

## Part I

### One Way to Organize Exploratory Curriculum

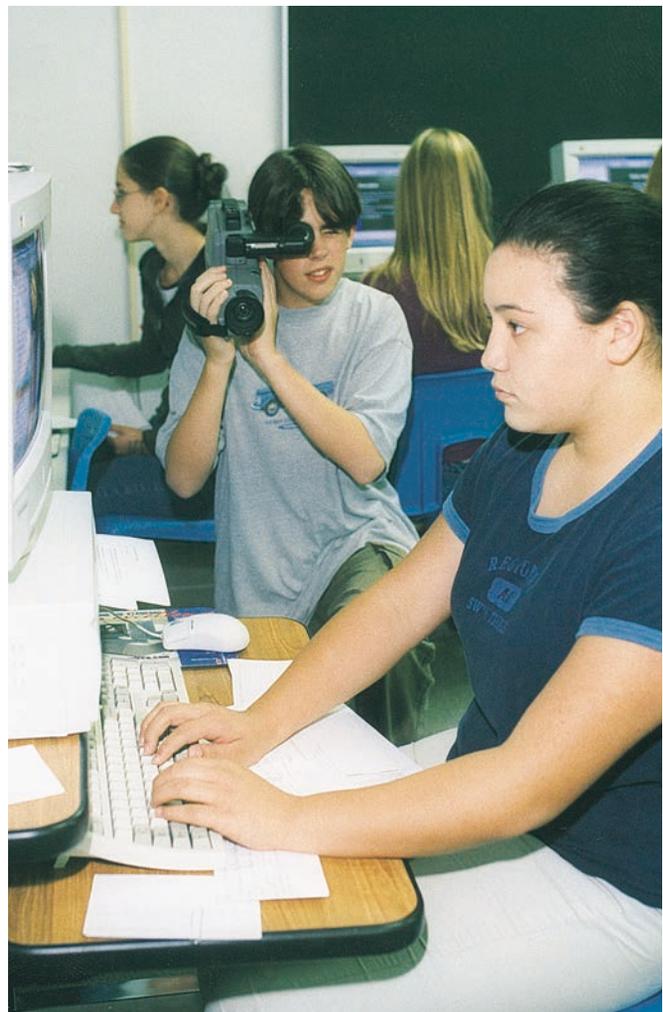
# Academies of Inquiry and Talent Development

*Young adolescents learn more effectively when they are led through a progression of learning experiences. Starting with general exploratory activities, students advance to learning the skills of inquiry. In the third stage, students carry out investigations of real problems resulting in products or performances for real audiences.*

By Joseph S. Renzulli

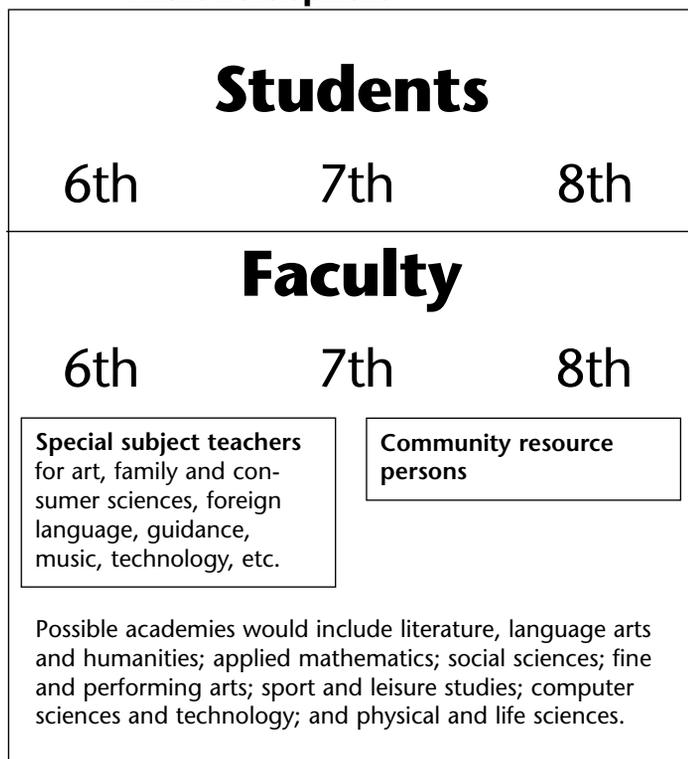
*Nothing happens unless first a dream.*  
— Carl Sandburg

One afternoon a week all of the students and teachers at Johnson Middle School depart from their regular schedule to participate in a different “brand” of learning. This learning experience is designed to provide high levels of challenge and to capitalize on special areas of student and teacher interest. On this special afternoon, all students from across all grade levels are enrolled in a self-selected Academy of Inquiry and Talent Development (AITD). Students enter one of six or seven AITDs (e.g., physical and life sciences, applied mathematics, fine and performing arts) upon entering their middle school years, and usually remain in the same AITD for the duration of their years in the middle school. Similarly, teachers from across grade levels organize themselves into



Camcorder helps a student produce a real-world learning product.

Figure 1 **Academies of Inquiry and Talent Development**



the faculties of the AITDs. They usually remain with the same group of students for a three- or four-year period. New students enter each year as other students move on to the high school. Although a majority of teachers choose an AITD in their regular academic area, an analysis of their own special interests occasionally leads some teachers to work in AITDs that are outside the area in which they normally teach. The AITDs also provide a vehicle for the involvement of community members who have expertise in the fields of knowledge around which the AITDs are organized. A graphic representation of the structure for each academy is presented in Figure 1.

The time devoted to the AITDs is selectively “borrowed” from the regular schedule and the advisement periods. Although the AITDs are organized around the traditional fields of knowledge, the work done within any given “academy” often naturally evolves into interdisciplinary endeavors.

The idea for AITDs grew out of several years of research and field testing the application of learning strategies that were originally developed in programs for the gifted to educational opportunities for all students. In the sections that follow, a rationale for this “type” of learning will be discussed, and specific

examples of the activities pursued in the AITDs will be described. In the next issue of *MSJ*, suggestions will be provided for organizing and implementing a program that emphasizes high levels of challenge within selected areas of student and teacher interest.

### Background and Rationale

Middle school educators are committed to providing a challenging and enjoyable academic experience while, at the same time, maintaining strong support for the social and personal goals of middle level education set forth by the National Middle School Association (1995) and other organizations that have laid the foundation for middle school programming (Carnegie Council on Adolescent Development, 1989).

In addition to the academic and social/personal outcomes, the AITD plan enables each student to develop a close, meaningful, multi-year relationship with one teacher or a small group of teachers. Sustained relationships with adults is one of the goals of most middle school advisor/advisee (A/A) programs. Although this plan is not intended to replace present efforts directed toward helping middle school students understand and value self, others, and life experiences, many of the goals of A/A programs can be accomplished within this plan as a result of the common bonds that develop between people who share common interests. In this regard, the plan seeks to promote communities of learning and mutual support that are not unlike the relationships that develop over multi-year periods between students and athletic coaches, band and chorus directors, or club advisors.

The AITD plan also respects the strong emphasis that middle schools place on teaming. In this case, however, teams of adults and students are organized across grade levels according to common areas of student and teacher interests. The teams can also involve other adults in the community who have specialized areas of interest and expertise. Once again, this approach is not intended to disrupt traditional, grade-level teams. Rather, it creates another kind of interest-based team that resembles the way in which people organize themselves in real-world, problem-solving situations.

The idea for Academies of Inquiry and Talent Development grew out of research and development dealing with a component of the School-wide

Enrichment Model (SEM) called enrichment clusters (George, Renzulli, Reis, & Erb, 1997; Reis, Gentry, & Park, 1995; Renzulli, 1994; Renzulli & Reis, 1997). Enrichment clusters are multi-grade groups of students and adults with common interests who come together on a regular basis to pursue the development of products or services using the methodologies of practicing professionals. No predetermined lesson or unit plans are used (Renzulli, 1997b), and even the products and services are decided upon collaboratively by the respective groups and subgroups within a given cluster. In this regard, what takes place within an enrichment cluster is more analogous to the workings of a real-world entity, such as a film studio, research laboratory, publishing company, or historical society, rather than what typically takes place in a traditional classroom. All learning takes place within the context of developing authentic products or services for real-world audiences. Divisions of labor are encouraged to ensure that maximum respect is given to each student's interests, learning styles, and preferred modes of expression. This type of learning is what John Dewey called *collateral learning* and what is popularly referred to today as *constructivist learning theory*.

Although enrichment clusters are usually planned on a semester or annual basis, our experience with middle level students has shown that they frequently express an eagerness to remain together for additional, and usually more challenging, involvement in their respective areas of interest. Strong associations develop between and among both students and adults, due to their common interests and collaborative approach to product or service development that is the hallmark of the cluster concept. It is for this reason that we have developed this plan, not unlike the practice of "looping," to keep the same group of students and adults together during designated time blocks for the duration of their middle school years. There will, obviously, be times when individual student interests change, and accordingly, changes in student placement should occur. Similarly, adults may also want to "try something new" after a given number of years within an AITD, and that opportunity should also be provided.

## The Objectives of Academies of Inquiry and Talent Development

The objectives of AITDs are based on two fundamental concepts around which all learning activities within the AITDs are organized. These concepts are authentic learning and real-life problems. Because of the central role these concepts play in this model, a brief definition is provided in the following paragraphs.

### Authentic learning and real-life problems defined

Authentic learning consists of applying relevant knowledge, thinking skills, and interpersonal skills to the solution of real problems. Real-life problems share four criteria. First, a real problem requires a personal frame of reference for the individual or

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group pursuing the problem. In other words, the problem must involve an emotional or internal commitment in addition to a cognitive or scholarly interest. For example, stating that global warming and urban crime are "real problems" does not make them real for individuals or groups unless they decide to do something to address the problem.

A second characteristic of real problems is that they do not have existing or unique solutions for persons addressing the problem. If an agreed-upon solution or prescribed strategies for solving the problem exist, then it is more appropriately classified as a "training exercise." Even simulations based on approximations of real-world events are considered training exercises if their main purpose is to teach predetermined content, thinking skills, or problem-solving strategies.

The third characteristic of a real problem is best described in terms of why people pursue these problems. The main reason is they want to create new products or services that will change levels of understanding, appreciations, actions, attitudes, or beliefs on the part of a targeted audience. For example, a group of young people who gathered, analyzed, and reported on data about television watching habits in their community were contributing information that was new, at least in a relative way, and that would cause people to think critically about the television viewing actions of young people. In the realm of service-oriented activities, several motivated and mathematically advanced girls organized a group at their middle school called the Female Mathematics Support Team. They provided mentoring services and emotional support to other girls who were struggling with general math and the transition to algebra.

The final characteristic of real problems is that they are directed toward a real audience. Real audiences consist of persons who voluntarily attend to

## The objectives of AITDs are based on two fundamental concepts: authentic learning and real-life problems.

information, events, services, or objects. A good way to understand the difference between a real and a contrived audience is to reflect on what one group of students did with the results of their local, oral history project. Although they presented their findings to classmates, they did so mainly to rehearse presentation skills. Their authentic audience consisted of members of a local historical society and persons who chose to read about their research in the feature section of a local newspaper.

To understand the essence of authentic learning is to compare how learning takes place in a traditional classroom with how someone might learn new material or skills in real-world situations. Classrooms are characterized by relatively fixed time schedules, segmented subjects or topics, predetermined information and activities, tests and grades to determine progress, and an organizational pattern largely driven by the need to acquire and assimilate information and skills imposed from outside the classroom.

Contrast this type of learning with the more natural chain of events that takes place in real-world situations, including research laboratories, business offices, or film studios. In these situations, the goal is to produce a product or service. All resources, information, schedules, and events are directed toward this goal, and evaluation (rather than grading) is a function of the quality of the product or service as viewed through the eyes of a client or consumer. Looking up new information, conducting experiments, analyzing results, or preparing a report is focused primarily on present action rather than storing it for possible future use. Interestingly enough, material learned through authentic pursuits has the greatest amount of transfer value for future use. When content and processes are learned in authentic, contextual situations, they result in more meaningful uses of information and problem-solving strategies than the learning that takes place in overly structured, prescribed classroom situations. If persons involved in authentic learning experiences are given some choice of the domains and activities in which they are engaged, and if present experience is directed toward realistic, personalized goals, this type of learning creates its own relevancy and meaning.

### The objectives of the AITDs

Authentic learning consists of investigative activities and the development of creative products in which students assume roles as firsthand investigators, writers, artists, or other types of practicing professionals. Although students pursue these kinds of involvement at a more junior level than adult professionals, the overriding purpose is to create situations in which young people are thinking, feeling, and doing what practicing professionals do in the delivery of products and services. These experiences should be viewed as vehicles through which the following five objectives of AITDs can be achieved:

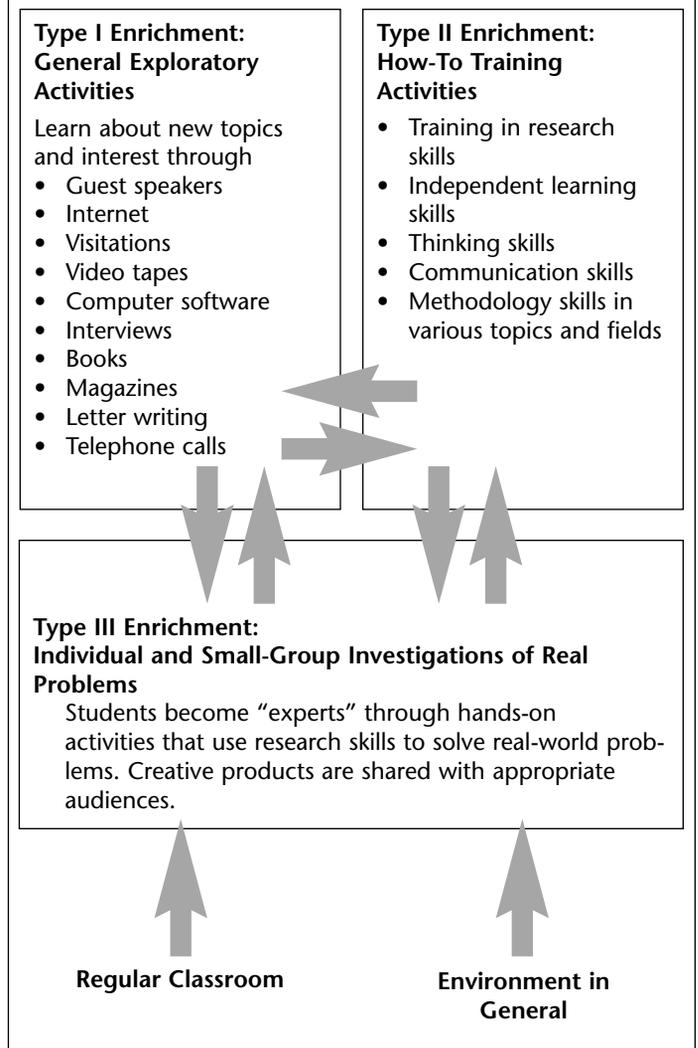
1. To provide students with opportunities, resources, and encouragement to apply their interests, knowledge, thinking skills, creative ideas, and task commitment to self-selected problems or areas of study

2. To acquire advanced-level understanding of the knowledge and methodology used within particular disciplines, artistic areas of expression, and interdisciplinary studies
3. To develop authentic products or services that are directed primarily toward bringing about a desired impact on one or more specified audiences
4. To develop self-directed learning skills in the areas of planning, problem finding and focusing, organization, resource utilization, time management, cooperation, decision making, and self-evaluation
5. To develop task commitment, self-confidence, feelings of creative accomplishment, and the ability to interact effectively with other students and adults who share common goals and interests.

Authentic learning should be viewed as the vehicle through which everything from basic skills to advanced content and processes comes together in the form of student-developed products and services. In much the same way that all the separate but interrelated parts of an automobile come together at an assembly plant, so also do we consider this form of learning as the assembly plant of the mind. This kind of learning represents a synthesis and an application of content, process, and personal involvement. The student's role is transformed from one of lesson learner to firsthand inquirer, and the role of the teacher changes from an instructor and disseminator of knowledge to a combination of coach, resource procurer, mentor, and, at times, partner or colleague. Although products play an important role in creating authentic learning situations, a major concern is the development and application of a wide range of cognitive, affective, and motivational processes.

In many ways our view of authentic learning compliments the guidelines Beane (1993a, 1993b) proposed for middle school curriculum. He stated one guideline as follows: "The central purpose of the middle school curriculum should be helping early adolescents explore self and social meanings at this time in their lives" (1993a, p. 18). We believe that self-selected, authentic investigations create an important "space" for middle school students to find points of personal engagement. Beane also stated

Figure 2 **The Enrichment Triad Model**



that "the middle school curriculum should be firmly grounded in democracy" (1993a, p. 19). He believes that democratic curriculum can only be conceived when all people, both adults and students, collaborate to determine the curriculum. Like Beane, we firmly believe that authentic, investigative experiences, mutually determined by students and teachers, will provide the most powerful and meaningful learning experiences.

Figure 3 **Academies of Inquiry and Talent Development: The Academy of Social Sciences**

<b>Potential Areas of Study Experiences</b>	<b>Type I Enrichment</b> General Exploratory Experiences	<b>Type II Enrichment</b> Group Training Activities	<b>Type III Enrichment</b> Individual and Small-Group Investigations of Real Problems (Enrichment Clusters)	<b>Outlets/Products/Audiences For Type III Enrichment</b>
History Geography Political Science Sociology Psychology Economics Anthropology Archaeology	<ul style="list-style-type: none"> <li>• Presentations by persons in each of the disciplines</li> <li>• Visitations to sites where these people work</li> <li>• Brainstorming sessions about topics that might be interesting to study</li> <li>• Reading biographies</li> <li>• Debate</li> <li>• Panel discussion</li> <li>• Visitation to historical sites</li> <li>• Brainstorming sessions about "hot topics" in the news</li> </ul>	<ul style="list-style-type: none"> <li>• Developing a survey instrument</li> <li>• Conducting an oral history interview</li> <li>• Examination and discussion of interesting documents and products from the discipline</li> <li>• Methods historians use to find and focus a research problem</li> <li>• Socratic method</li> <li>• Comparison/contrast</li> <li>• Primary/secondary sources</li> <li>• Multicultural Sensitivity Training</li> <li>• Interpreting data</li> <li>• Descriptive statistics</li> <li>• Graphs/charts</li> <li>• Recognizing and detecting bias and stereotypes</li> <li>• Forecasting and predicting</li> </ul>	<ul style="list-style-type: none"> <li>• The Oral History Research Team</li> <li>• The Creative Cartographers Guild</li> <li>• The Animal Learning Laboratory</li> <li>• The Local Survey Research Team</li> <li>• Investors, Inc.</li> <li>• The Political Action Society</li> <li>• Shipwreck Explorers Lab</li> <li>• Students for Social Action</li> <li>• The Social Behavior Lab</li> <li>• Where Your History Book Leaves Off</li> <li>• The Psychology of Dreams</li> <li>• The Native American Heritage Society</li> <li>• The Hispanic-American Cultural Group</li> <li>• The Asian-American Heritage Society</li> <li>• The African-American Literature Institute</li> <li>• The Women's History Society</li> <li>• Society in Conflict</li> <li>• The 21st Century Historical Society</li> <li>• The Business Researchers' Team</li> </ul>	<ul style="list-style-type: none"> <li>• Presentations to local or state historical societies</li> <li>• Maps of local historical sites, recreation areas</li> <li>• Articles in school and city newspapers and magazines</li> <li>• CT Geographic Olympiad</li> <li>• Displays at public buildings, shopping malls, senior centers</li> <li>• National Geography Bee</li> <li>• Letter to congressman/senator</li> <li>• Lobbying effort</li> <li>• PAC</li> <li>• History Day</li> <li>• <i>USA Today</i> Stock Market Game</li> <li>• Archaeological dig</li> <li>• "Mansfield Monopoly" to Chamber of Commerce</li> <li>• Petition to state and local officials</li> <li>• Cultural presentations to primary students</li> <li>• Presentations to UConn Psychology Department</li> <li>• History text for kids</li> <li>• Web page</li> <li>• Debate/public panel</li> <li>• Presentation to Chamber of Commerce</li> <li>• Editorial in school or local newspaper</li> </ul>

### How Are Academies of Inquiry and Talent Development Organized?

#### Student and teacher interest assessment

Prior to or upon entrance into middle school, all students are assessed for their major strengths and

interest areas. Using a simple interest inventory (Renzulli, 1997a) and a data gathering format called the Total Talent Portfolio (Purcell & Renzulli, 1998), this assessment process compiles information about previous successful to exemplary performance in academic subjects, extracurricular pursuits, and col-

lected works that reflect high levels of interest and creativity. The portfolio also includes responses to interest assessment instruments, learning and expression styles assessments, and various goal setting statements. Teachers simultaneously complete an adult interest assessment questionnaire, such as "Targeting My Ideal Teaching and Learning Situation" (Gentry & Renzulli, 1995), and use the results to explore the AITD in which they might like to participate. Teachers are encouraged to consider special areas of interest outside of their major teaching assignment as well as special topical interests within the subjects they regularly teach (Reis, Gentry, & Park, 1995).

The results of student assessment lead to "enrollment" in one of the following Academies of Inquiry and Talent Development, and the results of teacher interest assessment lead to joining the "faculty" of one of these academies (see Figure 1). Other academies may also be formed as a result of specialized interests, and academies can be subdivided into specialized areas within a general area of knowledge (e.g., physical sciences, biological sciences, environmental studies). Typically, however, these subdivisions will take place through the variety of enrichment clusters formed within each of the general academies.

### **What Takes Place in an Academy of Inquiry and Talent Development?**

All activity within the AITDs is directed toward the acquisition and application of advanced levels of knowledge and investigative methodology within the respective fields of study subsumed under each academy. The theory of learning that guides inquiry in this plan is called the Enrichment Triad Model (Renzulli, 1977; Renzulli & Reis, 1997). This model consists of three interrelated types of enrichment (see Figure 2) that are focused toward the development of interests, the skills of inquiry, and the production of creative and authentic products. Ideally, involvement in the first two types of enrichment should lead to problem finding and focusing that will become the focal point of the third type of enrichment.

### **Type I Enrichment: General Exploratory Experiences**

Type I Enrichment consists of experiences and activities that are purposefully designed to expose students to a wide variety of disciplines, topics, occupations, issues, hobbies, persons, places, and events that are not normally covered in the regular curriculum. A major objective of this type of enrichment is to stimulate new interests that may lead to more intensive follow-up on the parts of individuals or small groups. Type I Enrichment is typically carried out by exposure to visiting speakers, the use of visual

One of the designs created by students for a school playground was approved by their local board of education for actual construction.

and print media or interest development centers, attendance at performances or demonstrations, or visitations to places where persons are engaged in scientific, artistic, or other kinds of professional activities. Through a series of recommended debriefing, discussion, and brainstorming activities, students examine each experience to see if they would like to learn more about the topic and perhaps initiate an investigative or creative endeavor within the topic area. Thus, for example, a subgroup of students who attended a large-group presentation on environmental engineering in the Academy of Physical and Life Sciences decided that they would like to learn more about how park landscapes and pathway designs are developed. They formed an enrichment cluster on landscape architecture; and with the help of one of their teachers — a local landscape architect who recommended books, materials, and information obtained from the Internet — they developed several designs for schools, parks, and public buildings in their city. This example shows the progression from Type I (the speaker on environmental engineering), to Type II (studying the methodology of landscape architecture), to Type III (actually applying authentic methods of inquiry to develop their own designs). One of the designs for a school playground was approved by their local board of education for actual construction.

### **Type II Enrichment: Group Training Activities**

Type II Enrichment activities are designed to develop (a) general thinking skills, (b) affective processes related to better understanding of self and others, (c) learning-how-to-learn skills, (d) methodological (i.e., research and reference) skills, and (e) skills designed to enhance various modes of communication. Type II Enrichment is typically carried out through planned lessons that focus on one or more of the five skill areas mentioned in the previous sentence. In some cases, the topics for these lessons cannot be selected in advance because the interests might emerge (as in the above example) from a Type I experience. Although all of the skill areas men-

**By developing authentic products that are intended to have an impact on targeted audiences, students acquire advanced levels of knowledge and investigative methodology in their areas of interest.**

tioned above are important, numbers 4 and 5 are especially relevant to the goals of the Academies for Inquiry and Talent Development. In order for young people to carry out authentic investigations, it is necessary for them to understand and apply the methods of inquiry in a particular field and to communicate effectively the findings of their research or the products resulting from their creative endeavors. All fields of knowledge have a fairly substantial subset of books and materials that focus on the methodology or how-to knowledge of the field. For example, a book entitled *A Student's Guide to Conducting Social Science Research* (Bunker, Pearlson, & Schultz, 1999) is a wonderful resource for students who are interested in pursuing a research project. *Research Comes Alive: Guidebook for Conducting Original Research for Middle and High School Students* (Schack & Starko, 1998) is another example of a reference book that addresses the methodological skills. These materials can serve as excellent resources for Type II training; however, it is important to keep in mind that this type of learning should be viewed as preparation for investigative (Type III) activities rather than as an end in itself.

### **Summary: Types I and II Enrichment**

Within the Academies of Inquiry and Talent Development, Types I and II Enrichment are designed to play a very special role. This role is to help students find and focus problems that will lead to Type III Enrichment, either in the formation of group investigation teams called enrichment clusters, or individual projects of a creative or investigative nature carried out by a single person. Accordingly, all Type I and II activities should be geared toward answering the following critical questions:

1. What do people with an interest in this area do?
2. What products do they create and/or what services do they provide?
3. What methods do they use to carry out their work?
4. What resources and materials are needed to produce high quality products and services?
5. How, and with whom, do they communicate the results of their work?
6. What steps need to be taken to have an impact on intended audiences?

Type I Enrichment can be carried out in a large-group setting for all students within an AITD, or it can take place within smaller groups that have already expressed an interest in a particular topic or subdivision of knowledge included in a general field. For example, a Type I in cartoon art would be more meaningful for students interested in the visual arts, whereas a Type I in mime or set design might be more appropriate for students with an interest in the dramatic arts. Since one of the goals of this model is to provide opportunities for students to reach out in new directions and develop new interests, all Type I activities should be widely advertised and open to all students within the AITD who want to attend.

Whereas both Types I and II Enrichment focus on the first two critical questions listed above, questions three through six are more relevant to persons who have already made a decision to further pursue a topic or area of study. Accordingly, most Type II Enrichment activities take place in smaller groups

(i.e., enrichment clusters) after students have focused on a particular area in which they would like to carry out investigative work. For example, a group of students with a general interest in the social sciences developed a more specific concern about the attitudes of students and parents toward the adoption of a school uniforms policy that was being considered by several communities in their region of the state. They formed an enrichment cluster called "The Attitude Data Detectives." With resources provided by their teacher and information they obtained from the Internet, they learned the skills necessary for designing a very professional questionnaire and survey instrument. Additional methodological skills included how to tabulate and statistically analyze data and how to report findings in written, oral, and graphic formats. Examples of how Type I and Type II Enrichment in the area of social studies are planned around the six questions listed above are shown in Figure 3.

### **Type III Enrichment: Individual and Small-Group Investigations of Real Problems**

The real "pay off" in terms of high-level learning in the Enrichment Triad Model is Type III Enrichment. This type of enrichment includes investigative activities, creative productions, and artistic performances in which the learner assumes the role of a firsthand inquirer — the student thinking, feeling, and doing like the practicing professional, even if the work is at a more junior level than that pursued by adult scientists, writers, and other professionals. Type III Enrichment is typically carried out by providing students with opportunities, resources, and encouragement to apply their interests, knowledge, creative ideas, and task commitment to a self-selected problem or area of study.

By developing authentic products that are intended to have an impact on targeted audiences, students acquire, in a natural and relevant way, advanced levels of knowledge and investigative methodology in their areas of interest. They also learn how to develop self-directed learning skills, organizational skills, the appropriate use of advanced level reference materials, and time management skills. When Type III Enrichment takes place in a group, students also learn how to interact as an effective member of a team, how to work cooperatively with others, and how to participate in activities where success is based on divisions of labor and

mutual interdependence.

At the middle school level, Type III investigations are carried out in small-group arrangements called enrichment clusters or by an individual student who has identified an area of study that has personalized interest for him or her. Most Type III investigations begin when students have a general area of interest (e.g., film making, environmental concerns, robotics, dramatics, creative writing), but in order to avoid the typical give-a-report approach to learning, it is essential that general interests be refined and focused into researchable, investigatable problems or creative challenges. The transition from a general area of interest to a specific problem that requires investigative methodology is, once again, dependent on applying the methods used by professionals to find and focus a problem. Guidance by professionals and the use of how-to books can help students learn how to develop testable hypotheses and raise research questions. Group discussions and brainstorming sessions lead eventually to specific problems that are viable for this investigative type of learning. Sometimes the products of enrichment clusters represent ongoing services of a creative nature. Thus, for example, one group of middle school students who formed a television production company established an enrichment cluster that lasted over a six-year period. They presented their work on a weekly cable access television program in their city. New students joined the cluster as other students went on to high school, and the more experienced students served as mentors to the beginning students.

In some cases, advanced level competitions are ideal situations for participation in existing programs that require high levels of scholarship, involvement, and creativity. The Math Olympiad for Middle Schools and the National History Day Competitions are examples of programs that might be the focus of enrichment clusters or individual Type III pursuits. Opportunities for student publications at the school, local, state, and national levels are virtually unlimited, and other vehicles, such as science fairs and artistic productions, provide numerous opportunities for students to bring their work to bear on a variety of target audiences. Our experience has shown that the audience requirement for Type III Enrichment has a remarkably positive effect on students' motivation, the relevance and realness of their work, and their willingness to

pursue advanced levels of understanding, scholarship, and creativity.

**Editor's Note:** In the January 2001 issue of *Middle School Journal*, Prof. Renzulli will explain how to plan and implement a successful AITD program.

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## A School-Wide Approach to Student-Led Conferences

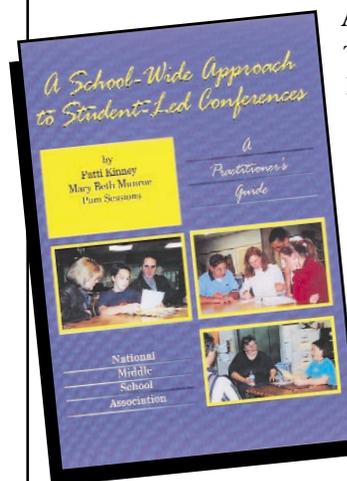
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