ASSESSMENT OF INDIVIDUALS WHO ARE GIFTED AND TALENTED

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ABSTRACT

Providing specialized services to a specific population requires assessment and identification procedures to avoid providing services to those who are ineligible to receive them as well as ensuring that eligible individuals are provided the services intended for them. Education of the gifted is such a specialized service, and so, assessment procedures are necessary for this population. Special educational programs are not an entitlement for individuals who are gifted as they are for individuals with disabilities. Consequently, operational definitions and procedures vary widely across states and even across school divisions within states. Therefore, the present paper summarizes characteristics that are considered to be early markers of giftedness and discusses some of the ways that they can be assessed. Problems in assessment (e.g., ceiling effects on norm-referenced measures, and difficulties in assessing creative aspects of performance) are also discussed. In the absence of consistent definitions and formal measures that are able to tap aspects of the definition with reliability and validity, assessment and identification of individuals who

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are gifted is likely to remain an impressionistic task in which individuals are compared to poorly defined prototypes of what it means to be gifted.

Keywords: Assessment; gifted; identification; conception of giftedness/talented; measurement issues

Assessment can serve many purposes. Among the more prominent of these in educational settings, particularly in special or exceptional education are (a) eligibility, (b) program development, and (c) progress monitoring. Special education is here defined as any manner instruction that systematically differs from that provided to all individuals in a given setting. Federal legislation define special education as: specially designed instruction, delivered at no cost to the parents, to meet the unique needs of a child with a disability … (Individuals with Disabilities Improvement Act of 2004, 20 U.S.C., 2005). Individuals with disabilities are afforded an entitlement to special education, hence the "at no cost to parents" clause. However, minus the entitlement, individuals considered to be gifted and talented and receiving specially designed instruction to address their unique needs and abilities, are considered to be receiving special education.

Educational funding is a complex issue (Plecki & Casteañeda, 2009), but in an environment where funds are limited and money spent for one purpose is gone and unlikely to be replaced by funds for other purposes, special services and supports must be rationed. If a given service is available to only a part of the population, it is necessary to identify that part of the population in some way so that decisions can be transparent and replicable. That is the primary function of eligibility assessment. If the educational program is unaltered by identification of a given characteristic, it is difficult to understand why the eligibility distinction would be made at all. However, if eligibility confers access to some element of the education system that is unavailable to every student, eligibility assessments are of critical importance.

Gifted education *should* confer access to some element of the educational system that is of benefit to the students who receive it and also would not benefit other students to the same extent *if* they received it; therefore, assessment of eligibility for gifted education is an important issue. Also, if gifted education programs are to confer differential benefits to the students who receive them, assessment of performance after admission to an instructional program is also essential.

The salutary nature of gifted education programs is not universally endorsed. For example, the suggestion that parents should retain an educational consultant to increase the chances that their children should be admitted to the district's "gifted" [sic] program was attacked as simply, wrong (Murray, 2013). Murray continued to question the reasons that parents seem to believe that they have failed if they cannot get their children out of the general education program, even in one of the better school districts in the country as well as why the area "suddenly has so many gifted or advanced students that we have to turn the school system upside down to segregate and serve them all" (para 3). Other research (e.g., Marsh et al., 2008) suggests that academic self-concept is lower for individuals of equal ability when attending schools where the average ability levels of classmates is high, and higher when attending schools where the school-average ability is low.

Conversely, Yee (2013) described the increasing use of ability grouping in New York City schools as well as the suggestion made by a candidate for political office that the number of gifted programs should be increased and that the admission criteria should be broadened to increase diversity. Yee also reported that the city's Education Department speculated, "using criteria other than tests would dilute the classes" (para 7). In support of expanded and specialized programs for gifted students, Hertberg-Davis (2009) suggested that teachers lack the time, preparation, and skills to adequately meet the needs of highly competent students in general education classrooms.

The intensity of the positions conveyed in the previously cited newspaper articles and the prevalence of scholarly papers on the topic suggests that gifted education is currently a topic of concern to many educators, parents, and political leaders. Regardless of one's position on the advantages or need for special education of individuals who are considered gifted, it is necessary to identify and describe the characteristics that set these individuals apart from the rest of the population.

CHARACTERISTICS OF INDIVIDUALS WITH SPECIAL GIFTS AND TALENTS

From an international perspective, the major consensus is that there is really no clear conception of what giftedness means (Stoeger, 2009). In fact, there is probably no clear consensus of giftedness even within the United States. Hertzog (2009) went so far as to state, "Almost every school district in the United States has its own way of identifying gifted

children" (p. 205). Nevertheless, schools, educators, and psychologists regularly go about the business of identifying individuals as gifted or lacking sufficient evidence of whatever traits they are measuring to indicate giftedness.

At present, the most prominent definition of gifted and talented is found in the Javits Gifted and Talented Act (National Society for the Gifted and Talented, 2013). The original definition was updated in a proposal from the U.S. Department of Education in 1993:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others their age, experience, or environment. These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided in the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (U.S. Department of Education, 1993, p. 3)

States are not required to use the definition, however, many states that have formal definitions of gifted and talented have adapted this definition as a guidepost.

The problem with the federal definition is that it is a conceptual rather than an operational definition. In the absence of a clear set of operationally defined characteristics (e.g., mammals are warm-blooded vertebrates having mammary glands in the female, a thoracic diaphragm, and a four-chambered heart, *Collins English dictionary*, 2009) individuals move to a prototype definition which is a concept with a "fuzzier" boundary (Rosch & Lloyd, 1978). Colors, for example, are prototypical concepts. There is a central indicator (think primary colors) surrounded by a range of acceptable variability. At some point, a pale blue becomes so light that it is more correctly considered white. Where that boundary lies is probably variable among different individuals. Both operations and prototypical definitions help people categorize phenomena. "Without their ability to categorize, people would not be able to deal with the multitude of things they perceive daily" (Rorissa & Iyer, 2008, p. 1383). Lacking a strong operational definition, the constructs of gifted and talented are probably examples of prototype constructs.

As is the case with theories of intelligence (Sternberg, 1990), individuals hold implicit theories of giftedness. Sternberg (1995) enumerated five dimensions of the implicit definition of giftedness. These are:

1. *Excellence*: superiority in some dimension or set of dimensions relative to peers.

2. *Rarity*: an attribute displayed at a high level that is rare relative to peers.
3. *Productivity*: the rare excellence must lead to or potentially lead to productivity.
4. *Demonstrability*: superiority must be demonstrable through one or more tests that are valid assessments.
5. *Value*: superior performance in a dimension that is valued for that person by his or her society.

Sternberg pointed out that while these dimensions appear to have wide prevalence in society, wide endorsement alone does not confer proof. After all, at one point in time, it was widely held that the sun moved around the earth.

Callahan (2011) also speculated that *creativity* and the *age at which the abilities emerge* might be elements that merit consideration. Renzulli (2005) suggested that rather than searching for "gifted individuals," we should be searching for *gifted behaviors*. His reasoning was that while high ability is a stable trait, the commitment to a given task and creativity that results from mastery is linked to certain times and experiences.

Across the history of research on giftedness, it is clear that these dimensions have gained and receded in prominence (Stoeger, 2009); however, they are likely to influence decisions for referrals for consideration of an individual and interpretations of eligibility data within the implicit definitions concerned individuals hold. Implicit definitions have the problem of being virtually invisible until they break down (i.e., there is a problem or disagreement (Bowker & Star, 1999); Therefore, it is necessary to describe ways in which the implicit elements can be explicitly measured. That is the purpose of the next sections.

ASSESSING ELEMENTS OF THE GIFTED PROTOTYPE

Excellence

Searching for excellence in children is a problematic task. Excellence takes time to develop. Current theories suggest that 10,000 hours of devoted effort are required to produce excellence (Coyle, 2009; Gladwell, 2008). Assuming that an individual devoted an eight-hour day with no interruptions every day, about three and a half years would go by before the number of hours would be amassed. Giving the individual a couple of days off

for weekends raises the time to nearly five years. That is, if the individual did nothing but work on the area of talent. It is clear that effort is the primary determinant of excellence (Bloom, 1982; Ericsson, Krampe, & Tesch-Römer, 1993). Even though Bloom suggested that effort was more of a contributor to outcome than ability, he noted that parents of highly accomplished adults often reported that they noted impressive qualities in their children as early as age five. The challenge for assessment here is noting potential for excellence before it truly has the opportunity to emerge.

Early Markers of Excellence

Bloom (1982) examined highly competent individuals who had attained high status as Olympic swimmers, pianists, or research mathematicians before the age of 35. Across all of these fields of endeavor, three elements emerged as constants for highly competent individuals (a) willingness to work, (b) competitiveness, and (c) rapid learning rates. These ideas remain prominent in more recent considerations of giftedness (e.g., Dweck, 2009; Geake, 2009; Matthews & Folsom, 2009).

Willingness to Work. Emphasis on willingness to work represents a shift in thinking about giftedness from ability to competency (Subotnik & Jarvin, 2005). The idea is whatever ability the individual possesses can be enhanced through striving to meet or exceed high standards. Hard work, particularly in the early stages of learning is essential for developing sufficient competence to meet the criteria for giftedness (Sternberg, Jarvin, & Grigorenko, 2011). The importance of this marker is underscored by the observation that individuals sometimes demonstrate dramatic differences between what metrics such as IQ tests predict and what they actually accomplish (Brown et al., 2005).

Competitiveness. Competitiveness and determination to do one's best is another marker of giftedness. It has much to do with motivation for performance (Sternberg et al., 2011). In Bloom's (1982) conception, competitiveness was most often manifested toward other children, particularly siblings. More recent work regarding motivation orientation suggests that competing against others or even a set standard can promote performance outcomes, but a more productive focus of competitiveness is against oneself (Morrone & Pintrich, 2006). Nicholls (1989) described two types of orientation, ego orientation in which one desires to establish one's superiority relative to others, and task orientation in which performing, understanding, or completing tasks are important in their own right. In task involvement,

individuals express competitiveness by trying to outdo themselves, not others. Engagement in tasks or competition with oneself results in far greater accomplishment than competition against others or set criteria. Once an individual has bettered another or a criterion, there is little reason to pursue additional competence, but if one is pursuing the task or trying to excel beyond one's previous performance, the goal is constantly changing and increasing.

Rapid Learning Rate. Learning abilities vary widely both between individuals on the same tasks and within individuals on different tasks (Gettinger & White, 1979; Orvis, Horn, & Belanich, 2009). In fact, Bloom (Bloom, 1974) described mastery learning studies in which more than 90% of the participants attained mastery given necessary support and adequate motivation to learn. In learning tasks, holding outcome as constant requires that time be variable. These studies suggested that ratios as large as 5:1 are very likely between the fastest learners and the slowest learners (it should be noted that this ratio holds for learners who attain preset levels of mastery). Bloom and others suggest that IQ tests are good predictors of time to learning mastery; however, others (e.g., Gettinger & White, 1979) suggest that time to learning criterion is a better indicator of long-term academic learning outcomes than are measurements of general intelligence.

Rapid learning appears to be domain-specific for many gifted individuals (Plucker & Barab, 2005; VanTassel-Baska, 2005). It is worth noting, however, that other authors (Silerman, 2009) place more emphasis on conceptions of general abilities than specific, highly developed abilities. Regardless of emphasis, speed and relative ease of learning is associated with giftedness.

Summary

These early markers are indicators of giftedness, but they are insufficient evidence to determine the presence of giftedness because they can be highly subjective. Students who please their teachers in their classroom department are more likely to be viewed as competent than are those who are more abrasive (Southern & Brigham, 1996). Additionally, some individuals may appear highly competent in one peer group but not in another. These elements may be subjective and somewhat open to question; however, they are the basis for many informal screening decisions about which students might be referred for evaluation to determine qualification for gifted programming.

Rarity

All forms of exceptionality, whether at the high or the low end of the distribution, require the demonstration of rarity. If the characteristics of the individual are prevalent in the population it is difficult to understand how the characteristics represent anything but typicality. Comparing individuals to the variability of the population rather than some standard requires normative assessment. A normal distribution occurs when characteristics are randomly distributed and a sufficient number of observations are made within the population (Moore, McCabe, & Craig, 2012). Scores fall in predictable relationship to the population at or below (and conversely, above) a given point in the distribution; therefore, assessments that produce scores along a normal distribution are valuable in determining rarity of a given level of performance. Prevalence estimates for giftedness have historically ranged from 2% to 16% of the population, depending on the definition used (Callahan, 2011).

IQ tests and standardized achievement tests are two empirical ways of demonstrating rarity of performance. As is the case for all forms of comparison, these measures have their limitations. Nevertheless, if practitioners desire a form of normative comparison, there are few other alternatives. There are alternatives to traditional measures of intelligence and achievement (discussed later) but the important point is that they, in order to demonstrate rarity, are normative in nature.

Productivity

It is one thing to have attained a high score on an achievement measure or a measure of intellect, it is quite another to accomplish something with the measured abilities. Clearly, with younger children, potential rather than productive accomplishment is the target for evaluation, but, with older individuals, actual demonstration of productive accomplishment is possible. Portfolio assessment is a promising method for assessing or demonstrating productive potential or actual productivity (Arter & Spandel, 1992; Johnsen, 2008).

Wyatt and Looper (2004) described portfolios as personal collections of artifacts and reflections about one's accomplishments, learning, strengths, and best works. They also suggested that portfolios can serve different purposes. These purposes include showing

- growth (developmental portfolio),
- best works (showcase portfolio), or
- total output (comprehensive portfolio).

Portfolios have the benefit of flexibility and focus on the given individual. Portfolios appear to allow members of nondominant cultures and some highly creative individuals to communicate their ideas through a variety of ways that may not be reflected in typical assessment procedures (Hadaway & Marek-Schroer, 1992; Southern & Brigham, 1996). In short, the portfolio can lead evaluators to consider the individual in ways that might not be as highly valued in many educational settings. Portfolios, like all other forms of assessment, have their limitations. Among the most serious limitations of portfolios is the repeated failure to demonstrate reliability in evaluation outcomes (Gearhart & Herman, 1998; Gearhart & Osmundson, 2009; Meeus, Van Petegem, & Engels, 2009). Problems with reliability call the validity of the process into question (Brigham, Berkeley, & Walker, 2012). At present, the use of portfolio assessment is probably justified so long as the evaluator(s) understand the potential pitfalls. It appears that the kinds of errors that are produced in portfolio applications are random rather than systematic bias in one direction or another (but note that Virginia's alternative portfolio assessment for individuals with disabilities was criticized for over-estimating student capabilities, Chandler, 2010). Johnsen (2008) suggested that establishing a purpose for the portfolio as well as clear guidelines for evaluating its contents can improve the functionality of this kind of assessment. Until methods with better psychometric properties and adequate utility for measuring productivity emerge, use of portfolios with caution seems the better course of action for identifying individuals as gifted. It might be argued that using a liberal definition of productivity or potential for productivity for eligibility, and then examining subsequent portfolios for evidence of response to educational opportunity is a profitable use of these techniques.

Demonstrability

Performing artists have a saying, "potential is interesting, performance is everything" (M. M. Brigham, personal communication, June 6, 2013). The saying fits with current conceptions of giftedness that are based on continued demonstration of the target characteristics as a modifiable state rather

than a trait that is fixed characteristic. Renzulli and Callahan (2008) described a method of *product assessment* that is potentially useful for this element of giftedness. They noted that most assessments employed by schools (e.g., end of course tests) are calibrated to what is expected of typical learners rather than the elevated expectations that are appropriate for gifted learners. "Any goals that suggest the integration of sophisticated, complex, and in-depth understanding; creative productivity; the investigation of authentic problems; the use of alternative means of expression; or performance that emulates or represents that of professionals must be assessed using performance and product assessment" (Renzulli & Callahan, 2008, p. 259).

Performance and product assessment involve students actually carrying out applied iterations of their learning. Examples include the application of scientific method to studying an actual problem (Shavelson, Baxter, & Pine, 1992) or writing an essay analyzing conflict in a literary work (Niemi, Wang, Steinberg, Baker, & Wang, 2007). The criteria for evaluating the quality of work produced by gifted learners should be its similarity to that of domain-experts (Baker & Schacter, 1996).

Wiggins (as cited in Renzulli & Callahan, 2008) provided several questions that can be used to evaluate gifted learners' products. These include:

- Does the product created solve a problem? Does it persuade an audience? (Degree of effectiveness)
- Is the product outstanding in its class? Is it novel? Is the product ethical? (Level of quality)
- Is the process of creation purposeful? Was the process efficient? Was it adaptive? Was the creator self-critical? (process)
- Was the process of creation thoughtful (considerate, responsive, inquisitive)?
- Does the student use appropriate skills? These tasks would be linked to the task and product and would be situation-specific for each product (p. 268).

Finally, Renzulli and Callahan cautioned against judging student work on anything other than what they actually produce. "Halo" effects result from giving preferred students the benefit of the doubt, or evaluating effort rather than outcome. Such practices inflate the quality of student work and give false estimates of actual competence. Conversely, teachers may underestimate the quality of student work if they expected more from their students than they communicated.

Value

Value in giftedness is not an aspect of the individual, but an interaction of the individual's capabilities with the interests of the community. At present, science, technology, engineering, and mathematics (STEM) are the announced values of the national community in the United States. That does not mean that individuals who have strong abilities, for example, in the arts or in historical analysis are no longer able to be considered gifted, but that it is increasingly difficult to convince policy makers and leaders of schools and communities to direct resources to lesser-valued areas.

It is foolish to conceive that every strong ability of a student as representative of giftedness. It stretches credibility to speak of career criminals as gifted swindlers; therefore, boundaries are justified. Where the boundaries lie are matters of social construction and political discourse. Communities are probably better off with broader considerations of giftedness than focusing only on current interests. Although the relation of gifted individuals to the economic development of a society is clear (Shavinina, 2009), it is complex and varied. A community without STEM is unproductive; a community without the arts and humanities is soulless.

COMMON PROCEDURES

Giftedness is a "judgmental" category with poor definitions and few consistent criteria or procedures applied to identification across schools or states (Callahan, 2011). As a result, giftedness can be identified through observations, rating scales, checklists, and standardized tests (Callahan). Nevertheless, some procedures are frequently recommended to identify individuals as gifted. These include measures of intelligence (IQ tests), achievement tests, and measures of reasoning, creativity, and/or problem solving (Robinson, 2008). Each of these measures is associated with a number of benefits as well as a number of detrimental features. Space does not permit a lengthy treatment of any individual measure. Entire volumes have been written on some of the measures that are mentioned in the next section. Rather than in-depth treatment of any specific procedure, the next section provides brief descriptions of the types of measures available as well as the benefits and limitations of the measures.

The requirement described earlier that giftedness be rare in the population points to the need for norm-referenced measures to determine the

standing of the individual relative to the population. In norm-referenced assessment, the meaning of the individual's performance is determined by comparison to the members of the norm group. Such comparison requires that the measures be standardized (conducted in the same manner for each respondent) so the comparisons are meaningful. Therefore, the next section deals with standardized measures only.

Ceiling Effects

Norm-referenced measures are assumed to reflect the full range of the population with adequate representation to make meaningful comparisons. Gifted individuals, by most definitions, are found in the extreme high end of the distribution. Many norm-referenced tests lack a sufficient number of items in either the high or the low extremes to adequately represent the variance of that part of the population. As a consequence, very high performers may cluster at the top of the score distribution, not because their abilities are so similar, but, rather, that the tests do not allow an adequate dispersal of their scores to discriminate abilities within that part of the distribution (McIntosh, Dixon, & Pierson, 2012). Under such conditions of constrained variance, the measures may be of somewhat limited value for program planning and monitoring growth. Some instruments (e.g., the WISC-IV; Zhu, Cayton, Weiss, & Gabel, 2008) have produced extended norms; however, evaluators and program planners should be aware that the utility of such measures in either extreme of the distribution becomes increasingly limited as performance diverges from the mean.

IQ Tests

It is logical that intelligence is among the most common attribute measured in individuals who might be gifted. Traditional conceptions of giftedness have focused on intelligence as the primary, if not exclusive, marker variable. Intelligence tests were originally developed as diagnostic tools to determine which students should receive special education. Although gifted education is not an entitlement as is education for individuals with disabilities, it does fit the definition of special education that appeared at the beginning of the chapter.

There are two general classes of IQ tests, individually administered tests (e.g., the Stanford-Binet Intelligence Test; Roid, 2003) and group tests

(e.g., Cognitive Abilities Test [CogAT]; Lohman & Hagen, 2002). Individually administered tests are preferred when the consequences of eligibility determination are high. Group measures are better reserved for screening determinations in which a subset of the population is identified for later, more detailed evaluation.

There are two sub categories within the general classifications of IQ tests, traditional measures and nonverbal measures. Nonverbal measures have become increasingly popular in the past decade, particularly in use with individuals from backgrounds other than the dominant culture and speakers of other languages than English. Traditional IQ tests frequently failed to identify members of these groups as gifted in numbers proportional to population estimates. They were, therefore, considered to be potentially biased.

The term *nonverbal test* is actually misleading. Ortiz, Ochoa, and Dynda (2012) noted that these measures are better characterized as language-reduced tests because any evaluation requires the evaluator and individual being evaluated to communicate with each other. They continued that culture, although critically associated with language, is not eliminated simply because language demands are reduced. Callahan (2011) noted that the assumption that the use of nonverbal tests will result in identification of a higher proportion of minority students as gifted has only inconsistent support. An additional issue with nonverbal assessments is their relationship to the highly verbal nature of academic learning. In many cases, the predictive validity of nonverbal tests for academic learning is questionable (VanTassel-Baska, 2008). Nevertheless, nonverbal measures, used in combination with other measures, including traditional IQ test, may create a more clear understanding of the abilities and potential of a given individual. Relying on one or another measure to the exclusion of other data sources is usually bad assessment practice.

Achievement Tests

Achievement is another critical aspect in identifying gifted individuals and, like IQ tests, achievement measures are available in both individual (e.g., The Wechsler Individual Achievement Test; Psychological Corporation, 2009) and group-administered (e.g., the Scholastic Aptitude Tests-II Measures of Achievement). Many of these measures are designed to tap mastery of basic elements of the curriculum, and so may focus on learning that some gifted individuals have attained long before their age mates.

In an effort to find measures that are of greater utility for high-performing individuals, some authors (e.g., Olszewski-Kubilius & Kulieke, 2008) advocate "off-level testing," the practice of using tests designed for older students with younger students when they serve a given purpose.

Olszewski-Kubilius and Kulieke (2008) suggested that purposes for off-level testing include measuring exceptional achievement, aptitude or cognitive abilities as well as evaluating growth after programmatic interventions. The SAT and ACT, two tests generally associated with college admissions procedures, are often considered for off-level assessment. These measures were initially developed as norm-referenced comparisons so interpretation of off-level test results can be challenging. Evaluators wishing to engage in off-level testing should investigate the nature of the test they wish to use, and carefully consider the ways that the results might be useful for their decisions. For students whose areas of competency are outside of the traditional domains measured by instruments such as the SAT and ACT, product assessment procedures (Renzulli & Callahan, 2008) described earlier in this chapter appear to be a more direct and useful manner of assessment.

Tests of Creativity

Creativity, problem solving, and divergent thinking are other important indicators of giftedness (Lohman, 2009). Guilford (1968) noted that IQ tests do not measure creativity. Achievement tests are focused on convergence of performance rather than divergence (Cramond & Kim, 2008). Torrance (1976) suggested that omitting measures of creativity from assessments fails to capture a substantial proportion of the top quartile of creative students. Additional support for considering creativity emerged in Kim's (2008) meta-analysis of the relationship of creative achievement to IQ tests and tests of divergent thinking. Although the correlations were modest, tests of divergent thinking predicted subsequent creative accomplishment ($r = 0.22$) better than IQ scores ($r = 0.17$). This predictive relationship held in every area of accomplishment considered *except* music where IQ was the better predictor.

Several measures of creative potential are available, including The Guilford Divergent Thinking Tasks (Guilford, 1967), Wallach and Kogan Divergent Thinking Tasks (Wallach & Kogan, 1984), The Mosaic Construction Test (Hall, 1972), and the Torrance Tests of Creative Thinking (TTCT, Torrance, 1966, 2008). Of these, the TTCT is most highly

correlated with subsequent creative achievement, and yields a correlation coefficient that is nearly three times greater than IQ scores (Kim, 2008).

Creativity is not a trait with which is born, but a state into which one grows (Weisberg, 1986). Therefore, measurement of the construct in children and youths is tapping the potential for creativity more than its actual manifestation. Measurements of creativity are probably inter-related with IQ and achievement, even though they appear to tap a different aspect of the individual's abilities than do measures in the other domains.

CONCLUSION

Giftedness is a construct that lacks consistent, formal definition but appears to have a prototypical representation that contains a number of informal constructs. These constructs include superiority in some dimension or set of dimensions relative to peers (excellence). Further, the excellence manifested by the individual should be unusual within the population, and result in demonstrable productivity that is most likely to be noticed in areas valued by the individual's society. Accomplishment associated with the prototype understanding of giftedness takes a great deal of effort expended for a substantial amount of time. Consequently, identification of children and youths as gifted requires examinations of predictors of these outcomes.

Several predictors of later creative outcomes are available. These include, high intellectual ability as measured by IQ tests, rapid mastery of learning through instruction as measured by achievement tests, and indicators of creative problem solving and as measured by tests of creativity.

All of these measures have potential benefits in identification and assessment of gifted individuals as well as a number of limitations. For example, traditional IQ tests are often believed to favor members of the dominant culture. Nonverbal IQ tests have been purported to offset the potential bias in standard IQ tests, but their predictive validity to academic performance remains questionable.

Achievement tests probably focus too much on elements of the curriculum that gifted individuals mastered earlier than their peers. Off-level testing might allow better understanding of the performance of these individuals on academic tasks; however, interpretation of the results of norm-referenced tests given to children who are younger than the intended population is often difficult. Portfolio and product assessment have

potential for useful evaluation of the accomplishments of gifted individuals but do not translate easily to the standards represented in norm-referenced measures.

IQ tests and achievement measures capture only a part of the range of meaningful human abilities. Tests of creativity appear to offset this limitation, but their correlations with later creative attainment are only modest. Nevertheless, they add to the complete understanding of gifted individuals in areas other than music where IQ tests remain the better predictors.

Assessment professionals wrestle with the limitations and salutatory attributes of measures in all forms of assessment and evaluation. The search for a perfect measure is hopeless, but by combining better measures of different but complimentary attributes, and with a liberal dose of professional judgment and the understanding that giftedness is demonstrated through accomplishment rather than a simple set of high scores (Lohman, 2009), educators, evaluators, and parents are able to make better and more just predictions of which children and youths will benefit most from special education programs for the gifted and talented.

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PLACEMENT OF STUDENTS WHO ARE GIFTED

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ABSTRACT

Placing gifted and talented students together organizationally is not a substitute for appropriate services. The placement or program model fundamentally serves as a vehicle to group or organize students together but programming, in practice, sometimes referred to as a service delivery model, is not the same thing as service. Placement is a management strategy. It must be coupled with curriculum and instructional modifications in order for substantial and positive academic and social–emotional effects to occur for gifted and talented students. Specifically, the program placement model is only as good as the curriculum and instructional models provided within that placement. This chapter provides descriptions and research evidence of the macro program models used for serving gifted students and more commonly used program placement models for grouping gifted students together within the traditional school day and beyond. Non-negotiable components and future directions are also discussed within the context of placement.

Keywords: Gifted service delivery; gifted programs; grouping; differentiation

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