

The Multiple Menu Model for Developing Differentiated Curriculum for the Gifted and Talented

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Abstract

The history of curriculum development for the gifted has witnessed a seesaw effect rather than an appropriate balance between authentic knowledge (content) and instructional techniques (process). The Multiple Menu Model is a practical set of planning guides that can assist curriculum developers in combining content with instructional strategies. Menus are provided in the areas of Knowledge, Instructional Objectives and Student Activities, Instructional Strategies, Instructional Sequences, and Artistic Modification. Each of the five planning menus is designed to provide specific forms of guidance for the construction of curricular material that is consistent with generally agreed upon goals of gifted education. A lesson planning guide is designed to synthesize and insure representation of the content and process selected from the respective menus.

Thinking ability is not a substitute for knowledge; nor is knowledge a substitute for thinking ability. Both are essential. Knowledge and thinking ability are two sides of the same coin.

R. S. Nickerson

Anyone who sets out to develop curriculum for the gifted will invariably come face to face with two unavoidable realizations. First, the development of truly differentiated curricular material is a difficult and demanding process. It involves far more thought and work than "slapping together" a few process development activities, no matter how exciting these activities may be. An extraordinary amount of effort is necessary to produce material that will respect the curricular principles that have been set forth by various theorists and withstand the kinds of criticism leveled at many of the activities commonly used in programs for the gifted (Stanley, 1980, p. 234; Renzulli, 1977. Preface and Chapters 1 and 2).

A second realization is that there is a good deal of consensus among present day writers about underlying principles for developing differentiated curriculum. Although various approaches are recommended, the fact that there have been few if any "small wars" among theorists is testimony to the general acceptance of principles that can be found in the literature. Most of these principles, invariably phrased as "should statements," point out the need for curricular experiences that focus on thinking skills, abstract concepts, advanced level content, interdisciplinary studies, and a blending of content, process, and product (NSSE Yearbook, 1958; Passow, 1982).

These same should-lists typically include principles that call for cooperative efforts between content scholars and teachers or instructional specialists.

From the vantage point of an idealist, the principles are worthy because they represent ultimate goals, and these goals have been widely accepted. Indeed, the principles form the veritable "gifted gerberfood" of the field because they represent the basic kind of information that forms the foundation of curriculum development. But from the perspective of a pragmatist, the principles are far too general to provide the kinds of specific guidance necessary for the practical job of actually writing differentiated curricular material. Curriculum developers are, by definition, pragmatists, because they must come up with tangible, practical outcomes. They also need guidance in overcoming the practical problems that are typically encountered in curriculum development. To do this they need both the principles of the idealist and the practical models that will allow them to translate principles into concrete products.

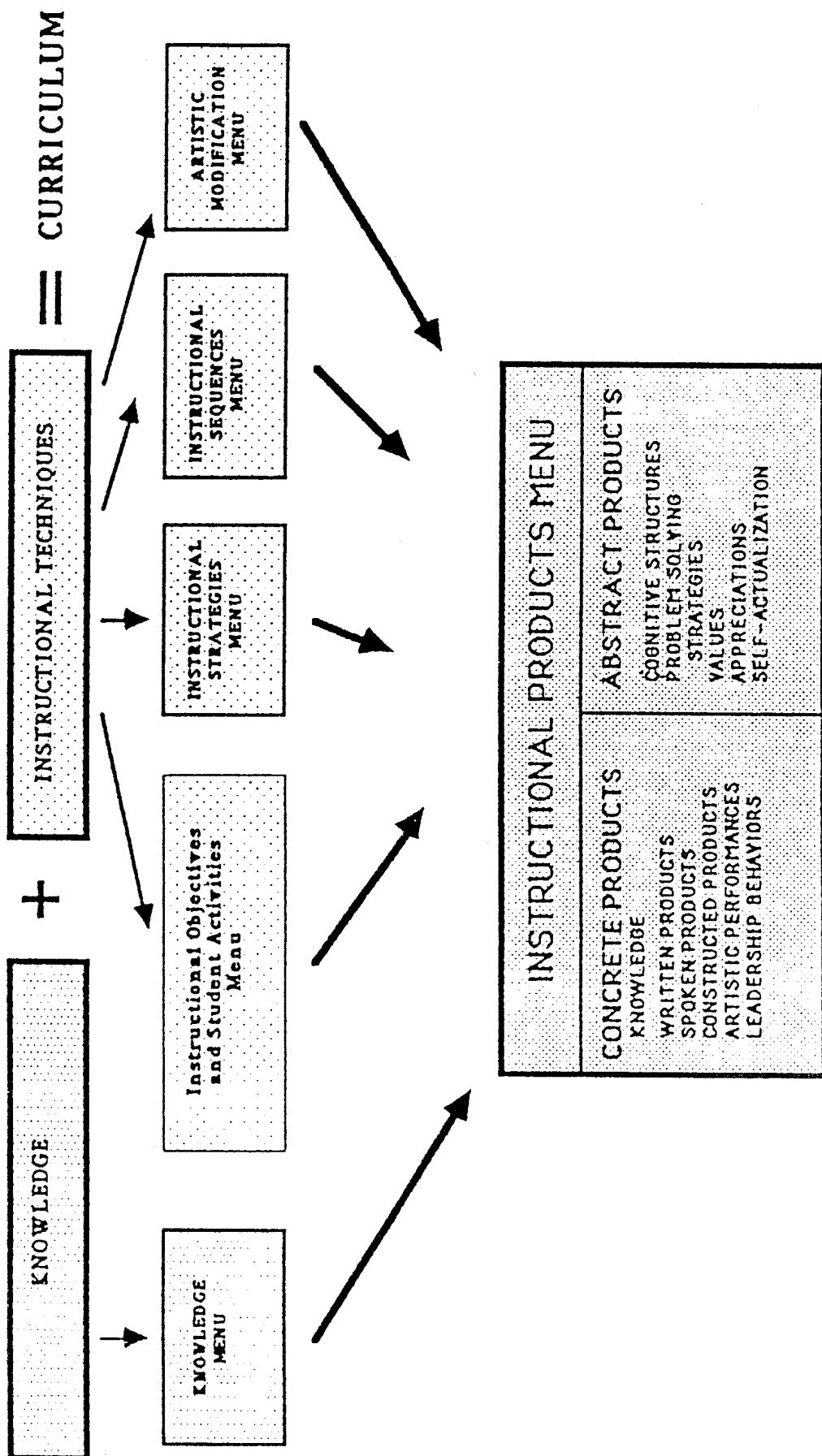
Overview of the Multiple Menu Model

Experience gained through various curriculum projects has led to the development of the Multiple Menu Model for Developing Differentiated Curriculum for the Gifted (See Figure 1). The purpose of this model is to provide a practical set of planning guides that can assist curriculum developers in the process of combining authentic knowledge with several dimensions of instructional technique. The concept of a "menu" was selected because it conveys the idea of choices that can be made within each of the several components of the model. Each menu provides a range of options from

Putting the Research to Use

The model presented in this article is designed to provide curriculum developers with a concrete "blueprint" within which content and process can be applied in classroom or resource room settings. A broad range of specific dimensions of knowledge and instructional objectives are arranged into a series of "menus" from which curriculum authors can make choices based on the particular types of emphasis they would like to place on an instructional sequence. A *Lesson Planning Guide* that is designed to synthesize several components of a lesson is provided, and procedures for cross-referencing content and process are suggested.

Figure 1
The Multiple Menu Model for Developing Differentiated Curriculum
(JSR, 1987)



which the curriculum developer can select the knowledge segments that will form the basis for a curricular unit, lesson, or lesson segment, and the various instructional techniques that will enable the knowledge to be taught in an interesting and effective manner. In later sections, we will examine each menu in detail and the specific procedures that are recommended for using the menus.

Rationale

The rationale underlying this model is divided into the following four parts: a brief theory of knowledge, selected concepts from theories of curriculum and instruction, issues related to curricular differentiation, and the goals of special programming for the gifted.

A Brief Theory of Knowledge

Untold numbers of books have been written about theories of knowledge, and various authors have proposed several organizational systems for classifying knowledge and studying it in a systematic manner. Although any one of these organizational systems might serve as the rationale underlying a particular approach to curriculum development, the *theory of knowledge* that I have selected as a rationale for the Multiple Menu Model is one that focuses on both levels and functions of knowledge within any given content field.

The theory of knowledge underlying the Multiple Menu Model is based on three levels of knowing first suggested by the American psychologist and philosopher, William James (1885). These levels are: knowledge-of, knowledge-about (also referred to as knowledge-that), and knowledge-how. Before going on to describe these levels, it must be pointed out that each of the three levels, and especially the second and third levels, also exists on a continuum from the simple to the complex. It remains the responsibility of the curriculum developer to determine the degree of complexity within each level that might be appropriate for a given age or ability group. In the final analysis, it is the curriculum developer's understanding of the content field and instructional techniques, plus an understanding of cognitive, developmental, and differential psychology that will determine decision making with regard to the level of knowledge that might serve as appropriate content for a particular unit to be taught to a given age group. I also might add that a good deal of this understanding is undoubtedly the result of teaching experience gained through work with various age and ability groups combined with formal study in the three psychologies mentioned above.

Knowledge-Of. This entry level of knowing might best be described as an awareness level. Knowledge-of consists of being acquainted with rather than familiar with an area of study, a piece of information, or a person, place, object, or event. James (1885) referred to this level as "knowledge by acquaintance" to distinguish it from more advanced levels, which he referred to as "knowledge by systematic study and

reflection." Thus, for example, I may be knowledgeable of a field of study called astrophysics, and I might even add that I know a little bit about what astrophysicists study. But it would be inaccurate to say that I am knowledgeable about astrophysics in any way other than a very superficial or awareness level.

Knowledge-of involves remembering (storage of knowledge), recollecting (retrieval of knowledge), and recognizing, but this level does not ordinarily include more advanced processes of mind that will be described below when we discuss knowledge-about. Most curriculum development efforts automatically begin with the knowledge-of level, but they proceed quickly to the knowledge-about level because this level represents the systematic study and reflection that James used to distinguish between lower and higher levels of knowing.

Knowledge-About. Knowledge-about represents a more advanced level of understanding than merely remembering or recalling information that has been learned. Knowledge-about builds upon remembering and recalling, but it also includes more advanced elements of knowing such as distinguishing, translating, interpreting, and being able to explain a given fact, concept, theory, or principle. Being able to explain something might also involve the ability to demonstrate it through physical or artistic performance (e.g., demonstrating a particular dance movement) or through a combination of verbal and manipulative activities (e.g., demonstrating how a piece of scientific apparatus works).

The amount of knowledge about a particular topic that should be included in a unit, lesson, or lesson segment, and the depth or complexity of coverage are among the most important decisions to be made in curriculum development. Persons who do not have an extensive background in the knowledge area in which they plan to develop curricular materials will undoubtedly need to acquire the knowledge necessary for their curriculum development efforts through formal courses, independent study, or by teaming up with specialists in the area in which they plan to develop curricular materials. A carefully selected introductory college textbook in a content field is usually the most economical way to begin acquiring the knowledge base necessary for curriculum development in a given field.

Knowledge-How. This level represents types of knowledge that enable persons to make new contributions to their respective fields of study. It deals mainly with the *application* of investigative methodology to the generation of the knowledge-about aspects of a given field of study. Scholars generally view knowledge-how as the highest level of involvement in a field. It represents the kind of work that is pursued by researchers, writers, and artists who are making new contributions to the sciences, humanities, and arts.

The theory of knowledge represented by James' three levels is used in this rationale in harmony with Alfred North Whitehead's (1929) concepts of romance, technical proficiency, and generalization. According to Whitehead, we first develop an interest in or romance with a particular field. A young person might, for example, develop a romance with the field

of medicine as he or she explores the field at the knowledge-of level. Some people follow up this romance by pursuing a field or career to the point of becoming a proficient practitioner in one of the medical professions. Most professionals within a field reach their maximum involvement at this level; however, there are some persons who go on to the generalization level. It is these persons who say, in effect, "I want to add new information and contribute new knowledge to the field of medicine." This third level is, in many respects, consistent with one of the major goals of special programming for the gifted and talented. This point is further developed in the third part of this rationale.

Selected Concepts From Theories of Curriculum and Instruction

Because of space limitations, a disproportionate amount of the material that follows will focus on issues related to the above theory of knowledge; however, an important part of the rationale underlying the model draws upon the work of several persons who have made important contributions to curricular and instructional theory. These persons include Jerome Bruner (1960, 1966), A. Harry Passow (1982), Virgil Ward (1961), Philip Phenix (1964), Robert Gagne and Leslie Briggs (1979), Sandra Kaplan (1986), David Ausubel (1968), Albert Bandura (1977), and Benjamin Bloom and his colleagues (1954). Except in those instances where specific citations have been made, the work of these theorists is reflected in a blended way in most of the material that follows. Although these writers have influenced my overall thinking about the Multiple Menu Model, some of them might disagree with the applications of their work. I have, for example, relied heavily on Bloom's *Taxonomy* for major sections of the Knowledge and Instructional Objectives Menus, but I have also made some changes related to the placement of certain segments in the Taxonomy. The largest change deals with the category of Application (Bloom's Level 3.00), which I have always thought to be a product or outcome of all of the other processes listed in the Taxonomy.

Issues Related To Curricular Differentiation

A major part of the rationale underlying gifted education is that special programs will contribute to the development of persons who will be the inventors, leaders, and creative producers of the next generation. The Multiple Menu Model has been developed in a way that places a premium on both the organization and pursuit of authentic knowledge and the application of investigative methodology to problem areas within various content domains. As will be pointed out in a later section, three-fourths of the knowledge menu deals with the kinds of complex structures, principles, concepts, and research methods that characterize the *modus operandi* of the first-hand inquirer. Suggestions for using the instructional technique menus emphasize higher level thinking skills, less structured teaching strategies, and a concern for controversial issues, values, and beliefs. These areas of emphasis differ from

the more factual, assimilative, and noncontroversial nature of most regular curricular materials.

Another issue related to curricular differentiation is concerned with content selection and procedures that will help to maximize the transfer of that which is learned. This issue is especially relevant today because of the accelerated rate at which knowledge is expanding. Futurists tell us that the amount of accumulated knowledge now doubles every twenty months, and a recent book (Naisbitt, 1982) reported that approximately 600 new scientific and professional articles are published each day in English! These awesome figures might suggest a potentially dangerous approach when it comes to curriculum development for highly able youth. The fact that brighter students can learn more material faster might lead us to become seduced by the quantitative (i.e., more-of-the-same) approach to curriculum development.

The Multiple Menu Model deals with this issue by concentrating on the various structural elements of a field and the basic principles and functional concepts (Ward, 1960) of given fields. Information of this type might best be referred to as enduring knowledge, as opposed to timely topics or transitory information. Principles and concepts should be viewed as tools that help the learner understand any and all of the selected topics of a content field. Thus, for example, understanding the concept⁴ of reliability is central to the study of psychological testing and therefore may be considered an example of an enduring element of that field.

In a similar fashion, the model deals with content selection by focusing on what Phenix calls representative topics (Phenix, 1964, p. 11). These topics consist of any and all of the content of a field that the curriculum developer might choose as the focus of a unit, lesson, or lesson segment. For example, a representative literary selection such as *The Merchant of Venice* can be used to illustrate (among other things) the key concept of a tragic hero. Reference to other selections that employ this key concept can be integrated into the unit of study, and a second or third selection might be necessary if an instructional objective is to compare and contrast tragic heroes. But it is not economical or feasible to cover an extensive list of selections if the concept can be dealt with through one or a few representative literary selections.

In view of the general goals of the model set forth above, I am not as concerned with the issue of knowledge-as-product as I am with the process objectives that have broader transfer value, such as application, appreciation, self-actualization, and improved cognitive structures. In other words, this model views representative topics as vehicles for process development. The structural dimensions and key concepts mentioned above provide the learner with tools for examining any or all of the vast number of topics in a given discipline. This model views the learner as one who is developing, practicing, applying, and (hopefully) gaining an appreciation of a particular segment of knowledge by studying Topic A, so that he or she may then use the same strategies to examine any one or a combination of Topics B through Z.

This model also places a great deal of emphasis on the appropriate use of methodology within content fields. All content fields can be defined, in part, by the research methods and investigative techniques that are used to add new knowledge to a given field of study. Most knowledge experts consider the appropriate use of methodology to be the highest level of competence in a content field. Indeed, this is the level at which research scientists, composers, authors, and academicians who are making new contributions to their fields typically operate. Although this level undoubtedly requires advanced understanding of a field, and sometimes requires the use of sophisticated equipment, young students can successfully learn and apply some of the entry level methodologies associated with most fields of knowledge (Bruner, 1960). The methodology dimension is also an important consideration for the development of differentiated curriculum because one of the major goals of education for the gifted is to develop a positive attitude toward the creative challenges of investigative activity and knowledge production. A focus on the acquisition and application of methodology also forces the issue of more active learning and a "hands on" involvement with a content field.

The Goals of Special Programming for the Gifted

The final part of the rationale underlying the Multiple Menu Model deals with the overall mission and the goals of providing special programs for the gifted. Although unanimous agreement on goals probably will never be achieved, it is nevertheless important for the curriculum developer to have some idea about the outcomes or products that are intended by a particular model. Persons who disagree in major ways with the stated goals of a given model should obviously seek other approaches to curriculum development.

The Multiple Menu Model is based on the belief that a curriculum for the gifted should result in both concrete and abstract products. These outcomes are reflected in the Instructional Products Menu that appears at the bottom of Figure 1. These two kinds of products generally work in harmony with one another and are separated here for analytic purposes only. The concrete products consist of the acquisition of specific segments of knowledge plus a broad range of tangible things that are actually produced by students (e.g., reports, stories, time lines, dances, musical compositions, etc.). It is important to emphasize that these concrete products are not considered ends in and of themselves. Rather, they are viewed as means or vehicles through which the various abstract products can be developed and applied (Renzulli, 1982).

The abstract products consist of more enduring and transferable outcomes of the learning process. In most cases, the abstract products take many years to reach full maturity; however, each curricular experience should make a contribution to one or a combination of these more enduring goals of instruction. The abstract products include improved cognitive structures and problem solving strategies, (Renzulli, 1977, pp. 64-68), the development of a value system (including new

appreciations for knowledge, methodology, and the aesthetic aspects of knowledge), and the development of self-actualization. This final category includes specific affective components of development such as self-concept, self-efficacy (Bandura, 1977), and social and emotional adjustment. Taken collectively, concrete and abstract products of curriculum represent the overall goals of providing special programs for the gifted.

The Menus and How to Use Them

This section will present a brief description of each menu and point out how the menus can be used for selecting the knowledge and instructional techniques that might be considered for the differentiated curricular unit, lesson, or lesson segment. Since the target audience of this article is professional educators, it is assumed that they will have a greater familiarity with the instructional technique menus that follow. For this reason, a disproportionate amount of descriptive information will be provided for the Knowledge Menu, and the discussion of the Instructional Technique Menus will focus more on application than description.

Figure 2

The Knowledge Menu

Content Field	Subdivision	Tools	Applications
I. Location, Definition, and Organization			
II. Basic Principles and Functional Concepts			
III. Knowledge About Methodology			
A. How to Identify a Problem Area Within a Content Field			
B. How to Find and Focus a Problem Within an Area			
C. How to State Hypotheses or Research Questions			
D. How to Identify Sources of Data			
E. How to Locate and Construct Appropriate Data Gathering instruments			
F. How to Classify and Categorize Data			
G. How to Summarize and Analyze Data			
H. How to Draw Conclusions and State Generalizations			
I. How to Report Findings			
IV. Knowledge About Specifics			
A. Facts			
B. Conventions			
C. Trends and Sequences			
D. Classifications and Categories			
E. Criteria			
F. Principles and Generalizations			
G. Theories and Structures			

Figure 3
The Instructional Objectives/Student Activities Menu

I. Assimilation and Retention	
Listening	Reading
Observing	Sensing
Touching	Smelling
Counting	Manipulating
Sketching	Note Taking
Naming	
Identifying Information Types (e.g., Raw Data, Opinion, etc.)	
Identifying Information Sources (e.g., Encyclopedias, Almanacs, etc.)	
Identifying Information Retrieval Systems	
II. Information Analysis	
Classifying:	Interpreting:
Sorting into Component Parts	Questioning
Matching Properties	Discussing
Organizing and Reorganizing	Debating
Distinguishing and Comparing	Inferring
Sequencing and Patterning:	Translating (Transforming)
Ordering	Interpolating
Tabulating	Extrapolating
Graphing and Charting	Interrelating
Measuring	Restating
	Speculating (Trial and Error)
Data Gathering:	Concluding and Explaining
Interviewing	Critiquing
Using Instruments	Summarizing
Experimenting	Defending a Position
Exploring Alternatives:	Hypothesizing
Estimating	Generalizing
Brainstorming	Practicing
Creative Problem Solving	Demonstrating
Problem Finding	Presenting
Problem Focusing	
III. Information Synthesis and Application	
Writing:	
Literary (Fictional). Musical Composition	
Technical, Editorial, Journalistic (Non-fictional)	
Speaking/Presenting:	Constructing:
Artistic	Artistic
Functional/informative	Functional
Opinionative	
Painting, Drawing, Designing:	Performing:
Artistic	Dance
Functional	Drama
Managing:	Movement
Producing	Music
Directing	
Leading	
Arranging	
Conducting	
IV. Evaluation	
Judging According to internal Sets of Criteria [Personal Values, Aesthetic Preferences, Individual Beliefs and Attitudes)	
Judging According to External Sets of Criteria (Conventional Standards for Judging Quantitative or Qualitative Ideas or Products)	

The Knowledge Menu

The Knowledge Menu (See Figure 2) is divided into four parts, the first three of which are considered "tools." The final part represents the vast number of specific topics within any field to which the tools may be applied as one goes about the process of "studying" a topic.

I. Location, Definition, and Organization [of a *Field of Knowledge*]

The first task in analyzing a given field of knowledge is to provide learners with information about where a field is "located" within the broad spectrum of knowledge, the general nature of a field, the various subdivisions of knowledge within that field, and the specific mission and characteristics of any given subdivision. This "knowledge about knowledge" dimension of this menu is designed to help the learner locate where, within any given organizational system, she/he may be working. The information is best conveyed by developing a knowledge tree and organizing a series of instructional activities that are designed to answer several of the following questions:

1. What is the overall purpose or mission of this field of study?
2. What are the major areas of concentration of each subdivision?
3. What kinds of questions are asked in the subdivisions?
4. What are the major sources of data in each subdivision?
5. How is knowledge organized and classified in this field or subdivision?
6. What are the basic reference books in the field or subdivision?
7. What are the major professional journals?
8. What are the major data bases? How can we gain access to them?
9. Is there a history or chronology of events that will lead to a better understanding of the field or subdivision?
10. Are there any major events, persons, places, or beliefs that are predominant concerns of the field, or best-case examples of what the field is all about?
11. What are some selected examples of "insiders' knowledge" such as field-specific humor, trivia, abbreviations and acronyms, "meccas," scandals, hidden realities, or unspoken beliefs?

Information on the Location, Definition, and Organization section of the Knowledge Menu can be very useful in selecting introductory activities that are designed to gain attention, develop interest, and stimulate motivation (cf., first category of Instructional Sequence Menu). For example, in a high school psychology course, the instructor always began by showing some slides of Sigmund Freud and other early leaders and telling the

students a few anecdotes related to their most famous cases. Even the following list of titles, in and of itself, had great motivating power, as well as providing information related to Question No. 10 above.

- The Girl Who Couldn't Breathe
- The Man Who Loved Corsets
- The Girl Who Couldn't Stop Eating

The outcome of this particular segment of the Knowledge Menu should lead to a general understanding of the structure of the field and a localization in one of the subdivisions of a particular field. Although there undoubtedly will be some overlap of information between subdivisions, and there will also be certain commonalities in information about the field in general, an instructional goal should be to lead students into an examination of the above questions with regard to the specific subdivision of the field being studied. Not every question on the list need be dealt with, nor should this segment of the Knowledge Menu necessarily be considered a major focus of the unit of study. Rather, our purpose is to help the learner see the "big picture" and the interrelationships that might exist among a field in general and its various subdivisions. This section of the Knowledge Menu is also designed to provide an overview or survey function. We might, for example, deal with Question No. 3 in a relatively superficial way during the early stages of a unit, but when we reach Section V of the Knowledge Menu (i.e., Methodology), this topic may become a major area of concentration in the study of a particular subdivision.

II Basic Principles and Functional Concepts

Every field of knowledge is built upon a set of basic principles and key concepts that help to facilitate comprehension, information processing, and communication of information that is representative of the essence of the field. Some of these principles and concepts are applicable to several subdivisions within a given field, but, ordinarily, even the subdivisions have small numbers of concepts that are unique to that branch. Indeed, subdivisions of major fields of knowledge probably come into being because of unique concepts (as well as other factors) that result in the establishment of an individual identity.

Basic principles are generally agreed upon truths that have been arrived at through rigorous study and research. Principles may be factual and concrete (e.g., The earth revolves around the sun once every 365 and $\frac{1}{4}$ days), or they may be abstract and open to various interpretations (e.g., The major social institutions of society are home, church, school, government, business, industry).

Functional Concepts (Ward, 1960) are the intellectual instruments or tools with which a subject area specialist works. In many ways these concepts serve as the vocabulary of a field and the vehicles by which scholars communicate precisely with one another. A good way to identify the functional concepts of a field is to exam-

ine the glossary that might be included in a basic textbook in that field. Like principles, there is usually a high degree of general agreement among scholars in a particular field about the meaning of functional concepts.

Perhaps the best way to understand the meaning of functional concepts is to provide specific examples from a number of different fields.

Field	Functional Concepts
Psychology	Selectivity of Perception
Mythology	Oral Transmission
Literature	Genre
Music	Tone
Dance	Rotation, Flexation, and Extension
Cinematography	Storyboarding
Chemistry	The Periodic Table
Biology	Tropisms

III. Knowledge About Methodology

The subcategories dealing with methodology represent a generally standard listing of investigative procedures that are followed in most fields of inquiry. Although general college level textbooks have been found to be a useful and economic source of information for locating knowledge about the other three sections of the Knowledge Menu, experience has shown that information about methodology is seldom included in these sources. For this reason, we have identified a fairly comprehensive collection of methodological resource (*How-To*) books that can be used to teach students the skills necessary for acquiring knowledge about methodology.* Another useful source consists of the laboratory manuals that frequently accompany college level textbooks.

This section of the Knowledge Menu is especially important for curriculum development because it has important implications for more active kinds of instructional techniques. By providing students with the know-how of investigative methodology, we increase the probability of more inductive or "hands on" kinds of learning experiences. Once students have learned basic information about a field or topic and the procedures for doing some kind of research related to that topic, we can proceed to the application level, which is considered by many to be the highest level of involvement in a field of study. Student investigations may be limited in scope and complexity, and they frequently may follow prescribed scenarios, such as the ones typically found in laboratory manuals. At the same time, however, the inclusion of even junior level investigative activities in curricular materials forces us to go beyond the omnipresent didactic mode of instruction that has been the subject of so much criticism of education in recent years (Goodlad, 1954).

* A copy of this book list can be obtained by writing to the author

IV. Knowledge About Specifics

This section of the menu encompasses the main body of knowledge that makes up the content of any given field. It is from this area that curriculum developers should select representative topics illustrative of basic principles, functional concepts, or certain methodologies. Knowledge about specifics provides a vast warehouse of information from which selected aspects of content may be drawn and to which the "tools" described above may be applied. The size and diversity of knowledge about specifics provides the curriculum developer with an almost limitless opportunity to select interesting and dynamic topics that will maximize student interest, motivation, and enthusiasm about a particular field of study.

The several subcategories listed under Knowledge About Specifics are based on the first level of Bloom's *Taxonomy* (1954). This analysis of various ways in which knowledge is organized is helpful in identifying organized components of a particular field. I have found, however, that when examining a content area for curriculum development, it may not always be easy to classify a topic according to the subcategories in this section of the Knowledge Menu. For this reason, it is recommended that curriculum developers also consider selecting content on the basis of the ways in which topics are organized in standard (college level) text and reference books. After a unit has been developed, it is a good idea to review the material in an effort to identify facts, conventions, trends and sequences, etc. It is also a good idea to call these subcategories to the attention of students, either through direct instruction or by asking them to analyze material according to the ways in which Knowledge About Specifics is classified.

The Instructional Objectives/Student Activities Menu

This combined menu (see Figure 3) of instructional objectives and student activities is designed to provide the curriculum developer with a wide range of both general statements and specific behaviors that are associated with various aspects of learning. The first section of the menu (Assimilation and Retention) deals with information input or pickup processes. The second section (Information Analysis) focuses on a broad range of thinking skills that describe the ways in which information can be processed in order to achieve greater levels of understanding. The third section (Information Synthesis and Application) deals with the output or products of the thinking process. The final section (Evaluation) is also an output process, but in this case the focus is on the review and judgment of information in terms of aesthetic, ethical, and functional qualities.

There are three important considerations that the curriculum developer should keep in mind when using this menu. First, the four categories on the menu are not intended to be followed in a linear and sequential fashion, in the real world of thinking and problem solving, we must often cycle back to more advanced levels of information input and analysis

activities in order to improve the scope and quality of our products and judgments. The overall process, therefore, must be viewed as a cyclical or spiraling sequence of interrelated activities rather than a linear chain of events.

The second consideration relates to the general goal of achieving both specificity and comprehensiveness in the overall process of curriculum development. Each unit and lesson should be developed in such a way that we are as certain about the process objectives as we are about the content to be taught. And over a given period of time, we should attempt to achieve comprehensiveness in process development by selecting a diverse range of objectives and student activities. In this regard, this and other menus should be used as checklists that will help us to achieve balance as well as a catalogue of processes from which selections can be made.

Finally, the objectives and activities on this menu are designed to embrace the full range of affective processes. It is assumed that processes such as attending, receiving, and valuing take place in an integrated fashion when students pursue activities set forth in this menu and when such activities are combined with certain topics (knowledge) that enhance the development of affective processes. For this reason a separate affective menu was not included in the model. This decision was also made in order to simplify the process by avoiding the addition of another layer of complexity to the curriculum developer's task.

Instructional Strategies Menu

This menu (see Figure 4) provides a broad range of strategies that represent the ways in which teachers organize learning situations.^{**} The strategies range from highly structured situations to those in which greater degrees of self directedness are placed upon the learner. Many of the strategies are, of course, used in combination with one another.

Figure 4 Instructional Strategies Menu

- I. Recitation and Drill
- II. Peer Tutoring
- III. Programmed Instruction
- IV. Lecture
- V. Lecture and Discussion
- VI. Discussion
- VII. Guided Independent Study or Exploration (With or Without a Teacher or Mentor)
- VIII. Learning or Interest Center Activity
- IX. Simulation, Role Playing, Dramatization, Guided Fantasy
- X. Learning Games
- XI. Replicative Reports or Projects
- XII. Investigative Reports or Projects
- XIII. Unguided Independent Study or Exploration
- XIV. Internship or Apprenticeship

^{**} A small book could undoubtedly be written on each of the instructional strategies included on this menu. Space does not permit adequate coverage of the strategies in this article; however, most general textbooks on instruction contain descriptive information about these topics.

As is the case with menus discussed earlier, an effort should be made to achieve a balance in the use of these strategies. An effort also should be made to develop curricular experiences for brighter students that favor the less structured end of the instructional strategies continuum. This recommendation is consistent with the overall goals of gifted education and the emphasis that most special programs place on both self-directed learning and creative productivity. Finally, attention should be given to matching certain strategies with particular types of knowledge. Thus, for example, the simulation or role playing strategy might "fit" more appropriately with content dealing with a controversial issue, and the programmed instruction strategy would undoubtedly work well with content designed to teach computer operation skills.

Instructional Sequence Menu

This menu (see Figure 5) is based on the work of major learning theorists such as Gagne and Briggs (1979) and Ausubel (1968). The specific aspects of their work reflected in this menu deal with the organization and sequence of events that help to maximize the outcomes of a preplanned learning activity. This menu differs from the others in that the items are likely to be followed in a sequential fashion. It is important to point out, however, that the sequence may be "recycled" several times in a single unit and sometimes even within a given lesson.

Figure 5 Instructional Sequence Menu

- I. Gaining Attention. Developing Interest and Motivation
- II. Informing Students About the Purpose or Objective of a Given Unit, Lesson, or Lesson Segment, and Providing Advanced Organizers About the Material that will be Covered
- III. Relating the Topic to Relevant Previously Learned Material
- IV. Presenting the Material Through One or a Combination of Instructional Strategies and Student Activities. (Note: Emphasize Distinction Between the Following Two General Student Roles:
 - A. Listening, Observing, and Notetaking
 - B. Participating, Interacting, and Receiving Feedback)
- V. Providing Options and Suggestions for Advanced Level Follow-Up Activities on an Individual or Group Basis
- VI. Assessing Performance and Providing Feedback
- VII. Providing Advanced Organizers for Related Future Topics
- VIII. Pointing Out Transfer Opportunities and Potential Applications.

According to Gagne and Briggs, an important consideration in sequencing instruction is to organize material in such a way that the learner has mastered necessary prerequisites. Prerequisites are broadly interpreted to include a favorable attitude toward the material to be learned as well as essential

terminology, functional concepts, and basic factual information. For this reason the Instructional Sequence Menu begins with an item that calls attention to the need for gaining attention and developing motivation. Gagne and Briggs also emphasize the value of relating present topics to relevant previously learned material and, whenever possible, integrating present topics into a larger framework that will add greater meaning to the topic at hand. This concern is dealt with, in part, through the strategies recommended in the first section of the Knowledge Menu. Finally, Gagne and Briggs recommend that transfer not be left to chance but rather that curriculum developers provide linkages between information learned and other situations in which such information may be applied. In a similar fashion, Ausubel's theory of meaningful learning maintains that learning is enhanced when students are provided with a preview or overview of the material to be taught and the ways in which the material is organized. These "advanced organizers" can be most easily dealt with by making students aware of content and process objectives at the beginning of the instructional sequence.

The Artistic Modification Menu

Most teachers have had the experience of teaching a lesson that was so successful and satisfying that at its conclusion they might have signed it (figuratively speaking) in much the same way that an artist signs a painting. This kind of personal involvement and excitement is more likely to occur when curriculum developers teach their own material. When the same material is used by other teachers, some of the effervescence is likely to be lost. The curriculum developer can take steps to stimulate or recapture intended excitement about a particular topic by encouraging teachers to approach a unit or lesson with some degree of artistic license. This license should include the right and the responsibility to criticize and interpret curricular content, to examine content in relation to the teacher's own values, and to add content of the teacher's own choosing, even if additional material is in conflict with the prescribed content of a unit of study. In other words, this menu (see Figure 6) asks curriculum developers to invite teachers to make their own creative contribution to a previously developed piece of curricular material.

Figure 6

The Artistic Modification Menu

Sharing with students a personal experience that is directly or indirectly related to the content (e.g., Showing slides of the trip you took to the Globe Theater and Stratford-on-Avon in connection with a unit on Shakespeare)

Sharing personal knowledge or insiders' information about a person, place, event, or topic. (e.g., Pointing out a Time magazine article on the controversy surrounding the authenticity of Margaret Mead's research in connection with a unit on anthropology)

- III. Sharing personal interests, hobbies, independent research, or significant involvements in personal activities. (e.g., Showing students your own family tree in connection with a unit on genealogy)
- IV. Sharing personal values and beliefs. (e.g., Describe events related to your participation in a civil rights demonstration in connection with a unit on contemporary American history.)
- V. Sharing personal collections, family documents, or memorabilia. (e.g., Bringing to class your collection of newspapers, magazines, etc. that describe the events surrounding the assassination of John F. Kennedy in connection with a unit dealing with the Civil War and the death of Abraham Lincoln)
- VI. Interpreting and sharing your own enthusiasm about a book, film, television program, or artistic performance that is related to a topic you are covering. (e.g., Telling a "spy story" from a book such as *The Man Called Intrepid* in connection with the study of World War II)
- VII. Pointing out controversies, biases, or restrictions that might be placed on books, newspapers, or other sources of information. (e.g., Magazines that depend heavily on advertising by tobacco and liquor corporations might tend to avoid publishing articles on the dangers of smoking and alcohol)
- VIII. Other (Suggest additional ways in which teachers might personalize the material that you have included in a particular unit or lesson)

From a practical standpoint, the purpose of the menu is to provide teachers with a series of suggestions that will enable them to add their own artistic interpretation to curricular material that has been prepared by others. The concept of artistic interpretation is based (in part) on an extremely insightful paper by Phenix (1987) in which he points out that instructional material can be either alive or dead, depending on the ways in which it is used or misused in the teaching-learning process. When material is imported from sources other than the teacher's own experience, it may assume an alien quality when not properly mediated by the teacher. Proper mediation means that the teacher is able to personalize and interpret curricular material in such a way that he or she brings life and meaning to the content.

Suggestions for artistic modification can be general or specific, but they must always be personal (rather than prescribed motivational activities) because the purpose is to encourage teachers to put *themselves* into the material rather than drawing on the experiences of the curriculum developer. The goal of this aspect of the model is to create excitement and involvement in the teacher so that she or he can, in turn, arouse interest, curiosity, and motivation on the part of students. Reflecting upon material before it is taught, even if it has been taught many times before, is as important to the teaching process as warm-up activities are for creating

physical readiness and a positive mental attitude for the athlete. The interaction of prepared curricular material with the personal involvement of teachers will result in a "spontaneous combustion" that helps to bring the material to life.

In some cases teachers may already be prepared to inject their own personal involvement into prepared material, but in others some background reading or other types of preparation may be necessary. The curriculum developer can assist in the process by recommending background reading material for the teacher that contains unusual insights, controversies, little known facts, or insiders' information that is not likely to be included in the regular material prepared for students. Although curriculum developers will want to include effective motivational activities in their regular materials, this menu should not be interpreted as another opportunity to give the teacher a favorite activity. Background material can be recommended, but any instructional activity emanating therefrom must be created by the teacher because the goal is for teachers to "psych themselves up" to approach any teaching situation with the mind set of a creative artist.

Curriculum By Design: Putting It All Together

The goal of the Multiple Menu Model is to achieve balance and coordination between knowledge and instructional technique and to proceed from the abstract to the practical in the process of curriculum development. The complexity of the task defies simplification, but a certain amount of efficiency can be introduced into curriculum development by specifying the options that are available with regard to content and

process and by pointing out procedures that can be used for blending together several factors that need to be considered simultaneously when developing curriculum.

Although the several options that represent the structure of this model are presented in the respective menus, two other conditions are necessary for the effective use of this or any other planning guide. First, the curriculum developer must understand the concepts presented on the menus. The appropriate use of an instructional activity such as extrapolating, or an instructional strategy such as simulation will elude us if we do not have a practical understanding of both the concepts and how we can put them to work in a learning situation.

The second condition for successful use of this model involves some kind of plan or guide for synthesizing the respective menus at the practical or output level (i.e., actually writing curricular material). Although there is still some controversy about whether knowledge (content) or instructional technique (process) should be the focus of curriculum planning, this model has chosen to place knowledge at the center of the planning process. At the same time, however, the planning guide presented in Figure 7 is structured in a way that encourages curriculum developers to consider each of the instructional technique menus in conjunction with the preparation of content. Taken collectively, the several menus and the planning guide direct us to consider a broad range of options and to interrelate the many factors that must be considered when attempting to achieve balance and comprehensiveness in curriculum development.

Figure 7

Multiple Menu Model Lesson Planning Guide

Unit Title _____	Author _____
Lesson Block Title _____	Lesson No. _____
Instructional Objectives & Activities	Instructional Strategies
Artistic Modifications	Instructional Products
Previous Lessons or Necessary Background Material	
<p>"Storyboarding" the Lesson: Provide a sequential outline of the knowledge (content) to be covered in this lesson. Include chapter or page references to textbooks or other sources, and attach resource material that the teacher will need in order to prepare for and/or teach this lesson. Cross reference the content with the instructional techniques listed above by underlining all words and phrases that refer to objectives, strategies, and products. Use additional pages if necessary.</p>	

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