Domain-Specific Giftedness

Applications in School and Life

Joyce VanTassel-Baska

Our conceptions of giftedness vary greatly based on cultural and genetic assumptions about intelligence – what it is and what it is not. Whether we ascribe to a view of g-factor intelligence, which is well supported in the literature (Jensen, 1998; Carroll, 1993), or a more domain-specific orientation to intelligence (Gardner, 1983; Benbow & Stanley, 1996), which also has a substantial literature base, it affects our conception of giftedness in important ways that in turn affect our ways of interpreting it in school for identification and programming purposes and in life for purposes of college and career planning and development.

Conceptions of giftedness that focus on domain-specific considerations hold the most promise for promoting talent development in individuals at all stages of development because of the capacity to make appropriate correspondences between aptitudes and interventions, between predispositions and interests, and between the life of the mind and creating a life in the real world. Although general intelligence thresholds matter in real-world and school-based problem-solving situations, the level of g necessary to function at very high levels in specific domains remains debatable (Tannenbaum, 1996) and may depend greatly on a particular discipline or field (Jensen, 1998).

This chapter explores the theories and applications of domain-specific giftedness as they have been articulated to date and analyzes how they differ from other conceptions of giftedness. The chapter concludes with applications of a domain-specific conception of giftedness to practice in the areas of identification, curriculum and instruction, and assessment in school and beyond.

WHAT IS GIFTEDNESS?

In a domain-specific conception of intelligence, giftedness becomes the manifestation of intelligence within specific domains at very high levels.
Domain-Specific Giftedness

Research on prodigies fits nicely into this orientation, as they are individuals with extraordinary abilities in a specific area at a young age (Feldman, 1991). So, too, does research on eminence suggesting that individuals across cultures and time periods create products in specific domains (Simonton, 1994, 1999; Piirto, 2004).

Yet, giftedness is about potential for creation as much as it is about the actual creation itself. Thus, a definition of domain-specific giftedness must retain an appreciation for evidence of potential as well as performance. To say that Mozart’s sister or Schumann’s wife had domain-specific ability in music and demonstrated it in several ways and on various occasions in their contexts is an important acknowledgment of their abilities, even though such promise was not fulfilled at the level of Mozart or Schumann as eminent musicians. In other words, giftedness is recognized in a temporal and spatial context that does not necessarily transcend across contexts to become universal for a variety of reasons that may include social, political, and/or individual circumstances.

There is also a need to acknowledge that giftedness is culturally bound and field-dependent (Csikszentmihalyi, 2000). In a world that is more and more specialized, the issue of the conversion of giftedness to eminence today is quite different from what it was 50 years ago. Today, discoveries or contributions are being accomplished in more specialized fields and many times by teams rather than just individuals. Nobel laureates in science, for example, typically have been awarded to two or more persons for a single contribution, the most famous example being Watson and Crick for their unraveling of DNA. This greater specialization within disciplines and the creation of new fields of knowledge renders the connection between giftedness and eminence all the more complex in that the possibilities in actual number for contributors increases as fields proliferate and resources follow to create systematic programs of research, yet diminish as the labyrinthine processes to secure credentials to such specialized fields increase. Ability without considerable preparation and experience in a specialized area stands little chance of making a societal contribution. How different from 18th-century England, when interdisciplinary enlightenment could emerge from individuals with high ability and modest formal preparation!

Giftedness then might be defined as follows:

Giftedness is the manifestation of general intelligence in a specific domain of human functioning at a level significantly beyond the norm such as to show promise for original contributions to a field of endeavor.

Thus, a conception of giftedness must entertain the idea of aptitude in domain-specific areas such as verbal, mathematical, scientific, artistic, and social, given a superior level of general ability. At the same time, it must embrace an understanding of “degrees of difference,” recognizing an
individual who is capable of performing at levels atypical within the
domain based on age or years in training, factors related to skill development,
or an actual performance or set of products completed that demonstrate
extraordinary ability. Finally, a conception of giftedness must presage the
potential for actual creative and/or productive performance in a given area
recognized as culturally valuable. This definition of giftedness then creates
a strong basis for the application of a talent development paradigm in the
realms of identification, instruction, and assessment.

HOW DOES THE DOMAIN-SPECIFIC CONCEPTION OF INTELLIGENCE
COMPARE WITH OTHERS?

As one considers the relationship among various conceptions of giftedness,
key factors appear to separate them. These factors include:

- multidimensional versus unidimensional perspectives
- the importance of intellective abilities versus nonintellective abilities
- global versus specific views of giftedness
- the role of creativity in giftedness
- the relationship of speed and complexity in judging giftedness

A domain-specific model of giftedness that focuses strongly on evidence
of advanced ability and performance represents a more unidimensional
view of giftedness in some respects than do many other models, for it is
doubly bounded. First, it is bounded by the specific domain within which
evidence of giftedness has been displayed, and, secondly, it is bounded
by a strong fusion of ability and aptitude for specialized work within that
domain that may narrow the conception even further. A linguist, for ex-
ample, may have strong domain-specific verbal skills, but has chosen to
develop particularized verbal skills as they relate to language learning as
opposed to literature, writing, or communication skills. Thus, the manifes-
tation of giftedness in the verbal area by necessity has narrowed in order
to go deeper into a specialty within the domain. This, it seems, is how gift-
edness works in the real world. Depth of focus in complex specialty areas
prevents the likelihood of “renaissance people” except in cases of very high
general intelligence. Although high g can and does affect real world prob-
lem solving, making connections, and performing at high levels within
chosen domains, it does not dominate the picture of domain-specific talent
development.

This domain-specific view is antithetical to several existing conceptions
of giftedness and more compatible with others. It is perhaps most antithet-
ical to conceptions of giftedness that proclaim nonintellective traits to be
at the same level of importance as intellective ones in defining giftedness
(Renzulli, 2002). It is my contention that constructs such as motivation,
task commitment, and even creativity are born of the talent development
Domain-Specific Giftedness

process itself and not part of giftedness per se. Hence, they are secondary considerations in thinking about the conception of giftedness, rather providing the fuel for the development of aptitude. Moreover, for purposes of identifying students in schools or selecting candidates for a job, evidence of these nonintellective traits is elusive, best seen over time as they emerge in performance.

The view is also antithetical to a pure or global g factor model of intelligence. Although the evidence for the presence of g is somewhat irrefutable (Jensen, 1998; Carroll, 1993), its utility in the real world of talent development is not. High g-factor intelligence that is not linked well to a specific domain of functioning in the modern world may bring great satisfaction to the individual but make little impression on the society that has spawned it. Practice and hard work appear to be the strongest nonintellective traits displayed by those who reach the heights of eminent performance (Ochse, 1990; Ericsson, 1996). Real-world productive and creative giftedness requires applications to fields and years spent in a career honing specific skills for particularized work. It is in this focusing over time that motivation, commitment, and creativity are built.

The conception is most compatible with Gruber’s (1981) evolving systems model of giftedness, which acknowledges strongly the domain-specific view nested in a set of evolving systems of personal motivation, a set of relevant skills, and connection to an evolving field of study. His in-depth case study of Darwin still stands as a prototype of understanding the processes at work in talent development. It also is compatible with Csikszentmihalyi’s (1996) idea of the role of context in conceptions of giftedness suggesting that cultural influences, including the field of interest to study, impacts strongly on the nature and direction that giftedness takes over a period of time. Studying creative success among older people reminds us of the importance of the connection to their area of expertise.

Gardner’s (1983) multiple intelligences model also has many commonalities with this view, especially in respect to domain specificity and the matching of intelligences to how disciplines of thought are organized. This idea is also reminiscent of the work of Phenix (1964), who posited “realms of meaning” within which human beings were able to manifest their abilities. Yet, the Gardner model does not acknowledge the role of general ability in its favoring of a more specific conception. In the conception offered here, levels of general intelligence tend to “broker” the manifestation of specific aptitude in an area.

Sternberg’s information-processing model of giftedness is highly complex and models well on our current level of understanding about how the mind works at a mechanistic level. His applied intelligence areas of analytic, synthetic, and practical mirror some aspects of real-world domain applications, yet they remain at a more abstract level where the integration of skills to create different patterns of organization in respect to them
accounts for giftedness displayed in various specific areas of human activity. The beauty of his conception of giftedness lies not so much in its separate features but its capacity to explain quite different real prototypes of performance at a complex level by focusing on preferred thinking styles employed. Yet a pure domain-specific conception of giftedness puts the same emphasis on the demands of disciplines and fields as on the abilities and aptitudes of individuals, a key facet of the Csikszentmihalyi (1996) view and that of Amabile (1996) as well. The transformation of giftedness from “in the mind” to “out in the world” requires the rigor of an organized body of learning to provide the grist for development. Sternberg’s model treats the importance of a knowledge base as a part of the system of intelligence, but assigns it a smaller role than most domain-specific models.

A domain-specific model of giftedness also is tilted equally in the direction of honoring complexity and speed in developing abilities and aptitudes. Clearly, prodigies reflect a strong emphasis on speed, yet even prodigies must overcome key transition periods in their areas of performance that require more complexity in their thinking and execution (Bamberger, 1975). Applications of giftedness almost always call for this same ordering – speed followed by complexity as the demands of performance areas become more advanced and rigorous to master, a model illustrated well in the longitudinal study of domain-specific abilities identified by talent searches over the past 20 years (Benbow & Lubinski, 1996).

Another difference in a domain-specific model of giftedness from ones that are more pure g or multidimensional is the role of creativity in the process. Recent studies have clearly demonstrated that creativity itself is domain-specific (Simonton, 1999; Amabile, 1996; Piirto, 2004). Thus, a view of giftedness that is domain specific is highly compatible with current conceptions of creativity as well. Creativity research suggests that the construct is an emergent quality based on a strong knowledge base, motivation, and creative skills relevant to a given domain. Such a viewpoint is consistent with considering creative production as an output, not an input, in respect to giftedness.

If intelligence involves the capacity to solve problems at higher levels, to develop high-level expertise in a discrete area, and to plan, monitor, and assess one’s work in a reflective manner, then giftedness must be an appellation reserved for those students who perform these feats at very high levels compared with same-age peers. At a simplistic level, then, giftedness may be considered evidence of advanced development across intellectual areas, advanced development within a specific academic or arts-related area, or unusual organizational power for bringing about desired results. Functionally, schools assess such development through the tools available to them, namely, tests, inventories, checklists, and student performance.
Domain-Specific Giftedness

### Table 20.1. Overview of Commonly Used Identification Tools

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Nontraditional</th>
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<tr>
<td>Intelligence tests</td>
<td>Nonverbal ability tests</td>
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<tr>
<td>Achievement tests</td>
<td>Creativity tests</td>
</tr>
<tr>
<td>Aptitude tests (domain-specific)</td>
<td>Student portfolios and performance by audition</td>
</tr>
<tr>
<td>Grades</td>
<td>Performance-based assessment</td>
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<tr>
<td>Teacher recommendations</td>
<td>Parent, peer, and community recommendations</td>
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</tbody>
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The Identification of Giftedness in Schools

In school-based settings, giftedness is most frequently identified by a combination of criteria. The tools most commonly employed are listed in Table 20.1. The increasing use of nontraditional tools demonstrates how dissatisfied the field of gifted education has become with using only traditional tools, which have not yielded enough students of color, students of low socioeconomic levels or students with uneven profiles. In recent years, both performance-based and portfolio approaches have gained favor and are included in several states’ identification guidelines (Karnes, 2000).

Issues surrounding the identification of gifted children have long been debated in the field of gifted education. In the gifted education literature, more citations exist on identification than on any other topic. Yet, identification remains one of the most common program development problems cited by school district personnel and state department coordinators administering programs and services to gifted children (VanTassel-Baska & Feng, 2004).

The difficult problems associated with identification of the gifted stem from a number of issues. One relates to whether giftedness should be thought of as absolute or relative. Because newer definitional structures are attuned to the idea of relativity, gifted educators today generally consider the context of the school, the nature of the student’s background, and the demands of the program as they make decisions about individual learners. A second issue relates to the range of individual differences within the group of learners who might be designated gifted. Gifted educators often tend to spend a great deal of time deciding who will be the last student in the program. However, cutting on a continuum of human ability is a risky venture that often is difficult to justify. And at the same time that such debates on identification rage, highly gifted students frequently lack extensive and intensive enough services because programs are far more likely to focus resources on the mildly gifted group, which may be larger and require attention based on parent demands for service. A third issue is the nagging concern that underrepresented groups are not adequately
being assessed for inclusion in gifted programs. Thus, testing becomes the proverbial messenger to be attacked, and the search goes on for a better instrument that may reveal greater parity in performance between underrepresented and mainstreamed groups.

Any one of these issues would put identification high on the list of concerns for local school districts’ planning and implementing gifted programs. The three taken together guarantee that identification will always be a controversial topic.

Until beliefs about identification change, little progress can occur in developing a system that resolves all of the issues noted. The task is not to identify only the highly gifted but also to locate students who demonstrate undeveloped intellectual potential in specific areas, including academic, artistic, and leadership domains. Moreover, the task is not to select students for all time but to select them for enhanced instructional opportunities that may benefit them at a given stage of development. Students in all gifted programs should be regularly reassessed for new opportunities and dropped from those that are not meeting their needs. Finally, the task is not to be gatekeepers to exclude students but rather to be custodians of student growth by recognizing discernible strengths and working with the school community to enhance them, whether that is done through the gifted program or another medium. Establishing numerical cut-offs on relevant criteria may be less useful than gaining a holistic assessment of the students being considered and matching programs to the strengths of that particular population.

Understanding current ideas about the act of identification may help deal with the difficulties inherent in the process, especially as educators move toward a paradigm of talent development:

1. **Giftedness is multidimensional.** Many studies and authors favoring newer conceptual definitions of giftedness acknowledge the multidimensionality of the phenomenon (Gardner, 1999; Sternberg, 1996). Some students are omnibus gifted, highly capable across many domains and areas. Yet the majority of gifted students have distinct profiles of strengths and relative weaknesses. Their abilities may be discerned by performance and not by paper-and-pencil tests. Their giftedness may not be evoked by the school environment but may shine in the context of community. Some may experience developmental spurts at key stages of development, revealing abilities that could not be discerned earlier. The interests of a student may be piqued at some stage, motivating him or her to develop abilities in relevant areas. All of these examples show that giftedness may be elusive in its manner and context of manifestation.

2. **Both genetic and environmental factors influence the manifestation of giftedness.** Individuals vary considerably in their ability to function
Domain-Specific Giftedness

effectively in various domains. Attention must be paid to the “rubber band” effect of human potential: Our genetic markers allow for expansive growth and development but not to an unlimited extent. We can stretch ourselves within a range that is based on the genetic potential we possess. The role of education is to provide the experiences that may stretch an individual’s potential in his or her areas of greatest flexibility for learning. This recognition of preexisting individual differences should help educators realize the folly of trying to find a “one size fits all” program of study or curriculum. As long as differentiated practices are reserved for labeled special populations, the spirit of individualized learning will be in jeopardy. Giftedness does not guarantee entitlement to educational privilege, but it does call for a flexible response by schools and other agencies to higher levels of functioning that is based on the individual, not just age.

3. The concept of degree or extent of giftedness should be considered in developing identification processes and curriculum. When I directed the talent search program at Northwestern University, teachers would tell me that seventh-grade students who were scoring at the 600 level in mathematics on the Scholastic Aptitude Test were not truly precocious in mathematics, even though their scores placed them in the top 2 percent of the age population. Only students scoring at the 700 level met that criterion. These teachers were noting the wide band of difference that exists within any gifted population, such that students at the bottom of a particular group may function very differently from those at the top. In psychometric language, this means that gifted students may vary among themselves by as much as three standard deviations in respect to mental functioning in one or more areas. Reading level in a fifth-grade gifted program, for example, could range from seventh-grade to college level. Thus, gifted educators must decide how broad a group might benefit from a particular intervention and then ensure differentiation of instruction in the delivery of that intervention such that students at the top of the group are adequately challenged and those at the bottom are not made unduly anxious. Wide ranges of abilities have to be tolerated in most gifted programs, because the context of delivery frequently requires sufficient numbers of students to justify the special intervention.

4. The recognition of advanced behavior is the most critical variable in determining who can best profit from advanced work and instruction. To deny services to students who clearly are advanced in reading, mathematics, the arts, or other domains because they have not been formally assessed calls into question a school system’s capacity to respond to individual differences. Responding to advanced student behaviors is facilitated by the inclusion of teacher, parent, and community
input in the identification process. Domain-specific checklists can be used to assess such behavior in context. Such checklists also contribute important insights into effective programming for individual children.

5. *Ability must be coupled with focused effort for success to ensue.* Work in talent development (e.g., Csikszentmihalyi, 1996; Simonton, 1999) has convinced most people in the gifted education field that ability alone may be insufficient to predict success in gifted programs, let alone in life endeavors. Nonintellectual factors, such as motivation, personality, persistence, and concentration, greatly influence creative productivity at particular stages of development and over the life span. Thus, identification processes should be sensitive to students whose ability threshold is slightly lower than established cut-off scores but whose capacity and zeal to do work in a given domain are very high.

Currently, there is a call for a new paradigm for identification that takes into account the constructs of giftedness just described (Passow & Frasier, 1996). This new paradigm would recognize the different ways in which students display giftedness and would call for more varied and authentic assessment. Instead of relying solely on intelligence and achievement scores for identification, multiple criteria would be used, including more nontraditional measures, such as observing students interacting with a variety of learning opportunities (Passow & Frasier, 1996). Many gifted educators believe that new conceptions of giftedness and a new paradigm for identifying and selecting students will help minority and disadvantaged students become more represented in gifted programs (Ford, 1996; VanTassel-Baska, Patton, & Prillaman, 1991).

Part of the process of nontraditional assessment involves trying to tap into fluid rather than crystallized abilities. The approaches assess cognitive abilities that often are not apparent when most forms of standardized tests are employed. One such approach, dynamic assessment, usually consists of a test–intervention–retest format, with the focus being on the improvement students make after an intervention as a result of learning cognitive strategies related to mastery of the tested task (Kirschenbaum, 1998).

Supporting the use of nontraditional assessment is research evidence suggesting that disadvantaged learners perform better on tasks that emphasize fluid over crystallized intelligence (Mills & Tissot, 1995) and spatial over verbal and mathematical reasoning (Naglieri, 1999). Employing an assessment approach that contains a strong spatial component may reduce disparities between scores for different socioeconomic status levels or ethnic groups (Bracken, 2000). Thus, assessment using such instruments as the Matrix Analysis Test and the Ravens Progressive Matrices may
Domain-Specific Giftedness

yield somewhat different populations of students than assessment with traditional intelligence tests that emphasize verbal tasks. The new Universal Nonverbal Intelligence Test (UNIT) also offers promise in this regard as a full-scale measure.

In addition, a two-stage process of screening and identification would help to ensure that appropriate measures are used in the selection of students for a gifted program. Simply using group achievement and intelligence test score data as the final arbiters for selection – say, by putting the cut-off at 98 percent – is not defensible. Many times, large numbers of students would qualify at 95 percent. When norm-referenced tests that are grade-level calibrated are used to make judgments about students at the top end, problems of ceiling effect occur. A better and more defensible strategy is to use off-level aptitude and achievement measures – such as the PLUS test; the School, College, and Ability Test (SCAT); and the Scholastic Aptitude Test (SAT) – to ascertain a true dispersion of the student scores in order to select the most able. Over the past 25 years, these instruments have demonstrated effectiveness and efficiency in discerning able students’ range of functioning in critical domains (Benbow & Stanley, 1996).

The measures used must also be relevant to a program’s emphasis. This is especially true for the identification stage of the process. Using verbal measures to decide who should be in a math program makes no sense. If a program’s emphasis is writing, a writing sample should be included at the identification stage; if a program’s emphasis is science, a performance-based science assessment or science project portfolio should be included. Such authentic assessment data help gifted educators select the most apt students for participation in carefully defined program areas (VanTassel-Baska, 1998).

Further, best practice calls for the use of identification protocols that are appropriate for the students’ stage of development. Early childhood identification procedures, because of the children’s age and lack of contact with the school, have to consider parental feedback more carefully, use testing data more judiciously, and consider advanced performance tasks more heavily. Identification procedures at the secondary level, dependent on the organizational contest, have to focus on finding students in a broader range of talent areas. Domain-specific approaches based on departmental courses of study must also be considered.

Making placement decisions based on individual profile data is also considered best practice. This practice allows professional judgment to be exercised rather than simply relying on a numerical cut-off score on a matrix model to determine placement (Borland & Wright, 1994). Finally, the identification process must be equitable with respect to the selection, validation, and placement of students. Such fairness can only be obtained
Curriculum and Instruction for Gifted Students

When considering the concept of giftedness through a curriculum lens, curriculum planners must analyze the characteristics and needs of gifted children and organize curricula that are responsive to them. Once a program is in place, teachers must be cognizant of the identification data on each gifted child and tailor the curriculum to ensure that student profiles are used in the classroom. Figure 20.1 illustrates the relationship between conceptions of giftedness and curriculum planning. Inputs to curriculum planning are derived from the conception of giftedness employed in a school district and the interplay of that conception with group and individual student characteristics and needs. Outputs from an appropriately tailored curriculum, instruction, and assessment system are gifted student creativity and productivity.

Curricula for gifted learners should be based on several assumptions that are critical to ensuring that gifted students receive appropriate services:

1. All children can learn, but they do so in different ways at different times in different contexts. Educators of the gifted support this fundamental principle of the standards-based reform movement and applaud it as a necessary belief for improving schooling. Yet educators, in implementing the common standards, must recognize individual differences and accommodate them through flexible means.
2. Some children learn more quickly than others. This assumption has been demonstrated over and over again in research studies, yet the power of this difference in learning rate is obscured by age-grade notions of curriculum readiness. Gifted students can learn new material at least twice as fast as typical learners can. If the curriculum is reorganized into “larger chunks,” learning rates often can increase exponentially.

3. Gifted children find different curriculum areas easy to learn and therefore learn them at different rates. Gifted learners vary as much from one another as they do from the nongifted population both in rate of learning and areas in which they may be ready for advanced learning.

4. Intrinsic motivation for cognitive learning varies considerably among gifted learners. The individual differences in motivation for learning, which may be related to cognitive capacity, tend to show up in critical ways as students attempt schoolwork.

5. Not every student (or every gifted student) will attain a useful mastery of concepts and skills beyond a certain level of complexity and abstraction. Many students, including some of the gifted, cannot handle advanced mathematics and science, both of which are highly abstract subject areas. Other gifted students encounter difficulty in interpreting complex passages of written text. Students who experience these difficulties may be encountering the maximal degree of abstraction they can handle at their stage of development.

6. Learning should provide “a basic diet but also favorite foods.” One of the current assumptions of curricula for the gifted is that both specialization and opportunities for other modes of learning are important. Self-selected subjects, special project work, mentorships, and other activities provide opportunities for strong growth in specialized areas.

7. Intra- and inter-individual variability is the rule in development. For neither gifted students nor any other group of learners can learning be viewed as a group phenomenon. Rather, individual differences coupled with the subtle dynamics of group classroom interactions determine the nature and extent of understanding at any given moment. As Dimitriou and Valanides (1998) observed, “Classrooms are developmental mixers in which each student’s developmental dynamics constrain and are constrained by the developmental dynamics of every other student and of the classroom as a whole” (p. 195).

Thus, the beginning point for all meaningful curricula for the gifted must be the individual and group characteristics and needs of these students. Existing curricula found to be effective with the gifted have evolved primarily from this understanding (Maker, Nielson, & Rogers, 1994; VanTassel-Baska, 2003).
The cognitive and affective characteristics of the gifted form the basis for the three major curriculum approaches used in developing programs for gifted learners.

1. **Content-based instruction** at advanced levels has been a staple of gifted curricula since the early years and has gained in popularity, particularly with middle-school and secondary-level students, through the national network of talent searches (Benbow & Stanley, 1996; VanTassel-Baska, 1998).

2. **Process skills as a basis for curriculum-making** for the gifted has been popularized through model curricula developed around higher-level thinking skills, creative thinking, and problem solving (Maker & Nielson, 1996). An emphasis on product development has emerged with curriculum models that stress independent learning for the gifted, the gifted as practicing investigators of real-world problems, and generative learning practices resulting in creative products (Renzulli, 2002; Treffinger, 1998).

3. **Concept- or theme-based curricula** for the gifted are derived from early work on the importance of students’ understanding of the disciplines (Phenix, 1964; Schwab, 1964) and the later translation of these ideas to the field of gifted education (Ward, 1980). Theme-based curricula for the gifted also receive support from general education ranks through the ideas engendered in Adler’s *Paidæia Proposal* (1984).

In designing an integrated interdisciplinary curriculum for gifted learners, gifted educators must have a good understanding of the nature of the effort. Unfortunately, understanding has been hindered by the use of ambiguous terminology and a lack of helpful models to guide the development process (Davison, Miller, & Methany, 1995), despite the plethora of articles, workshops, and symposia devoted to the topic (Berlin, 1991). Moreover, evidence for the effectiveness of this type of curriculum is scant (VanTassel-Baska, 2000). An “interdisciplinary” curriculum may be defined as one that links two or more disciplines through a major theme or concept as well as the language and methodology of each discipline. An integrated curriculum, as explicated in the Integrated Curriculum Model (VanTassel-Baska, 1998), refers to an inclusive curriculum with respect to approaches employed, models used, assessment techniques, and the blend of general reform principles with gifted education pedagogy. Table 20.2 displays this integration pattern.

The success of domain-specific curriculum work is difficult to dispute, given a 25-year history of effectiveness. The talent searches have systematically demonstrated the student growth possible in specific domains of study after compressed but limited contact time (Olszewski-Kubilius, 2003). Moreover, evidence of contributing growth in these areas of learning has been documented longitudinally (Swiatek & Benbow, 1991). At the level of curriculum units of study, domain-specific student growth in
higher-level content skills has also been well documented over the past 10 years (VanTassel-Baska, Bass, Avery, Ries, & Poland, 1998; VanTassel-Baska, Zuo, Avery, & Little, 2002).

THE ASSESSMENT OF GIFTED ACHIEVEMENT

Because traditional assessments are problematic in assessing the learning of gifted students due to ceiling effect and lack of consonance with gifted program objectives, off-level standardized instruments and nontraditional approaches must be employed. Off-level instrument use has proven difficult in school district settings but quite effective in the larger talent search venues (Assouline, 1997). Portfolio and performance-based assessments assess high-level performance authentically (i.e., in realistic contexts) and provide teachers and other decision makers with credible evidence of student potential and growth (VanTassel-Baska, Johnson, & Avery, 2002).

A frequently employed evaluation tool to assist in these types of authentic assessments is the use of rubrics to judge the quality of a product or performance. A rubric gives a more descriptive, holistic characterization of the quality of students’ work than a conventional rating scale does. In designing and using a rubric, the concern is less with assigning a number to indicate quality than with selecting a verbal description that clearly communicates, based on the performance or product exhibited, what the student knows and is able to do. Thus, rubrics can be highly informative and useful for feedback purposes (Anderson, 2003). However, developing distinct categories and meaningful verbal descriptions and scoring them reliably can be difficult. Rubrics are much more informative about student skill levels than letter grades or numerical scores. They are also a helpful tool for enhancing gifted learners’ understanding of expectations for specific assignments and the criteria by which they will be assessed. Many programs for the gifted engage students in the development of rubrics and in peer assessment processes for using them.

**Domain-Specific Giftedness**

**TABLE 20.2. Integration in a Curriculum for Gifted Learners**

<table>
<thead>
<tr>
<th>Dimensions of Connectivity</th>
<th>Features of Curriculum</th>
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<tbody>
<tr>
<td>Organization</td>
<td>Employs content, process, product, and concept opportunities</td>
</tr>
<tr>
<td>Models</td>
<td>Uses concept development, reasoning skills, and research models that transcend curriculum areas studied</td>
</tr>
<tr>
<td>Assessments</td>
<td>Performance-based and portfolio assessment are integrated into regular use</td>
</tr>
<tr>
<td>Reform elements and gifted education</td>
<td>Emphasis is on meaning-making through student-centered challenging activities</td>
</tr>
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Portfolios

Portfolios represent an important form of authentic assessment for the gifted. Tierney, Carter, and Desi (1991, p. 41) defined portfolios as “systematic collection by both students and teachers [that] can serve as the basis to examine effort, improvement, processes, and achievement as well as to meet accountability demands usually achieved by more formal testing procedures.” Portfolios can illuminate strengths and needs in the instructional process. Teachers who use portfolio assessment often involve students in selecting samples of their work for their portfolios and have them update the portfolios over time so that improvements or changes in the quality of work may be noted.

Based on their instructional objectives, teachers must identify criteria for judging the work. Criteria for evaluating a portfolio of writing samples, for example, might include organization, elaboration of ideas, clarity, and correct mechanics. Teachers also must determine a mode for evaluating each piece in a student’s portfolio. Rating scales (e.g., poor, average, superior) and comments (e.g., “shows good effort but lacks fundamentals”) are the most frequently employed methods. Often, these ratings are converted to a numerical scale at the end of an instructional segment to facilitate the assessment of patterns of growth in key areas. Portfolios can also take varied forms, including the following:

- **showcase portfolio** – presents the student’s “best” work while emphasizing self-assessment, reflection, and ownership.
- **evaluation portfolio** – presents representative work to be evaluated on the basis of showing movement toward a specific academic goal.
- **process portfolio** – presents student reflections on work produced over time for the purpose of helping them develop points of view on their long-term learning process and subject synthesis.

Performance Assessment

Performance assessment requires students to construct a response, create a product, or perform a demonstration. Because performance assessments generally do not yield a single correct answer or solution method, evaluations are based on judgments guided by criteria. Teachers and other educators who design these assessments must be creative, making decisions about content and scope, processes to be employed, and overall effect with respect to coherence. Important considerations in the design process have been outlined by Wiggins (1992). When the designers move to task development, they need to contextualize the tasks so that the situations are authentic to the field being studied and ensure that the tasks represent tests of knowledge in use, not drills made up of unrelated items.
Domain-Specific Giftedness

Schulman (1996) noted the following key questions that developers of performance-based assessments must ask themselves to ensure appropriate task demands:

- What important concepts does this assessment task address?
- How can responses to this task inform instruction?
- How does the task allow for a variety of responses and modes of response?
- What references do students have for knowing what is expected of them in this task?
- What other sources of evidence exist to support inferences made from the assessment?
- How does this task fit with learning goals and procedures?

Performance-based assessment protocols demonstrate the capacity for gifted students to grow and develop skills in a specific area of a domain. They also highlight the striking truth that many students come into a gifted curriculum with relatively low-level skills that need bolstering. The use of pre-assessment helps the teacher pinpoint such areas of instructional need.

Use of performance-based assessment with gifted students has yielded strong evidence of learning gains in specific areas within curriculum domains, including scientific research skills (VanTassel-Baska et al., 1998), literary analysis and interpretation, and persuasive writing (VanTassel-Baska et al., 2002). Care must be taken to ensure that tasks are sufficiently challenging to engage gifted learners to a high degree.

The true authentic achievement of gifted students necessitates the use of tools that require higher-order thinking and problem solving, the use of advanced skills in a domain, and open-endedness in response. Performance and portfolio models are important approaches to realize this goal and enhance the credibility of gifted programs.

Conclusion

The importance of having a coherent and cohesive conception of giftedness for purposes of running school-based programs and services cannot be overestimated. Using the organizational structures of society for knowledge production and utilization as a foundation for instruction and assessment of learning is an essential cornerstone for talent development. Coupled with the importance of such an emphasis is a need to identify at key points in time students for whom such instruction may be most propitious in specific areas. Thus, conceptions of giftedness can and should translate effectively into definitions, identification protocols, and service delivery models if they are to be viable in the world of school and life.
References


Domain-Specific Giftedness


