

# An Introduction to the Integrated Curriculum Model

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This chapter explores several facets of conceptualizing curriculum, instruction, and assessment for gifted learners. It begins by defining a differentiated curriculum for this population. A rationale is then provided for an integrated approach to the development of curricula. Next, the chapter presents the Integrated Curriculum Model (ICM) with the types of applications made in curriculum units developed by the Center for Gifted Education at The College of William and Mary. Key curriculum reform elements are presented to illustrate how they have been incorporated into the structure of these units. Finally, a discussion of implementation considerations explores the respective roles of the nature of the learner and the context variables of flexibility, grouping, climate, and teacher quality.

## WHAT IS A DIFFERENTIATED CURRICULUM?

### **Differentiated Curriculum**

Defining differentiation for the gifted requires recognition of the inter-related importance of curriculum, instruction, and assessment. A differentiated curriculum for the gifted is one that is tailored to the needs of groups of gifted learners and/or individual students, that provides experiences sufficiently different from the norm to justify specialized intervention, and that is delivered by a trained educator of the gifted using appropriate instructional and assessment processes to optimize learning.

Curriculum design is one major component of a differentiated curriculum for the gifted, as it delineates key features that constitute any worthwhile curriculum. What is important for these students to know and be able to do at what stages of development? A nonnegotiable foundation in a curriculum for gifted learners is a sound design that links general curriculum principles to subject matter features and gifted learner characteristics. A well-constructed curriculum for the gifted has to identify appropriate goals and outcomes and related activities that support their achievement. How do planned learning activities focus on meaningful experiences that provide depth and complexity at a pace that honors the gifted learner's rate of advancement through material? The curriculum for the gifted also must be exemplary for the subject matter under study, meaning that it should be standards-based and grounded in the habits of mind of the discipline. Thus, it must be relevant to the thinking and doing of real-world professionals who practice writing, pose and solve mathematical problems, or engage in scientific inquiry for a living. Moreover, it should be designed to honor high-ability students' needs for advanced challenge, in-depth thinking and doing, and abstract conceptualization. Some general questions to ask in judging appropriate differentiation for the gifted are included below:

- Is the curriculum sufficiently advanced for the strongest learners in the group?
- Is the curriculum complex enough for the best learners, requiring multiple levels of thinking, use of resources, and/or variables to manipulate?
- Is the curriculum sufficiently in-depth to allow students to study important issues and problems related to a topic under study?
- Is the curriculum sufficiently encouraging of creativity, stimulating open-ended responses and providing high-level choices?

Typically, a curriculum is organized according to grade levels, with each subsequent grade-level expectation being more demanding than the preceding. In

this way, we can calibrate level of difficulty to ensure that students are working in their zone of proximal development (Vygotsky, 1978). When we differentiate curricula for the gifted, we must move to a higher level of expectation in respect to content, process, and concept demands. Thus, one way of accommodating higher expectations effectively is to make *more advanced curricula* available at younger ages, ensuring that all levels of the standards are traversed in the process. In language arts, for example, this should mean reading more challenging books that are above the functional reading level of gifted learners. Differentiating curricula then requires attention to the level of functional learning matched to advanced expectations. Adaptation of advanced learning expectations needs to occur, as well. It may be insufficient merely to move students through the next stage of the curriculum without a concomitant appreciation for depth and complexity of the underlying experiences to be provided. Thus, the curriculum level for gifted learners must be adapted to their needs for advancement, depth, complexity, and creative opportunity. Each of the content chapters in this book demonstrates ways that these differentiation principles are incorporated.

*Project work* also needs to be carefully differentiated for the gifted, in order to meet the criterion of creativity. As more emphasis is placed on collaborative project work at all levels of schooling, it is critical that educators of the gifted use a set of standards to judge whether or not such work is sufficiently challenging for this group of learners and whether or not the contextual settings in which the work is carried out will promote sufficient growth for them. Differentiation of project work may be judged based on the medium in which the project is done and the variables and skills addressed by the demands of the work. Provision of alternatives for student products also enhances the creativity dimension of the curriculum. For example, students might write a poetry book using their choice of poetry forms. Chapter 6 explores the dimension of project/product development and its concomitant skill sets.

### Differentiated Curriculum Resources

Because differentiation of the curriculum is so central to the enterprise of gifted education, it would follow that the choice of differentiated curriculum resources would be critical in curriculum planning and delivery of instruction to ensure that the appropriate level of challenge is provided in each content area. We have a strong evidential base that suggests that materials constitute the curriculum in most classrooms (Apple, 1991) and that most basal materials are inappropriately geared to challenging gifted students (Johnson, Boyce, & VanTassel-Baska, 1995). Taken together, these findings suggest the need for careful selection of materials that meet basic specifications for exemplary curricula in the subject area in question, as well as appropriate curricula for the gifted based on differentiation features. Although the selection of nationally

1. Does the material address the goals and outcomes of the curriculum framework?
2. Is the material differentiated for the gifted in respect to advancement, complexity, and creativity?
3. Is the material well-designed in respect to emphasizing research-based strategies, such as concept mapping, metacognition, and articulation of thinking?
4. Is the material aligned with standards in the relevant subject area or easy to align?

**Figure 2.1.** Guiding questions for selecting curricular materials for gifted students.

available materials meeting these specifications for the gifted may be small, such materials do exist and should be used to guide the differentiation process for curricula. There also are criteria available to guide the development of differentiated materials (Purcell, Burns, Tomlinson, Imbeau, & Martin, 2002); these criteria have been used by the National Association for Gifted Children (NAGC) to recognize exemplary curriculum units that have been developed by various individuals and groups and implemented in classrooms.

Differentiated curricular materials for gifted students should go beyond a single text as resource, provide advanced readings, present interesting and challenging ideas, treat knowledge as tentative and open-ended, and provide a conceptual depth that allows students to make interdisciplinary connections. High-quality technology resources that meet the same criteria should be used as an important part of integrated learning.

It is useful for schools to appoint a materials selection committee that can review materials in each subject area, with an eye to principles of differentiation and exemplary content (VanTassel-Baska, 2004). Figure 2.1 provides a few guiding questions that should influence the process. The materials selection committee then may rate each resource reviewed and make decisions for use based on the data collected. Chapter 14 in this volume contains a more complete checklist of criteria and guidelines for selecting differentiated materials.

### **Instructional Differentiation**

Another aspect of differentiation that needs clarification is in the *choice of instructional strategies*. In many respects, there are no strategies that are differentiated only for the gifted. Rather, strategy use is inextricably tied to the nature and level of the curriculum being addressed. Thus, the reason that the diagnostic-prescriptive approach to instruction is so powerful with the gifted is that it allows for a process by which curricular level can be efficaciously discerned and addressed in an adaptive fashion. Yet we know that some strategies are highly effective with the gifted in combination with an advanced curriculum. For example, questioning can be a powerful tool for evincing high-level discussions in gifted clusters, if the stimulus reading or viewing also is challenging. Use of open-ended activities also can prove effective if they are of requisite difficulty.

Problem-based learning (PBL), because of the sheer demands of working on ill-structured problems, poses a particularly appropriate instructional approach for gifted program use. Thus, strategy differentiation involves a set of techniques that need to be matched to advanced curricula in order to be effective for advancing the learning of gifted students. Instructional approaches that foster differentiated responses among diverse learners include those that are inquiry-based and open-ended and that employ flexible grouping practices (VanTassel-Baska & Brown, 2007). Three such approaches are highlighted here as examples and treated more extensively within later chapters in this book.

**Problem-based learning.** An example of an effective inquiry-based model is problem-based learning, which has the learner (a) encounter a real-world problem sculpted by the teacher out of key learning to be acquired in a given subject; (b) proceed to inquire about the nature of the problem, as well as effective avenues to research about it; and (c) pursue sources for acquiring relevant data. The instructional techniques needed by the teacher include high-level questioning skills, listening skills, conferencing skills, and tutorial abilities in order to guide the process to successful learning closure in a classroom. PBL also requires the use of flexible team grouping and whole-class discussion. Problem resolution requires student-initiated projects and presentations, guided by the teacher. Thus, effective instruction must include the selection of a few core teaching models that successfully highlight the intended outcomes of the curriculum.

**Higher level questioning techniques.** The use of high-level questions is another key instructional method for ensuring that gifted students are being challenged. Many questioning models have been employed to promote higher level thinking, including the simple PBL model:

- What do we know?
- What do we need to know?
- How can we find out?

More complex models involve key elements of reasoning:

- What is the issue?
- What perspectives are there on the issue?
- What are the assumptions of each stakeholder group on the issue?
- What would be the consequences of each perspective holding sway?

These models of questioning, among others, promote advanced learning in the gifted as well as other students and are addressed in Chapter 5 of this book in greater detail, as teaching to higher level process skills is examined.

**Concept development.** Part of what makes constructivism such a powerful approach to learning is that it provides a context for students to create their own understanding of an important concept at several levels: basic, applied to

individual subject area; and global, applied to the universe. Basic concepts like time and space may be introduced to students early, yet continue to be learned through ongoing application in related subject matter. Subject-based concepts like magnetism and photosynthesis can be mastered through the study of a particular content area, in this case science. Global concepts, like *systems* and *patterns of change*, become known by continual applications in multiple spheres of knowledge. Thus, the idea of a concept is subject to level and type of application.

Teaching to conceptual understanding is one of the central learning approaches recommended by Bransford and Donovan (2003) in all subject areas. Yet, it requires a heuristic that elevates the learning for students. By asking students in small groups to identify examples of the concept, categorize the examples, come up with counterexamples, and develop generalizations about the concept under study, teachers help students begin to derive definitions that they have constructed but that have their own validity, given the process employed. At all levels, conceptual learning can be attained if it is addressed systematically in the instructional process.

### Assessment Differentiation

Just as differentiation involves careful selection of core materials and curriculum that underlies them and the deliberate choice of high-powered instructional approaches, it also requires the choice of differentiated assessment protocols that reflect the high level of learning attained. High-stakes assessments, such as the Scholastic Aptitude Test (SAT), Advanced Placement exams (AP), and even state assessments required by NCLB, are the standardized symbols of how well gifted students are doing in comparison to others of their age. Secondary schools, in order to be considered high quality, must be producing students scoring at the top levels on nationally normed instruments. Yet deep preparation for success on these tests rests in individual classrooms. Even strong learners like the gifted cannot do as well as they could without adequate preparation in relevant content-based curriculum archetypes. The use of assessments as planning tools for direct instruction in each relevant subject area is a key to overall improvement in student performance. Administrators responsible for the review of teacher lesson plans need to know how such assessment models can be converted into work in classrooms. Curriculum directors and departments need to spend planning time on strategies for incorporating such elements. Because such assessments are a reality of NCLB and viewed by our society as crucial indicators of student progress in school, we need to make them work for us rather than against us in the public arena.

In addition to standardized measures being employed to assess student learning, it also is crucial that more performance-based tools be used to assess individual growth and development (VanTassel-Baska, 2008). In tandem with

more standardized measures, they provide a more complete picture of individual progress toward specific education goals. For gifted learners, in particular, the quality of performance on such measures may be a better indicator of skills and concepts deeply mastered than paper-and-pencil measures, because performance-based assessments require students to articulate an understanding of the learning process as well as provide responses to multipart and open-ended questions and tasks (VanTassel-Baska, Johnson, & Avery, 2002). More specific examples are provided in Chapter 16 of this volume.

### Quality Teaching

Just as the roles of curriculum, instruction, and assessment are central to the differentiation process, so too is the teacher. In the absence of a well-trained teacher, differentiation of materials is insufficient to affect student growth. Access to high-quality, well-trained teachers in specific subject areas who can provide challenge and nurturance for our best learners is clearly a critical issue in appropriate education of the gifted. Without thoughtful teachers, the best curricula will lie dormant in classrooms, unable to be energized and vivified by expert instruction. Teachers with only strong management skills also will fail to excite the gifted if lack of knowledge is apparent.

What are the critical requirements for identifying high-quality teachers of the gifted? First of all, teachers of the gifted need to be lifelong learners themselves, open to new experiences and able to appreciate the value of new learning and how it applies to the classroom. Second, they need to be passionate about at least one area of knowledge that they know well, and be able to communicate that passion and its underlying expertise to students. This would imply deep knowledge in a subject area, coupled with the ability to use the skills associated with that knowledge domain at a high level. Third, they need to be good thinkers, able to manipulate ideas at analysis, synthesis, and evaluation levels with their students within and across areas of knowledge. Such facility would imply that they themselves were strong students in college and scored well on tests of reasoning, like the Scholastic Aptitude Test (SAT) and the Graduate Record Exam (GRE). Fourth, teachers of the gifted must be capable of processing information in a simultaneity mode, meaning that they need to be able to address multiple objectives at the same time, recognize how students might manipulate different higher level skills in the same task demand, and easily align lower level tasks within those that require higher level skills and concepts. In addition, they must be creative engineers, able to structure lessons and learning opportunities shaped by available student data and an intuitive sense of student need in an area of learning.

In addition to these prerequisites for effective teachers of the gifted, there also is an approved set of national standards for preparing teachers in this

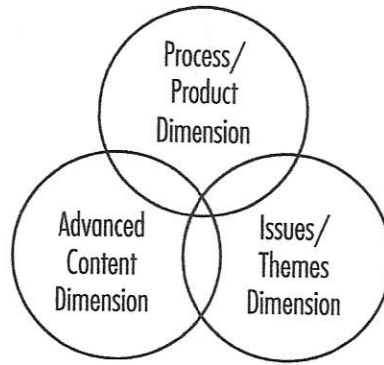
field. Developed jointly by NAGC and Council for Exceptional Children, The Association for the Gifted (CEC-TAG), the standards delineate 77 indicators of teacher preparedness to work effectively with the gifted, usually requiring at least 12 hours of university coursework to become competent in them (VanTassel-Baska & Johnsen, 2007). Teacher preparation is an essential undergirding to delivering differentiated content, instructional processes, materials, and assessment for gifted learners. A copy of these standards may be found in the Appendix; they also are referenced throughout the book to demonstrate alignment to the ideas expressed about provisions and services for gifted learners.

## RATIONALE FOR AN INTEGRATED CURRICULUM MODEL

The ICM is one approach to curriculum development that demonstrates alignment with the curriculum reform paradigm and is responsive to students talented in traditional academic areas (Little, 2009; VanTassel-Baska & Wood, 2009). This approach has relied on the key factors of curricular reform to guide the development process. It also has employed three dimensions to differentiating content, process, product, and concepts.

Although schools have used many approaches in their programs for the gifted, the use of systematic, challenging curricular intervention has been lacking. Moreover, planned curricular experiences have not been sustained over time. What the field has lacked is a comprehensive and cohesive curricular framework that uses good curricular design, considers the features of the disciplines under study, and sufficiently differentiates for talented students. Thus, an integrated model of curriculum for gifted learners, one that is sensitive to all aspects of their learning needs, is essential. Salient characteristics of the gifted learner may be handled simultaneously in such a scheme, attending to precocity, intensity, and complexity as integrated characteristics representing cognitive and affective dimensions.

A second reason for an integrated curriculum relates to current delivery models. As pull-out programs have decreased in number, more gifted students are being served in heterogeneous or self-contained settings, contexts in which integrated curricular approaches can work well if applied diligently and systematically. Because an integrated curriculum represents a total curricular package in an area of learning, rather than an add-on curriculum, it provides the needed differentiation within traditional areas of learning for which schools are accountable. Thus, an integrated curriculum model would work well in cluster-grouped classrooms in which gifted students are congregated for advanced learning, as well as in subject-based classes or in gifted schools where differentiation is needed across all subjects.



*Figure 2.2.* Integrated Curriculum Model for Gifted Learners. From "The Development of Talent Through Curriculum," by J. VanTassel-Baska, 1995, *Roeper Review*, 18, p. 99. Copyright © 1995 by The Board of Trustees of the Roeper School. Reprinted with permission.

A third reason for an integrated approach rests with recent research on learning. Studies have documented that better transfer of learning occurs when higher order thinking skills are embedded in subject matter (NRC, 2000), and teaching concepts in a discipline is a better way to produce long-term learning than teaching facts and rules (Bransford & Donovan, 2003). Our understanding of creativity also has shifted toward the need for strong subject matter knowledge as a prerequisite (Simonton, 2000).

A fourth reason for using an integrated model is related to a clear shift of emphasis in the field from the focus on the individual gifted learner to the process of collective talent development for all learners. As this shift has occurred, curricular principles important for the gifted have been seen as the province of all learners developing talents in both traditional and nontraditional domains, accomplished through employing interdisciplinary, concept-based curricula and higher order thinking. This development calls for a close alignment of meaningful subject matter with its higher order manipulation of skills and ideas.

For all of these reasons, an integrated curriculum model provides a strong research-based foundation for design and development work in all subject area disciplines to differentiate effectively for the needs of gifted learners.

## THE INTEGRATED CURRICULUM MODEL

The Integrated Curriculum Model, first proposed by VanTassel-Baska in 1986 and further explicated in subsequent publications across the last three decades (Little, 2009; VanTassel-Baska, 1998, 2003; VanTassel-Baska & Stambaugh, 2006a, 2008), comprises three interrelated dimensions that are responsive to very different aspects of the gifted learner (see Figure 2.2). These dimensions may be thought of as described below.

*The ICM emphasizes advanced content knowledge that frames disciplines of study.* Honoring the talent search concept, this facet of the model ensures that careful, diagnostic-prescriptive approaches are employed to ensure new learning as opposed to remedial instruction. Curricula based on the model represent appropriate advanced learning in that area. For example, teachers routinely determine what students already know about their yearly instructional plan by testing them on end-of-year or end-of-chapter material before it is taught and then adjusting classroom instruction to their level of learning.

*The ICM provides higher order thinking and processing.* This facet of the model promotes student opportunities for manipulating information at complex levels by employing generic thinking models like Paul's (1992) Elements of Reasoning and more discipline-specific ones like Sher's (1993) Nature of the Scientific Process. This facet of the ICM also implies the utilization of information in some generative way, whether it be a project or a fruitful discussion. For example, students may use the reasoning element "point of view" to discuss and write about a short story by William Faulkner. Students may conduct a science experiment reflecting on whether or not their findings supported their research question, and if not, why?

*The ICM focuses learning experiences around major issues, themes, and ideas that define both real-world applications and theoretical modeling within and across areas of study.* This facet of the ICM honors the idea of scaffolding curricula for talented learners around the important aspects of a discipline and emphasizing these aspects in a systematic way (Ward, 1981). Thus, themes and ideas are selected based on careful research of the primary area of study to determine the most worthy and important issues and ideas for curriculum development, a theme consistent with curricular specifications that have guided standards development and other major initiatives (American Association for the Advancement of Science, 1990; Perkins, 1992). These ideas become an important framework for curriculum development. The goal of such an approach is to ensure deep understanding of ideas, rather than superficial responding.

This model synthesizes the three best approaches to curriculum development and implementation documented in the literature for talented learners (e.g., Benbow & Stanley, 1983; Lubinski & Benbow, 2006; Maker, 2003; Ward, 1981). Recent reviews of curricular models for the gifted have found the greatest effectiveness prevailing in the accelerative approach, guided by content modification (Johnsen, 2000; VanTassel-Baska & Brown, 2000, 2007). The fusion of these approaches is central to the development of a coherent curriculum that is responsive to diverse needs of talented students while also providing rich challenges to all for optimal learning.

### Translation Into Curriculum Units of Study

The ICM has been translated into a curriculum framework and sets of teaching units, as well as supplementary materials, in the areas of science, language arts, mathematics, and social studies. To date, these four curricular areas represent the best examples of a deliberate effort to translate the model into written materials. The translation of the ICM was accomplished by developing a curricular framework addressing each of its dimensions in an integrated way.

In order to satisfy the need for advanced content, the language arts curriculum (Center for Gifted Education, 1999), developed for grades K–12, used advanced literature selections that were 2 years beyond grade reading level, used advanced language, and contained multiple levels of meaning. The writing emphasis was placed on persuasive essays that developed an argument, which is a more advanced form of writing than is typically taught at elementary levels. Use of advanced vocabulary and the mastery of English syntax at the elementary level also was stressed.

The process/product dimension of the curriculum was addressed by embedding the Elements of Reasoning developed by Paul (1992) and by using a research model developed to aid students in generating original work (Boyce, 1997). Products were encouraged through both written and oral work. In the newer curriculum developed through Project Athena, another language arts study funded by the Javits program, the *Jacob's Ladder* program is organized by levels of reading comprehension, linked to Paul's Elements of Reasoning, in order to provide students the scaffolding necessary to handle drawing consequences and implications, using data and evidence to make inferences, and exploring multiple perspectives in order to create original work from selected readings (VanTassel-Baska & Stambaugh, 2006b).

The issues/themes dimension of the curriculum was explicated by focusing on the theme of *change* as it applied to works of literature selected for the unit, the writing process, language study, and learners' reflections on their own learning throughout the unit. Additionally, studying an issue of significance was emphasized as a part of the research strand for each unit. To date, 10 units have been developed, validated, piloted, and revised using this framework (Center for Gifted Education, 1999; VanTassel-Baska, Zuo, Avery, & Little, 2002).

The translation of the ICM to the National Science Curriculum Project for High-Ability Learners was driven by the overarching theme of *systems*, which became the conceptual organizing influence in each of the seven units of study (Center for Gifted Education, 1997). Students learned the elements, boundaries, inputs, and outputs, as well as the interactions, of selected systems. Through a problem-based learning approach, they also learned about how science systems interact with real-world social, political, and economic systems. The process/product dimension of the curricular model was addressed by

engaging students in a scientific research process that led them to create their own experiments and design their own solutions to each unit's central problem. The advanced content dimension was addressed by selecting advanced science content for inclusion in each unit and encouraging in-depth study of selected content relevant to understanding the central problem of the unit. These units are being used in classrooms across the country to incorporate the new science emphasis and have been found successful in heterogeneous settings, as well as with more restricted groups (VanTassel-Baska, Bass, Ries, Poland, & Avery, 1998). In later units developed for primary age children, under Project Clarion, the concepts of both *systems* and *change* were used to enhance concept development at basic levels, at science topical levels, and at macro concept levels. Moreover, scientific process attainment also was stressed, along with content mastery linked to standards (VanTassel-Baska, 2008).

The translation of the ICM to social studies was driven by the theme or concept of *systems* for several units, with the concepts of *change* and *cause and effect* explored in additional units. The concept of *systems* was applied to understanding structures in society, such as economic and political systems; other units emphasized connected chains of causes and effects to help students understand multiple causation in history and to recognize that historical events were not inevitable. As in the language arts units, the process/product dimension of the model was addressed through embedded use of Paul's (1992) Elements of Reasoning, as well as through a heavy emphasis on historical analysis. Products included written and oral presentations of research efforts and other activities. The advanced content dimension was addressed through the selection of advanced reading materials, including many primary source documents, as well as secondary sources and historical fiction, and through early introduction of advanced skills and ideas (Little et al., 2007).

The translation of the ICM into mathematics units follows a similar design, with advanced content being a primary concern along with higher level mathematical processes, special math projects, and a concept-based orientation. The concept of models is the one most employed in the units developed to date. Because there are fewer math units developed by the Center for Gifted Education, and because they have not been rigorously tested in classrooms beyond tryouts and piloting, we have not reported on them more extensively here. Chapter 9 contains more commentary on both the design and development aspects of these units of study.

An example of the translation of the ICM to the specific disciplines may be found in Table 2.1, which portrays the ICM as it has been applied to the exemplary curriculum units developed at the Center for Gifted Education at The College of William and Mary. These curriculum units will be discussed further as examples of content-based curricula for high-ability learners throughout this text.

**TABLE 2.1**

Application of the Integrated Curriculum Model to William and Mary  
Science, Language Arts, and Social Studies Curricular Units

Dimension	Science Units	Language Arts Units	Social Studies Units
Advanced Content	<ul style="list-style-type: none"> <li>• Student-determined mastery of science content through a problem-based approach</li> <li>• Formative and summative assessment of science content learning</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced reading selections</li> <li>• Corresponding advanced vocabulary work</li> <li>• D-P approach used to teach grammar</li> <li>• Expository/personal essay writing</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced in-depth study of key periods in U.S. and world history that were influential, with an emphasis on the use of primary sources</li> </ul>
Process/Product	<ul style="list-style-type: none"> <li>• Use of scientific process embedded in problem-based learning</li> <li>• Preparation of problem resolution and presentation to class</li> </ul>	<ul style="list-style-type: none"> <li>• Use of writing process model coupled with self, peer, and teacher assessment approaches</li> <li>• Use of Paul's Elements of Reasoning (1992) to explore meaning in literature and to conduct real-world research</li> <li>• Production of research project/oral presentation of findings</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasis on Paul's Elements of Reasoning (1992) as a basis for oral and written argument in the analysis of complex social and historical issues</li> <li>• Emphasis on historical analysis skills applied to primary and secondary sources</li> <li>• Emphasis on research products</li> </ul>
Issues/Themes	<ul style="list-style-type: none"> <li>• Organized around the concept of systems</li> <li>• Teaching to underlying generalizations about systems</li> </ul>	<ul style="list-style-type: none"> <li>• Organized around the concept of change</li> <li>• Teaching to underlying generalizations about change</li> </ul>	<ul style="list-style-type: none"> <li>• Organized around the concept of social, geographical, political, and economic systems that define the history of ancient and modern civilizations</li> <li>• Subconcepts of structure, function, pattern, and cause and effect are also explored</li> <li>• Emphasis on complexity of causality in human interactions throughout history</li> </ul>

### Theoretical Underpinnings

The theoretical support for the Integrated Curriculum Model comes primarily from two sources. One source is the work of Vygotsky (1978) in three aspects of his theoretical orientation. One aspect critical to the model is the zone of proximal development, which implies that learners must be exposed to material slightly above their tested level in order to feel challenged by the

learning experience. This idea was expanded on by Csikszentmihalyi (1991) in his concept of flow and his studies showing that gifted learners demonstrated a broader and deeper capacity to engage learning than did typical students (Csikszentmihalyi, Rathunde, & Whalen, 1993).

A second aspect of the Vygotsky (1978) theory of learning influential to the model is his view of interactionism, whereby the learner increases learning depth by interacting with others in the environment to enhance understanding of concepts and ideas. Ideas are validated and understood through the articulation of tentative connections made based on a stimulus such as a literary artifact, a film, a piece of music, or a problem. Learning increases as interactions provide the scaffolding necessary to structure thinking about the stimulus.

A third aspect of Vygotsky's (1978) theory applicable to the development of the ICM was his theory of constructivism, whereby learners constructed knowledge for themselves. This theory is central to the tenets of the teaching and learning models found in the ICM curriculum and a central thesis to the model itself, as students must be in charge of their own learning in respect to each dimension of the model, whether it be content acceleration, project-based learning opportunities such as PBL, or discussion-laden experiences in which concepts, issues, and themes are explored.

Another theoretical influence on the model was the work of Mortimer Adler (1984) and his *Paideia Proposal*, which posited the importance of rich content representing the best products of world civilization coupled with the relevant cognitive skills to study them, appropriately linked to the intellectual ideas that spawned the work of the disciplines and philosophy. His worldview of curriculum was highly influential in thinking about the role of academic rationalism in a curriculum for the gifted, even as cognitive science was the predominant force in the larger environment.

Finally, the theory of multiculturalism espoused by James Banks (1994, 2001) speaks to the aspect of the ICM concerned with students making a better world through deliberate social action, whether through the resolutions brought to policy makers as a result of PBL work or the studies of technology used in researching issues or the concerns for censorship in the history of great literature. Moreover, this theoretical orientation also provided a major emphasis on the works of minority authors from both this country and abroad as an attempt to acknowledge multiple perspectives in student understanding of any content area, especially history.

## CURRICULUM REFORM DESIGN ELEMENTS

The ICM-based national curriculum projects for high-ability learners were developed with an understanding of appropriate curricular dimensions

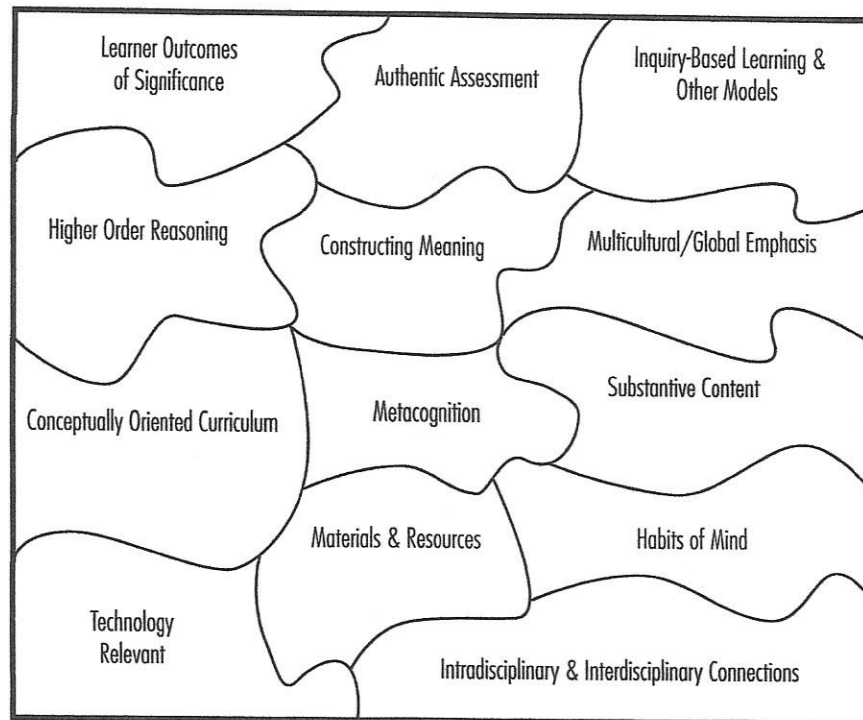
for gifted students, but they also demonstrate the use of key design features of curriculum reform strongly advocated by the national standards projects (O'Day & Smith, 1993) and the middle school movement (Erb, 1994). In more recent years, these ideas have been subjected to rigorous testing of their validity and may be found in the "what works" publications of the National Research Council. Thus, the curriculum employs the following emphases:

- Is *meaning-based*, in that the curriculum emphasizes depth over breadth and concepts over facts, and is grounded in real-world issues and problems that students care about or need to know. In science, students study the implications of acid spills on interstate highway systems. In language arts, they relate to how the impact of the treatment of minorities in this country has changed over a 60-year period. In social studies, students examine documents within context and explore the influence of various individuals and groups in order to understand the complexity of historical events and decisions. Moreover, the pedagogy of the curriculum across content areas is constructivist in orientation, helping students to construct their own meaning from the events, artifacts, and problems studied.
- Employs *higher order thinking and reasoning* as integral components to all content areas. The units provide students opportunities to demonstrate their understanding of advanced content and interdisciplinary ideas through strategies such as concept mapping, persuasive writing, and designing experiments.
- Emphasizes *intradisciplinary and interdisciplinary connections* by using overarching concepts, issues, and themes as major organizers. Thus, students study systems of cities, government, economies, and language, as well as chemistry and biology. The concept of *change* in language arts is relevant to literature, writing, and language, as well as to mathematics, art, and music.
- Provides opportunities for *metacognition* (student reflection on learning processes). Students are involved in consciously planning, monitoring, and assessing their own learning for efficient and effective use of time and resources. In social studies, for example, students pursue alternative paths to a real-world problem resolution in their particular area of study through a deliberative group process that engages them in metacognitive skills.
- Develops *habits of mind* through cultivating modes of thinking that resemble those of professionals in various fields with respect to skills, predispositions, and attitudes. In science, curiosity, objectivity, and skepticism are openly nurtured. In language arts, the mode of reflection and revision is consistently encouraged. In social studies, experiences develop awareness of the complexity of causality, the importance of exploring bias, and the need to avoid present-mindedness.
- Promotes *inquiry-based learning and problem solving* by having students take charge of their own learning. In the problem-based science units,

students find out what they know, what they need to know, and how to pursue important knowledge in working on a real-world problem in small investigatory teams. In language arts, students work in teams to discover how language functions and is structured. In social studies, students work together to explore different aspects of a culture or historical period and then share their findings.

- Uses various new *technologies as tools* for the learning process, from doing background research via the Internet, to creating digital written and visual products to be shared with authentic audiences locally and at a distance, to communicating with students around the world through a variety of technological means. The units of study in each area incorporate activities that require these applications.
- Focuses on *learner outcomes of significance*, those that advance higher level skills and conceptual understandings. Expectations for learning are identified at targeted grade levels that reflect the priorities of the new curriculum for being broad-based, conceptual, and relevant to real-world application. In each set of units, learner outcomes reflect content, process/product, and concept emphases.
- Employs *authentic assessment* by tapping into what students know as a result of meaningful instruction. Using approaches like portfolios and performance-based activities, the units engage learners in assessment as an active part of the learning process.
- Is sensitive to *multicultural and global concerns*. In the case of language arts and social studies, it ensures a strong representational pattern of multicultural readings and materials, as well as a focus on the important skill of viewing issues from multiple perspectives. History is deliberately taught from the viewpoint of multiple perspectives in minority and majority groups.
- Focuses on an *overarching concept* as a frame for development and implementation. Language arts units employ the concept of *change*, while science and social studies work with the concept of *systems* with the overlap of change over time and cause and effect in the study of history.
- Employs *multiple resources and materials* that allow flexibility, variety, and sophistication in delivery patterns. Students may read different texts, for example, yet respond to a common set of questions about them.
- Focuses on *substantive content*: key ideas, principles, and structures that students need to master in the discipline in order to become proficient. The content is organized to provide an understanding of the structure of language arts, science, and the social sciences.

All of these reform elements formed the basis for initial curriculum development work. A model of the elements taken together may be seen in



*Figure 2.3.* A model for curricular reform.

Figure 2.3. The puzzle represents a holistic way to represent the interlocking nature of these elements, yet it reveals the clear boundaries of each that may be used in teacher training.

Systematic tailoring of the curriculum for gifted learners occurred through ensuring the following kinds of additional emphasis:

- provisions for acceleration and compression of content;
- use of interrelated higher order thinking skills (e.g., analysis, synthesis, and evaluation);
- integration of content by key ideas, issues, and themes;
- advanced reading level of materials employed;
- opportunities for students to develop advanced products;
- opportunities for independent learning based on student capacity and interest; and
- consistently focused use of inquiry-based instructional techniques.

Thus, the systematic fusion of integrated curricular considerations with reform principles was effected.

## BEST PRACTICE AND IMPLEMENTATION CONSIDERATIONS

In a study of all extant curriculum models in gifted education, VanTassel-Baska and Brown (2007) found that across models, the following best practices could be derived, well-supported by the research from several sources. All of these practices are strongly advocated throughout this book as we examine content-based curriculum more fully in all of its dimensions.

- Best practice is to group gifted students instructionally by subject area for advanced curriculum work that is flexibly organized and implemented, based on the student's documented level of learning within the subject area.
- Best practice suggests embedding multiple higher level thinking models and skills within core subject area teaching to enhance learning.
- Best practice suggests the use of inquiry as a central strategy to promote gifted student learning in multiple modalities.
- Best practice calls for the use of student-centered learning opportunities that are issue- or problem-based and relevant to the student's world.

Yet the implementation of any curriculum model is based on several considerations in the school setting. Most important among them is the nature of the learner. For talented students, regardless of the richness of the core curricular base, there will be a need to address certain powerful characteristics through flexible implementation of a model.

### **The Learner: Characteristics, Aptitudes, and Predispositions**

There are many characteristics of gifted learners on which one might focus for a discussion of creating an optimal match between learner and curriculum. Several lists have been discussed as a basis for curriculum work (e.g., Maker, 2003; VanTassel-Baska, 1998). However, in studies of curriculum, it has become apparent that three such characteristics remain pivotal for purposes of curricular planning and development: precocity, intensity, and complexity.

**Precocity.** The precocity of the learner is a key characteristic to consider in curriculum development. Gifted learners, almost by definition, evidence advanced development in some school-related curricular area. The most commonly tested areas for such development are in the verbal and mathematical subject domains. Most students identified for gifted programs are at least 2 years advanced in one or both areas. Such evidence of advanced development provides a basis for curricular planning at a more advanced level and the expectation that such students can master new materials in one third to one half of the time of typical learners. For acutely gifted learners, there is a powerful motivation to learn fast and move ahead.

**Intensity.** In addition to precocity, another key characteristic that deserves attention for curriculum development is the intensity of gifted learners. This intensity may be manifested affectively in the realm of emotional responsiveness, such as when students react strongly to the death of a pet or a classroom injustice committed by a teacher. But, this characteristic also has salience in the cognitive realm. Students exhibit intensity through the capacity to focus and concentrate for long periods of time on a subject that fascinates them or an idea they find intriguing. Such a characteristic can just as quickly become dissipated in uninteresting busywork or lack of depth in the exploration even of a subject of interest. This characteristic, like precocity, needs curricular attention.

**Complexity.** The third learner characteristic of curricular interest is complexity, the capacity of gifted learners to engage in higher level and abstract thinking even at young ages. It also refers to their preference for hard and challenging work, often at levels beyond current functioning. They enjoy working on multiple levels simultaneously, such as when solving complex real-world problems that have many parts and perspectives to study. Just as with precocity and intensity, the characteristic of complexity in the gifted demands curricular responsiveness because it is openly desired by the learner and often indicated by his or her behavior in the classroom.

These three characteristics each dictate an approach to the curriculum that honors the various facets of the gifted mind and personality. Whereas other curricular models have addressed a particular facet of the gifted learner, the Integrated Curriculum Model represents a fusion of several approaches such that the most powerful characteristics of the gifted are directly reflected in the curricular intervention.

Although this model has salience for all learners, based on a talent development paradigm, the variable of time becomes crucial in implementation. Not all learners will be ready at the same stage of development in each area for the advanced, intensive, and complex study required by the curriculum. For example, reading selections in the language arts curriculum may be appropriate for high-ability fifth graders, but too difficult based on reading level for average fifth graders. Teachers, then, would need to decide whether to substitute more accessible literature and still employ the unit with all students or to differentiate instruction in the classroom, using the unit only with a cluster group of high-ability learners. The judicious application of this curricular model for all learners is thus advised.

### **The Context Variables**

Although the need for a match between the learner and the intervention has already been described, it also is important to highlight contextual considerations that could affect the successful use of this curricular model in school

settings. There are at least four variables that must be considered: flexibility in student placement and progress, grouping, teacher training, and climate of excellence.

**Flexibility in student placement and progress.** Even an enriched and accelerated curriculum developed for high-ability learners that addresses all of the educational reform principles cannot be used without careful consideration of entry skills, rates of learning, and special interests and needs. Thus, ungraded multiage contexts in which high-ability learners access appropriate work groups and curricular stations represent a critical component of the implementation context. Pretesting of students on relevant skills is a central part of the Center for Gifted Education's curricular projects, and diagnosing unusual readiness or developmental spurts that may occur in a curricular sequence also is important. Schools may notice and use such data as a basis for more in-depth work in an area of a particular teaching unit.

**Grouping.** As a curriculum for high-ability learners is implemented, attention must be paid to the beneficial impact of grouping for instruction. As Kulik's (1993) reanalysis of the grouping data demonstrated, when curricula are modified for gifted students, the positive effects of grouping become more prominent. Moreover, recent classroom studies have verified that little differentiation is occurring in heterogeneous classrooms for gifted students (Westberg & Daoust, 2003), and the majority of teachers in our schools are not trained to teach gifted learners (Johnsen, VanTassel-Baska, & Robinson, 2008). Thus, forming instructional groups of gifted students for implementation of a differentiated curriculum is clearly the most effective and efficient way to deliver it. Whether such grouping occurs in separately designated classes or in regular classrooms is a local consideration.

**Teacher training.** Based on data confirming the significant role of teacher training in providing differentiated instruction for the gifted (Hansen & Feldhusen, 1994; Tomlinson & Strickland, 2004; VanTassel-Baska & Johnsen, 2007) and the availability of coursework in the education of the gifted (Johnsen et al., 2008), there is good reason to place gifted students with teachers who have received at least 12 university credit hours of professional training. The benefits to gifted learners become greater when a differentiated curriculum is handled by those sensitive to the nature and needs of such students. Some training in the direct implementation of curricular materials to be used is also desirable. For example, in my experience with the Center for Gifted Education materials, about 3 days of training in the various approaches employed in the materials have generally supported initial implementation, depending on the experience of the teachers involved, followed by in situ professional development and classroom monitoring of implementation across at least 2 years.

Earlier in this chapter, I delineated the characteristics and qualities necessary for effective teachers of the gifted. However, there is little substitute

for systematic preparation of teachers to ensure that gifted learners are well-served in schools.

**Climate of excellence.** In order for gifted learners to perform at optimal levels, the educational context must offer challenging opportunities that tap deeply into students' psychological states (Csikszentmihalyi et al., 1993), provide generative situations (VanTassel-Baska, 1998), and also demand high standards of excellence that correspond to expectations for high-level productivity in any field (Ochse, 1990). More than ever, the climate of a school for excellence matters if curriculum standards are to be raised successfully for any student. For gifted students in particular, this type of climate must be in place to ensure optimal development, positive attitudes toward learning, and engagement. Such a climate also is essential for disadvantaged gifted youth who are put more at risk by lowered expectations for performance (VanTassel-Baska, 2009).

## CONCLUSION

This opening chapter has established the landscape of what constitutes appropriate curricula for the gifted and why such a multidimensional approach is required. Succeeding chapters will provide concrete applications of the ICM at work with gifted students across subject areas, levels of instruction, and dimensions of learning. Only through careful curriculum development practices can we help promote optimal learning opportunities for minds of promise.

## KEY POINTS SUMMARY

- Differentiated curricula for the gifted involve the features of advanced level, choice of instructional strategies that promote thinking, selection of appropriate materials, generative project work, and alternative assessment approaches to measure authentic learning.
- Differentiation of the curriculum may occur through the adaptation of level, depth, complexity, challenge, and creative opportunity.
- The quality of teaching is a central tenet of effective curriculum differentiation, requiring teachers to be trained in the principles of gifted education best practices.
- Best practice principles should be followed in the selection or development of a curriculum for the gifted.
- Curricula for the gifted should align with existing state and national standards to be effective and demonstrate how key features of learning research may be applied.
- Implementation of a curriculum must honor the specific characteristics of

the learners being taught and provide a flexible and supportive environment for learning.

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