, J.T. Maltzberger & R.I. Yufit (Eds) *Assessment and prediction of suicide* (Pp. 130-143). New York: Guilford Press.
- Government of Canada. (2001). Definition of rural. *Rural and Small Town Canada Analysis Bulletin*, 3(3), 1. Ottawa: Statistics Canada.
- Government of Canada (2002). Canadian rural population trends. *Rural Research Note*, June. (pp. 1-7). Ottawa: Agriculture and Agri-Food Canada.
- Gust-Brey, K. & Cross, T. (1999). An examination of the literature base on the suicidal behaviors of gifted students. *Roeper Review*, 22(1), 28-35.
- Hallahan, D.P. & Kauffman, J.M. (2000). *Exceptional learners* (8th ed). Boston: Allyn and Bacon.
- Hallahan, D.P., Kauffman, J.M. & Lloyd, J.W. (1999). *Introduction to learning disabilities* (2nd ed). Boston: Allyn & Bacon.
- Hannah, C.L. & Shore, B.M. (1995). Metacognition and high intellectual ability: Insights from the study of learning-disabled gifted students. *Gifted Child Quarterly*, 39(2), 95-109.
- Harkavy, J.M. & Asnis, G. (1985). Suicide attempts in adolescence: Prevalence and implications. *New England Journal of Medicine*, 313, 1290-1291.
- Hartley, E.A. (1991). Through Navajo eyes: Examining differences in giftedness. *Journal of American Indian Education*, 31(1), 53-64.
- Hayes, M.L. & Sloat, R.S. (1989). Gifted students at risk for suicide. *Roeper Review*, 12(2), 102-107.

- Hayes, M.L. & Sloat, R.S. (1990). Suicide and the gifted adolescent. *Journal for the Education of the Gifted*, 13, 229-244.
- Heath, C.P. & Kush, J.C. (1991). Use of discrepancy formulas in the assessment of learning disabilities. In J.E. Obrzut & G.W. Hynd (Eds) *Neuropsychological foundations of learning disabilities: A handbook of issues, methods, and practice*. San Diego, CA: Academic Press.
- Heward, W.L. (2003). *Exceptional children: An introduction to special education*. (7th Ed.). Upper Saddle River, NJ: Pearson Education.
- Holliday, G.A., Koller, J.R., & Thomas, C.D. (1999). Post-high school outcomes of high IQ adults with learning disabilities. *Journal for the Education of the Gifted*, 22(3), 266-281.
- Howley, C., Harmon, H. & Leopold, G. (1997). *Rural scholars or bright rednecks? Aspirations for a sense of place among rural youth in Appalachia*. Charleston, WV: Appalachia Educational Laboratory (ERIC: ED 404 063).
- Howley, C.B., Howley, A. & Pendarvis, E.D. (1995). *Out of our minds: Anti-intellectualism and talent development in American schooling*. New York: Teachers College Press.
- Jamison, K.R. (1995). Manic-depressive illness and creativity. *Scientific American*, February 1995, 62-67.
- Julien, G., Baxter, J.D., Crago, M., Illecki, H.J. & Therien, F. (1987). Chronic otitis media and hearing deficit among Native children of Kuujjaraapik (Northern Quebec): A pilot study. *Canadian Journal of Public Health*, 78, 57-61.
- Kaderavek, J.N. & Pakulski, L. (2002). Minimal hearing loss is not minimal. *Teaching Exceptional Children*, 34(6), 14-18.

- Kaiser, C.F. & Berndt, D.J. (1985). Predictors of loneliness in the gifted adolescent. *Gifted Child Quarterly*, 29, 74-77.
- Kaplan, L.S. & Geoffroy, K.E. (1993). Copout or burnout? Counseling strategies to reduce stress in gifted students. *The School Counselor*, 40, 247-252.
- Kirschenbaum, R. (1988). Methods for identifying the gifted and talented American Indian student. *Journal for the Education of the Gifted*, 11(3), 53-63.
- Kirschenbaum, R.J. (1998). Dynamic assessment and its use with underserved gifted and talented populations. *Gifted Child Quarterly*, 42(3), 140-147.
- Kleinfeld, J.S. (1973). Intellectual strengths in culturally different groups: An Eskimo illustration. *Review of Educational Research*, 43, 341-359.
- Knutson, K. & McCarthy-Tucker, S.N. (1993). *Gifted education for Native American students: A state of affairs*. Paper presented at the annual meeting, American Educational Research Association, Atlanta.
- Kolb, K.J. & Jussim, L. (1994). Teacher expectations and underachieving gifted children. *Roeper Review*, 17, 26-30.
- Konza, D. (1999). Emotional disturbance: Australian perspective. In A. Young Baldwin & W. Vialle (Eds), *The many faces of giftedness: Lifting the mask*.(pp. 261-287). Belmont, California: Wadsworth.
- LaFrance, E.B. (1997). The gifted/dyslexic child: Characterizing and addressing strengths and weaknesses. *Annals of Dyslexia*, 47, 163-182.
- Lajoie, S.P. & Shore, B.M. (1981). Three myths? The over-representation of the gifted among dropouts, delinquents and suicides. *Gifted Child Quarterly*, 25(3), 138-143.

- Lester, D. (1991). Completed suicide in the gifted: A late comment on "suicide among gifted women". *Journal of Abnormal Psychology, 100*, 604-606.
- Lidz, C.S. (1991). *Practitioner's guide to dynamic assessment*. New York: Guilford.
- Lipinski Amos, T. (1997). A review of psychological and educational assessment of northern American Indian/Alaska Native children. *Rural Special Education Quarterly, 16*(4), 33-43.
- Ludwig, A.L. (1995). *The price of greatness: Resolving the creativity and madness controversy*. New York: Guilford.
- MacAvoy, J., Orr, S. & Sidles, C. (1993). The Raven Matrices and Navajo children: Normative characteristics and culture fair application to issues of intelligence, giftedness and academic proficiency. *Journal of American Indian Education, 33*(1), <http://jaie.asu.edu/v33/V33S1RAV.htm> (Retrieved August 1, 2002).
- Maker, C.J. (1996). Identification of gifted minority students: A national problem, needed changes and a promising solution. *Gifted Child Quarterly, 40*(1), 41-50.
- Maker, C.J., Redden, M.R., Tonelson, S., & Howell, R.M. (1978). *The self-perceptions of successful handicapped scientists*. Albuquerque, NM: University of New Mexico, Department of Special Education.
- Maker, C.J., Rogers, J.A. & Nielson, A.B. (1994). Giftedness, diversity, and problem-solving. *Teaching Exceptional Children, 27*(1), 4-19.
- Martin, F., & Greer Clark, J. (2000). *Introduction to audiology*, (7th ed.). Needham Heights, MA: Allyn & Bacon.

Massé, L. (1998). *Inventaire critique des principales catégories d'instrument d'identification des élèves talentueux.*

File://C:\Eric\SASSLF\backup\12-10-2000\FDC\themes\douance\TMP984163250.htm

(Retrieved August 8, 2002)

Massé, L. (2002) *Social difficulties of talented adolescents and peers' envy.* Abstract, unpublished dissertation. Université du Québec a Montreal.

<http://www3.bcsympatico.ca/giftedcanada/page5.html>(Retrieved August 15, 2002).

Matthews, W.F. (1982). Rural education. *Encyclopedia of education research.* New York: Free Press.

McCluskey, K.W. & Treffinger, D.J. (1998). Nurturing talented but troubled children and youth. *Reclaiming Children and Youth, 6*(4), 215-219, 226.

McIntire, J.A. & Plucker, J.A. (1996). Availability of extracurricular and cultural opportunities for rural middle gifted students. *Rural Special Education Quarterly, 4*, 28-35.

McKenzie, J. (2002). *Maori children with special abilities: Taking a broader perspective.* New Zealand Principals Federation.

http://www.nzpf.ac.nz/maoiru_children_with_special_abilities.htm (Retrieved November 18, 2002)

McShane, D.A. & Plas, J.M. (1984). The cognitive functioning of American Indian children: Moving from the WISC to the WISC-R. *School Psychology Review, 13*, 61-73.

Merrell, K.W., Gill, S.J., McFarland, H. & McFarland, T. (1996). Internalizing symptoms of gifted and non-gifted elementary-age students: A comparative validity study using the Internalizing Symptoms Scale for Children. *Psychology in the Schools, 33*(3), 185-191.

- Metha, A. & McWhirter, E.H. (1997). Suicide ideation, depression and stressful life events among gifted adolescents. *Journal for the Education of the Gifted*, 20(3), 284-304.
- Moltzen, R. (1992). *The impact of reforms in education and provision for gifted children*. Unpublished Master of Education thesis, University of Waikato, Waikato, New Zealand.
- Moltzen, R. (1996). *Shaking off our inferiority complex: Educational provisions for the gifted and talented in New Zealand*. <http://www.nexus.edu.au/teachstud/gat/molt1.htm> (Retrieved November 18, 2002).
- Montgomery, D., Bull, K.S. & Salyer, K. (1990). *Screening for giftedness among American Indian students*. Paper presented at the Tenth Annual Conference, American Council for Rural Special Educators, Tucson, AZ.
- Moon, S.M., Zentall, S.S., Grskovic, J.A., Hall, A., & Stormont, M. (2001). Emotional and social characteristics of boys with AD/HD and giftedness: A comparative case study. *Journal for the Education of the Gifted*, 24(3), 207-247.
- Moore, N.D. (1989). Rural students/Regional programs. *Roeper Review*, 12, 112-113.
- Morrisey, M. (1994). Help me. *Guidepost*, 7, 9-11.
- Ontario Ministry of Education. (2001). *Special education: A guide for educators*. Toronto: Ministry of Education.
- Padilla, A.M. (2001). Issues in culturally appropriate assessment. In Suzuki, L.A., Ponterrotto, J.G. & Meller, P.J. (Eds), *Handbook of multicultural assessment* (2nd ed). (pp. 5-27). San Francisco: Jossey-Bass.
- Pendarvis, E.D., Howley, A.A. & Howley, C.B. (1990). *The abilities of gifted children*. Englewood Cliffs, NJ: Prentice-Hall.

- Peterson, J.S. (1999). Gifted - through whose cultural lense? An application of postpositivistic mode of inquiry. *Journal for the Education of the Gifted*, 22(4), 354-383.
- Piechowski, M. (1979). Developmental potential. In N. Colengalo & T. Zaffran (Eds), *New voices in counseling the gifted*. Dubuque, Iowa: Kendall/Hunt.
- Piechowski, M..M. & Colengalo (1984). Developmental potential of the gifted. *Gifted Child Quarterly*, 28, 80-88.
- Powell, T. & Siegle, D. (2000, Spring). Teacher bias in identifying gifted and talented students. *Newsletter, The National Research Center on the Gifted and Talented*.
www.sp.uconn.edu/nrcgt/news/spring00/sprng005.html (Retrieved Sept 10, 2001).
- Plucker, J., Callahan, C., & Tomchin, E. (1996). Wherefore Art Thou, Multiple Intelligences? Alternative Assessments for Identifying Talent in Ethnically Diverse and Low Income Students. *Gifted Child Quarterly*, 40(2), 81-92.
- Pugh, A.F., Lindow, D.J., Cage, B.N., Stone, J.R. Richardson, D.M. & Erskine, A.G. (1990). *A Comparison of Self-Report and Perceived Self-Concepts between Rural and Urban Gifted Students*. Paper presented at the annual meeting, Mid-South Educational Research Association, New Orleans.
- Raven, J.C. (1976). *The Coloured Progressive Matrices*. London: Lewis.
- Raven, J.C., Court, J.H. & Raven, J. (1983). *Manual for Raven's Progressive Matrices and Vocabulary Scales (Section 3) - Standard Progressive Matrices (1983 ed)*. London: Lewis.
- Reis, S.M. & McCoach, D.B. (2000). The underachievement of gifted students: What do we

know and where do we go? *Gifted Child Quarterly*, 44(3), 152-170.

Renzulli, J.S. (1978). What makes giftedness? Re-examining a definition. *Phi Delta Kappan*, 60, 180-184, 261.

Renzulli, J.S. (1986). The three-ring conception of giftedness: A developmental model for creative productivity. In R.J. Sternberg & J.E. Davidson (Eds), *Conceptions of giftedness* (pp. 53-92). New York: Cambridge University Press.

Renzulli, J.S. (1999). What is this thing called giftedness, and how do we develop it? A twenty-five year perspective. *Journal for the Education of the Gifted*, 23(1), 3-54.

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

Rief, S.F. (1993). *How to reach and teach ADD/ADHD children*. West Nyack, NY: Center for Applied Research in Education.

Rimm, S.B. (1994). *Keys to parenting the gifted child*. Hauppauge, NY: Barron's.

Rittenhouse, R.K. & Blough, L.K. (1995). Gifted students with hearing impairments: Suggestions for teachers. *Teaching Exceptional Children*, 27(4), 51-53.

Robinson, A. (1990). Opportunity to achieve: Identifying mathematically gifted black students. *Contemporary Educational Psychology*, 15, 1-12.

Robinson-Zanartu, C. (1996). Serving Native American children and families: Considering cultural variables. *Language, Speech and Hearing Services in Schools*, 27, 373-384.

Rogers, K. & Silverman, L. (1997). *A study of 241 profoundly gifted children*. Denver, CO: Gifted Development Center.

Rohrer, J.C. (1995). Primary teacher conceptions of giftedness: Image, evidence, and

- nonevidence. *Journal for the Education of the Gifted*, 18, 269-283.
- Romero, M.E. (1994). Identifying giftedness among Keresan Pueblo Indians, the Keres study. *Journal of American Indian Education*, 34(1), <http://jaie.edu/v34Slide.htm> (Retrieved August 1, 2002).
- Rymarczyk Hyde, C. (2001). Maori children with special abilities (MCSWA). *Gifted and Talented Students*. Ministry of Education, Wellington, New Zealand.
http://www.tki.org.nz/r/gifted/pedagogy/maori_students_e.php (Retrieved November 18, 2002).
- Sargent, M. (1984). Adolescent suicide: Studies reported. *Child and Adolescent Psychotherapy*, 1(2), 49-50.
- Sarouphim, K.M. (1999). DISCOVER: A promising alternative assessment for the identification of gifted minorities. *Gifted Child Quarterly*, 43(4), 244-251.
- Sarouphim, K.M. (2000). Internal structure of DISCOVER: A performance-based assessment. *Journal for the Education of the Gifted*, 23(3), 314-327.
- Scaldwell, W.A., & Frame, J.E. (1985, October). Prevalence of otitis media in Cree and Ojibway school-children in six Ontario communities. *Journal of American Indian Education*, 25, 1-5.
- Seiden, R. (1966). Campus tragedy: A study of student suicide. *Journal of Abnormal Psychology*, 13, 242-245.
- Shaffer, D. (1974). Suicide in childhood and early adolescence. *Journal of Child Psychology and Psychiatry*, 15, 275-291.
- Shneidman, E.S. (1971). Suicide among the gifted. *Suicide and Life-Threatening Behavior*, 1,

23-45.

- Shneidman, E.S. (1993). Suicide among the gifted. In E. Shneidman (Ed.), *Suicide as psychache: A clinical approach to self-destructive behavior* (pp. 61-91). Northvale, NJ: Aronson.
- Silverman, L.K. (1989). Invisible gifts, invisible handicaps. *Roeper Review*, 12, 37-42.
- Sisk, D. (1999). Emotional disturbance: USA perspective. In A. Young Baldwin & W. Vialle (Eds), *The many faces of giftedness: Lifting the mask*. (pp. 245-260). Belmont, California: Wadsworth.
- Solano, C.H. (1977). Teacher and pupil stereotypes of gifted boys and girls. *Talents and Gifts*, 19, 4-8.
- Solano, C.H. (1987). Stereotypes of social isolation and early burnout in the gifted: Do they still exist? *Journal of Youth and Adolescence*, 16(6), 527-538.
- Spicker, H.H., Southern, W.T. & Davis, B.I. (1987). The rural gifted child. *Gifted Child Quarterly*, 31(4), 155-157.
- Spicker, H.H., Southern, W.T. & Davis, B.I. (1991). The rural gifted child. In R. Jenkins-Friedman, E.S. Richert & J.F. Feldhusen (Eds.) *Special populations of gifted learners: A book of readings*.
- Spina, D.J. & Crealock, C. (1985). Identification and programming for the gifted and the gifted underachiever: A survey of the current situation in Ontario schools. *Canadian Journal of Exceptional Students*, 2(1), 8-13.
- Spirito, A., Brown, L., Overholser, J & Fritz, G. (1989). Attempted suicide in adolescence. *Clinical Psychology Review*, 9, 335-363.
- Starnes, W.T. (1988). *A study in the identification, differential diagnosis, and remediation of*

- underachieving highly able students*. Paper presented at the annual meeting, Council for Exceptional Children, Washington, DC.
- Sternberg, R.J. (1997). A triarchic view of giftedness: Theory and practice. In N. Colangelo & G.A. Davis (Eds), *Handbook of gifted education*. (2nd ed), (pp. 43-53). Boston: Allyn & Bacon.
- Sternberg, R.J. & Grigorenko, E.L. (2001). Ability testing across cultures. In Suzuki, L.A., Ponterotto, J.G. & Meller, P.J. (Eds), *The handbook of multicultural assessment* (2nd ed), (pp. 335-358). San Francisco: Jossey-Bass.
- Sternberg, R.J. & Zhang, L. (1995). What do we mean by giftedness? A pentagonal implicit theory. *Gifted Child Quarterly*, 39, 88-94.
- Suter, D.P. & Wolf, J.S. (1987). Issues in the identification and programming of the gifted/learning disabled child. *Journal for the Education of the Gifted*, 10, 227-237.
- Suzuki, L.A., Short, E.L., Pieterse, A. & Kugler, J. (2001). Multicultural issues and the assessment of aptitude. In Suzuki, L.A., Ponterotto, J.G. & Meller, P.J. (Eds.) *Handbook of multicultural assessment* (2nd ed). (pp. 359-382), San Francisco: Jossey-Bass.
- Swanson, J.D. (1995). Gifted African-American children in rural schools: Searching for the answers. *Roeper Review*, 17, 4, 261-266.
- Terman, L.M. (1954). The discovery and encouragement of exceptional talent. *American Psychologist*, 9, 221-230.
- Tomlinson-Keasey, C., Warren, L. & Elliott, J. (1986). Suicide among gifted women: A prospective study. *Journal of Abnormal Psychology*, 95, 123-130.
- Tonemah, S.A. (1987). Assessing American Indian gifted and talented students' abilities. *Journal*

for the Education of the Gifted, 10, 181-194.

- Torrance, E.P. (1981). *Thinking creatively in action and movement*. Bensonville, IL: Scholastic Testing Services.
- Tucker, B. & Hafenstein, N.L. (1997). Psychological intensities in young gifted children. *Gifted Child Quarterly, 41*(3), 66-75.
- Udall, A.J. (1991). Gifted learning disabled students: Questions and answers. *Update on Gifted Education, 1*, 11-15.
- Ukrainetz, T.A., Harpell, S., Walsh, C. & Coyle, C. (2000). A preliminary investigation of dynamic assessment with Native American kindergartners. *Language, Speech, and Hearing Services in Schools, 31*, 142-154.
- Vail, P.L. (1989). The gifted learning disabled student. In L.B. Silver (Ed.) *The assessment of learning disabilities: Preschool through adulthood*, (pp. 135-160). Austin, TX: Pro-Ed.
- Webb, J.T. (1995). Nurturing the social-emotional development of gifted children. *Teaching Exceptional Children, 27*(2), 76-77.
- Webb, J.T. (2002). *Mis-diagnosis and dual diagnosis of gifted children*. Paper presented at the annual convention, American Psychological Association, Washington, DC.
http://www.sengifted.org/mis_diag.htm (Retrieved May 28, 2002).
- Webb, J.T. & Kleine, P.A. (1993). Assessing gifted and talented children. In J. Culbertson & D. Willes (Eds.) *Testing young children* (pp. 387-407). Austin, TX: Pro-Ed.
- Webb, J.T. & Latimer, D. (1993). ADHD and children who are gifted. *Exceptional Children, 60*(2), 183-184.
- Webb, J.T., Meckstroth, E.A. & Tolan, S.S. (1982). *Guiding the gifted child*. Columbus, OH:

Ohio Psychology Publishing Company.

- Weiner, B. (1994). Ability versus effort revisited: The moral determinants of achievement evaluation and achievement as a moral system. *Educational Psychologist, 29*, 163-172.
- Western Australia Department of Education. (2001). *Gifted and talented - gifted geographically-isolated students*. www.eddept.wa.edu.au/centoff/gifttal/giftSGEO.htm (Retrieved September 18, 2001).
- Whitmore, J.R. & Maker, C.J. (1985). *Intellectual giftedness in disabled persons*. Rockville, MD: Aspen.
- WHO/CIBA. (1996, November). *Prevention of hearing impairment from chronic otitis media*. Report of a WHO/CIBA Foundation workshop, London, U.K.
<http://www.who.int/pbd/Docs/COM-Cover-sum.html> (Retrieved July 18, 2001).
- Wilgosh, L. & Mulcahy, R. (1993). Cognitive educational models of assessment, programming and instruction for native learners. *Canadian Journal of Native Education, 20*(1), 129-135.
- Wilgosh, L., Mulcahy, R. & Watters, B. (1986). Assessing intellectual performance of culturally different Inuit children with the WISC-R. *Canadian Journal of Behavioural Science, 18*, 270-277.
- Winner, E. (1996). *Gifted children: Myths and realities*. New York: Basic Books.
- Winner, E. (2000). The origins and ends of giftedness. *American Psychologist, 55*(1), 159-169.
- Winzer, M. (1999). *Children with exceptionalities in Canadian classrooms* (5th Ed.). Scarborough, ON: Prentice Hall Allyn & Bacon Canada.
- Zentall, S., Moon, S., Hall, A. & Grskovic, J. (2001). Learning and Motivational Characteristics

of Boys With AD/HD and/or Giftedness. *Exceptional Children*, 67(4), 499-519.

Zettel, J. (1980). *Gifted and talented education from a nationwide perspective*. Reston, VA: Council for Exceptional Children.

Zorman, R. (1997). Eureka: The cross-cultural model for the identification of hidden talent through enrichment. *Roepers Review*, 20, 54-61.