Project High Hopes Summer Institute: Curriculum for Developing Talent in Students with Special Needs

Marcia Gentry
Terry W. Neu

This article examines a summer institute curriculum that was developed for and used with handicapped students who were identified as gifted in the area(s) of visual arts, performing arts, engineering, or life sciences. The students and the summer institute were part of a federally funded Javits program, Project High Hopes. The curriculum was real world, multi-disciplinary and problem based in that it used a decaying water feature on the school grounds as its focus. Using a creative problem solving process, students identified problems with the water feature, developed solutions, created presentations, and presented their solutions to the school board. Student products are described as are conclusions, results and possible implications for other educational settings.

Marcia Gentry is assistant professor in the Educational Foundations Department at Mankato State University where she teaches research methods, evaluation, and assessment and is currently developing a master's degree program in gifted education. Terry Neu is assistant professor in the Education Department at Sacred Heart University and was on-site coordinator of Project High Hopes for its three year duration.

Twenty-seven students who were handicapped and identified as gifted in one or more domains participated in a one-week summer institute that was part of a federally funded program entitled Project High Hopes. During the institute, students were involved in a real world, collaborative, problem based curriculum that was developed specifically for use during the institute using “The Talent Development Curriculum Process.” Described are Project High Hopes, the summer institute, the curriculum, and the products that the students developed as a result of engagement in the institute’s curriculum. Finally, conclusions and results are discussed as are possible implications for other educational settings.

Project High Hopes: An Overview

Project High Hopes was a three-year program designed to identify and develop talent among gifted students with disabilities (Baum, Neu, & Cooper, in press). During the first year, students from 6 middle schools in the Northeast were identified for involvement in the project through learning experiences designed to identify their strengths in the areas of visual arts, performing arts, engineering, and life sciences. Called the “Talent Discovery Assessment Process,” activities were administered during eight 90-minute sessions to groups of 10 or fewer students (Baum, Cooper, Neu, & Owen, 1995). To engage the students and elicit behaviors that might indicate talent within a specific domain, activities were domain specific, the learning environment was arranged to help students focus on the task, the student to teacher ratio was kept low to encourage student participation, emphasis on reading and writing was eliminated, experiential activities were used to promote problem-solving, the use of visual cues was emphasized, opportunities for lively discussion were promoted, teacher talk was minimized, and the teacher assumed the role of guide instead of instructor.

Using this approach, students were observed and the degree to which they possessed behaviors indicative of talent in one or more domains was rated by two expert observers using criteria specific to each domain (Baum, Cooper, Neu, & Owen, 1995). Results were then discussed and decisions made about selection and program placement for these students. In all, 156 students who demonstrated talent during one or more of the eight domain specific sessions were identified as having potential for outstanding performance in one or more of the domains and became part of Project High Hopes. Project High Hopes included programming during the school year, integration with general education and gifted education, and during the second year, a summer institute. For the institute, students were invited to participate in a one-week, residential summer program that was geared to provide them with a learning experience in which they could apply their talents and interact with their peers. Twenty-seven students chose to participate.

Purpose of High Hopes’ Summer Institute

The purpose of the summer institute was to develop a curriculum that allowed the participants to interact with their peers, experience success, and become involved as first-hand investigators of a realistic and practical problem to which they could apply their talents and strengths (Renzulli & Reis, 1985). To achieve these goals the curriculum addressed the complex educational needs of gifted students with disabilities, allowing them to apply their strengths without focusing on their weaknesses (Baum, Owen, & Dixon, 1991; Fedoruk & Yewchuk, 1986).

The premise for the program was that far too often in the education of special needs youngsters, attention is placed on the weakness or the deficit which then overshadows potential talents and strengths (Baum, Renzulli, & Hebert, 1995). As Renzulli (1977; 1994) advocated, a particularly powerful type of learning experience is one in which the learner is engaged in solving real problems and using the authentic methods of a professional to create original products or services for a real-world audience. Therefore, it was decided by the project’s directors that an authentic, problem-based curriculum would be the ideal curriculum for the summer institute since the institute’s primary goal was to create a learning experience for students that was meaningful, interesting, challenging, enjoyable, and offered the students choices regarding how they approached the problem.

A secondary goal was to provide a “Talent Development Curriculum Process” that had application in the student’s schools, as well as other educational settings.

Description

The summer institute for Project High Hopes was held during July 1995 at the American School for the Deaf in West Hartford, Connecticut. Five teacher-facilitators with a background in gifted education and exemplary teaching skills were selected to facilitate a group of students. Additionally, content experts in visual and performing arts (actor, artist) and physical and life sciences (engineer, biologist) were hired as

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resource persons to assist students while they worked on their problem. A total of 27 students attended the institute, and each teacher worked with a group of five to six students, including at least one student from each of the talent domains of visual arts, performing arts, engineering, and life sciences. During the institute, each group was referred to as a company.

A water feature on the site of the institute was the focus of the curriculum. At one time the water feature was dammed to create a pond, but during the institute, the site was neither aesthetically pleasing nor environmentally sound. Using a creative problem solving philosophy (Parnes, Noller, & Bianchi, 1997) a curriculum was developed that guided the students toward the development of original creative solutions to the water feature’s problems. The curriculum took the shape of a request for proposals (RFP) from the students that asked for their ideas and solutions to the problems they identified with the pond area. The RFP also provided details of the problem and helped guide students through the problem finding/problem solving process. The tasks laid before the students by the RFP were to:

- Identify the existing problems and future potentials of the site.
- Review the resources.
- Decide on additional information that might be needed.
- Brainstorm solutions to the problems.
- Develop an action plan to fix the problems.
- Prepare a presentation of the plan that will be presented to the School Board for possible implementation.

Figure 1 depicts the first two of the 11-page RFP that the students received upon arriving at the institute and receiving the challenge to “fix the water feature and pond site.”

![Request for Proposals](image)

**Figure 1**

Students worked in companies that were organized so that students with talent from each of the domains (visual arts, performing arts, life sciences, engineering) could contribute to the creative problem solving process. Thus, in each company of students there were engineers, performing artists, life scientists, and visual artists. In addition to access to experts to assist them with questions, students were given historical information regarding the water feature, testing the water quality of the site, topographic information regarding the site, and other authentic information they requested that might enhance their solutions. During the solution finding stage, the companies of students used the experts (Engineer, Biologist) and resources to compile information that helped them focus on their solution to the problem.

Each facilitator and group of students became a company of diverse talents. Through this organizational approach, each student could make a unique contribution to the group. The artistically gifted students saw the site for its aesthetic value, the engineering students saw damming and drainage problems, and those with a talent in the area of life science noticed the damaged eco-system. The visual and performing artists developed ideas for the presentation to be made to the school board at the week’s end. As they prepared their presentations, students sought guidance from experts in the arts who were available during the institute.

Because the RFP’s given did not emphasize reading and writing, teacher-facilitators assumed important roles asking probing questions and guiding the students through the steps. Students first visited the site making observations and listing the problems and its possibilities. They used their knowledge of flora and fauna to observe and catalog different varieties. These initial observations helped the students to develop ideas about the site and to consider its biodiversity. Upon returning to the summer institute classrooms, the companies reviewed the information resource packet containing topographic maps, historical data, and biological data, revisited their initial lists of problems and possibilities, and revised the list of problems based on their observations and their review of documents.

From these revised lists, students identified those problems they wanted to address in their proposals. They also sought additional information including tests for alkalinity, nitrogen levels, turbidity, algal bloom, and rate of flow, and consulted with their content experts regarding the revised lists. Using the information they had gathered and reviewed, the students brainstormed solutions to the problems and developed an action plan. For some companies this was a long process, but in the end, the action plans incorporated the strengths of all group members and were truly greater than their individual parts.

The final step was developing a presentation of their plans to the School Board. These presentations took a variety of formats, all of which were creative. They were videotaped and represented the culmination of the week-long efforts of serious problem solving and collaboration by the students. The following sections describe the procedures and detail the creative solutions, proposals, and presentations made by each of the five companies from the High Hopes Summer Institute.

**Procedures**

This is a descriptive study that involved primarily qualitative methodology including reviewing video tapes of student presentations, observations, student comments, plus teacher-facilitator observations, comments, and evaluations. Student solutions to their identified problems were evaluated by board members, administrators, content experts, and teacher-facilitators who addressed the practicality and appropriateness of the solution, and the use of authentic skills from each domain. For example, students with talent in engineering were evaluated on structural soundness and practicality by the professional engineer. Since the engineer was involved in developing the plan, the evaluation was formative. Teacher-facilitators also reflected upon students using a journal and provided comments about each student’s role and individual contribution to the group.

Evaluation of the three-year program of Project High Hopes can be found in the final evaluation report (Baum, Neu, & Cooper, 1997). Additionally, follow-up programming for the students who were involved in the summer institute was examined by reviewing changes in general education or special education programming after the institute.
Results

The five student companies arrived at five unique proposals to solve the problems they identified with the site. Each company developed and gave a presentation to describe their proposed solutions.

Company #1, composed of five students who had been identified with learning disabilities, identified several problems with the site including lack of biodiversity, lack of visual appeal, poorly constructed dam, and unsafe bridge. Members of the company selected problems to solve based on their interests and strengths. The biologist of the company outlined a plan to reintroduce local indigenous fish to the pond, and the visual artist developed a landscape plan for the site to enhance the aesthetic value of the pond and its surrounding area. The remaining three members dealt with engineering problems concerning the existing bridge and dam systems that were decaying and poorly functioning. The students recognized that a dam was needed to protect the area from flooding and, at the same time, allow for the continued flow of water making it suitable for animal life.

The students from Company #1 used a visual approach for their presentation by preparing a video tape illustrating each of the problems they identified, followed by a proposal to construct a new dam (complete with spill-way to control flooding) and bridge system that would enhance the depth and flow of the water. The ideas were incorporated within a diorama that they constructed to scale depicting the dam, bridges, and appropriate landscaping to improve the site. During the presentation, both the video and the diorama were accompanied by explanations from the students.

Company #2 included five deaf students from two special schools for the deaf. Named the “Nature Family Company,” these students viewed the site holistically and identified it as environmentally unsound. Specifically, they identified problems of trash dumping, erosion, and lack of biodiversity and wildlife appropriate to the site, and these students presented the problems and their proposed solutions to the Board in a dramatic arts performance. The performance was unique, in that students incorporated sign language, visual displays, and role playing to simulate the identified problems. The message they conveyed was centered around the involvement of students to clean up the site and enhance the biodiversity through reintroduction of the native flora and fauna.

Company #3 included five students who had various special education classifications including learning disabilities, behavior disorders, and attention deficit with hyper-activity disorders. They concentrated their efforts on applying engineering concepts to the bridge and dam to improve the ecosystem surrounding the pond, proposed a new bridge and dam system, and constructed a scale model of their proposed system. The model was presented to the Board accompanied by a topographic representation of the site that included a nature trail overlay developed so the site could be used for educational purposes. The proposed nature trail included markers to identify various flora along the trail and markers to identify areas known for specific fauna such as “the Fowler’s Toad breeding grounds.” Their presentation approach was business like using flip charts, an overhead projector, color slides, and scale models of the proposed bridge and dam.

Company #4 included six students who were hearing impaired or had emotional or behavioral disorders. Two of these students also had pervasive developmental disorders, yet they took charge of the project and completed a scientific paper that outlined the problems associated with the site. Their paper was technical, rich with data, and included all available water sample information and flora and fauna inventories. Because one student was deaf and another student unfamiliar with sign language, they collaborated through the use of networked computers. Their work was thorough, time consuming and scientifically valid. The other four students were strong in verbal communication and performing arts and created a play to be presented to the board in two parts. The first act was performed at the beginning of the Board presentation, depicting the problems associated with the dirty pond. This was followed by the first two students presenting their paper that suggested solutions developing a dam with a filter and a monitoring station placed upstream. The authors presented simultaneously, one verbally and the other in sign. Following the technical presentation, the four artists performed Act II of their play which depicted the site once the solutions were implemented.

Company #5 included six deaf students, three of whom also were identified as having emotional and behavioral disorders. These students identified the problems with the site as pollution, a non-functioning dam, and a failing ecosystem. Their presentation was done in three parts. First, they produced a video in which each member of the company portrayed a different form of fauna from the site. In their roles of fauna, each student described how the water problems affected their niche. For example, one student portrayed a snake and demonstrated how the snake could not find fish and frogs to eat due to the pollution. Second, they presented a mural of the water feature demonstrating the locations that needed immediate clean-up and repair. Finally, they designed a dam and created a scale model of their design that included a filtering system and incorporated a spill-way controlled, in part, by water temperature and pressure.

For many of these students, this successful learning experience helped to increase their self-confidence, self-efficacy, and self-esteem. Teacher-facilitators described the increased self-confidence and self-esteem that they observed within their companies as students began to work together and appreciate each other’s special talents. Content experts described the self-efficacy that developed as these students worked in their strength areas. Because so many of their traditional school experiences had been met with difficulty, and much attention had been paid to their disabilities, for many students this was the first time they were perceived by their peers and teachers as gifted. As one student’s mother described, “...the most important thing to Adam is teachers were concerned about what he can do, not what he can’t do academically.” Adam, who was identified for his visual arts ability, returned to his public school and volunteered for drama club (something he had never done before) and began making back drops for productions. By the end of the school year was designing sets and performing in a school D.A.R.E. production that was broadcast by a local cable television station.

Heather, a deaf student who was identified for performing arts and science abilities, indicated that the institute had taught her, “We can make a difference and help clean up the environment. I want to take this back to my school and keep working.” She later formed an Odyssey of the Mind Team at her school during which she was able to use her performing arts and science abilities to help her team place second in state competition. In doing so she used her newly acquired knowledge and sense of self.

Dorothy, a student with a strong ability in science and pervasive developmental disorder, provided a good example of increased self-efficacy when she stated, “I felt like a scientist. I

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think I would do better in school if it were more like this summer, I want to be in a higher level science class at school because I know I can do it.” Dorothy returned to school and completed an advanced behavioral study of cheetahs at a local zoo for a science fair project using biological research skills and statistical analysis that she learned during the summer institute. She received top honors at her school science fair competition.

Mark, a student with a learning disability who was identified for his ability in engineering, had never read an entire book. A letter from his mother a few weeks after the summer institute explained that Mark seemed much more self-confident and that he had just finished reading Jurassic Park (Crichton, 1993) and was currently reading Congo (Crichton, 1993). Further, classroom teachers indicated that Mark approached his regular school work with more confidence than he had in previous years. Mark, also a student athlete, read Friday Night Lights (Bissinger, 1990), a qualitative study of high school athletes in Texas and carried on discussion about this book with a member of Project High Hopes via e-mail.

For the 27 students who participated in the summer institute there were some substantial changes in the services they received and in the activities they elected during the school year following the institute. Although there were no pre and post measures given to students regarding self-efficacy, self-esteem, and self-concept, their increased involvement in school activities after attending the institute suggests improvement in these areas. Seventeen students became new members in their home school’s program for gifted and talented students. Three other students were moved from resource room placements to full inclusion in general education classrooms. Two others completed exceptional independent research projects using their engineering skills for their school’s research week program. A total of 26 students participated in one or more of the following activities: Odyssey of the Mind, local art shows, school performances, and science fairs. None of the students had been involved in these programs prior to the Project High Hopes Summer Institute.

As a result of the presentations and solutions suggested by the students, the American School for the Deaf has incorporated some solutions from several of the presentations. These actions involved students in cleaning up the grounds and developing a nature trail with flora and fauna identified and marked. Additionally, the school is seeking external funding that allows more extensive clean up and structural changes in the water feature, and the American School for the Deaf has begun to view its water feature as a resource to be cared for and used in their educational program. Finally, the “Talent Development Curriculum Process” of incorporating creative, real-world problem solving is being integrated into the existing curriculum by teachers at the school.

Discussion and Implications

The advanced and high quality student products and presentations clearly demonstrate that the Summer Institute of Project High Hopes has important implications for gifted education, special education, and general education. One of the primary considerations is that a curriculum drawn from real life and interesting to students is a powerful motivator for learning particularly when students gain knowledge and skills from using authentic resources and working with experts. What’s more problem solving is enhanced when students focus on their strength areas.

Evan is a good example of a student whose expertise and strength helped to enhance his company’s solution. Although his reading skills were limited, Evan’s expertise in the identification of local flora and fauna made him the company expert as a naturalist. Using his expertise, he developed an environmental impact statement that related to the proposed construction of the dam thereby strengthening his company’s proposed solution.

A second implication is that when such a curriculum has for its outlet the development of real solutions that are presented to an authentic audience, letter grades may be unnecessary. Students can derive tremendous satisfaction from their own solutions to problems that they identify, moving them away from the quest to satisfy the teacher, and away from the “find the right answer syndrome.” Instead students are focused toward learning and applying information as needed to solve real problems for authentic audiences (Renzulli, 1994).

Another important point drawn from this project involves true student collaboration instead of the contrived use of cooperative learning that is often used in schools (Robinson, 1991). Students in this institute worked together and applied their individual talents and strengths to create the best solutions and presentations that their company could offer, much as might be done in the real world. Student differences and strengths were acknowledged, realized, appreciated and used to create better solutions than might have been developed had the students worked alone. Situations for collaboration such as those provided during this institute could be provided in schools because similar situations have the potential to improve student performance through the use of strength-based collaboration in which each member has an important role in assuring a high quality final solution or product.

To provide documentation of the effectiveness in future research or replication studies of similar curricula, the authors suggest employing a combination of quantitative and qualitative methods. Although the qualitative approach used in this study provided insight into the institute, its curriculum and its effect on students, adding a quantitative approach would have provided greater insight through pre and post measures on self-esteem, self-efficacy, and self-concept. This combination of methods would serve researchers and curriculum developers by providing a more complete picture of the observable and measurable effects of curricula when implemented.

There are several limitations of a one-week institute including time, staffing, and follow through. Although the results of this project were impressive, a week is a relatively short amount of time, and changes in student programming may or may not be due to the involvement of students in the institute. Bringing these students together for more time or on more frequent occasions, although not provided for in this grant, might serve to strengthen outcomes, as well as provide opportunities for researchers to gain insight into the effects of such interactions over an extended time period.

The staff of the institute, although exemplary, were not part of the students’ home schools, thereby further removing this experience from the realm of school. Future efforts might want to include local staff as part of an institute to help facili-
tate transfer and follow through by both students and teachers. Serving as facilitators in such an institute can be a valuable staff development component for the student’s teachers while allowing them to view these students in a different manner and under different circumstances.

Additionally, due to the limitations of a 3-year grant, follow-through was more limited than it ought to be in an ideal situation. In-depth interviews with students regarding the effect of the institute on their experiences in school the following year would have provided valuable insight into the students’ perceptions as well as into the long range effects of the institute. Although many of the institute students became more involved in their home school programs, continued programming similar to the institute would have been desirable, because of the 156 students identified and served in Project High Hopes, only 27 or the students chose to attend the institute. It would have been valuable to have had the participation of all of the students who had been involved in Project High Hopes during the school year as part of the institute.

Finally, although the results of this institute may not have revealed anything new to education, successfully extending some tried and true strategies from gifted education to a special population of middle school students with domain-specific talents as well as identified disabilities has one important implication. General, special, and gifted education should take special care not to exclude children such as the ones in this study from special programming for talent development because of their disabilities. It may take effort to “find” the strength areas, but as demonstrated in this study, finding these strengths are well worth the effort. Rather than focusing on students’ deficiencies and where they need to improve, this institute demonstrated that with appropriate curriculum and encouragement to apply their strengths and talents, the sky for talent development is truly the limit. Given opportunity, students can be encouraged by their own abilities and strengths as they experience success, perhaps for the first time. The use of real-world problems solved in collaborative, creative, strength-based groups ought to be incorporated into our schools, because as the late scholar A. Harry Passow once said to me “Schools ought to be about the business of talent development.” It really is that simple.

REFERENCES


