Winter 2007

Teaching for high potential

From the Editor's Desk

A wise teacher of geology once told me, "The present is the key to the past." This simple quote has stayed with me throughout the years, and over time I have learned that the reverse is also true. The past is the key to the present. In preparing for this, my first issue of *Teaching for High Potential*, I found myself sifting through back issues of Gifted Child Quarterly in search of inspiration. I came across The Gifted Child Newsletter, Vol. 1, No. 1, published in 1957, when the association was a mere three years old. Ann F. Isaacs, President at the time, stated the following in her message.

> *We hope that we shall be able to fill the need for a periodical which is solely devoted to reporting the news and research in the fields of Psychology and Education of the Gifted. The plan is to publish the NEWSLETTER for one year, nurturing its growth until it achieves maturity as a journal.*

The Association held true to this promise, and in the winter of 1958, *Gifted Child Quarterly* was born.

While my hopes for this publication are not entirely identical, they are in sync with the prospect of what the National Association for Gifted Children can provide; accessible, classroom-based materials grounded in sound theory and current best practices in the field of gifted education.

In keeping with this ideal, there are a few changes I wish to make you aware of regarding future issues of *Teaching for High Potential*. You will note the addition of regular columns, two appearing in this issue and four more to debut by the next. Brian Housand's *Technology Untangled* will offer insight into utilizing the internet. Bob Seney's *Books, Books, and more Books* seeks to educate the educator in the use of picture books across multiple age levels and discipline areas. In addition, Bess Wilson will provide *Smart Cookies*, a quarterly cartoon for your entertainment. Robert Schultz, Eric Mann, Gail Herman, and Jennifer Beasley will offer columns on social and emotional viewpoints, math ideas, arts integration, and curricular connections, respectfully.

This issue features four articles. Sally Dobyns, Megan Dobyns and Elizabeth Connell present educaching as a way to invite and encourage student exploration. Christine Massey and Paul Bierman offer the Vermont Landscape Change Program, a tool designed to aid in primary research and allow users to view the change in landscapes over time. Eric Mann shows us that there is more to math than drill and recitation, and Amy Rettberg inspires us with a push for peer coaching. As with every issue, there is an article informing us on the work of a specific Javits grant recipient. Alicia Cotabish, Ann Biggers, Abby Dragland & Ann Robinson explain The Arkansas Evaluation Initiative, a program designed to promote and facilitate professional development in an effort to increase program evaluation.

If, as I have suggested, "the past is the key to the present," then we, as educators, possess access to a wealth of resources enabling us to provide our students with the highest quality educational experience possible. It is our duty to seek out these resources and share them with others seeking the same goal.

We hope that *Teaching for High Potential* does, and will continue to, add to the body of materials available to you. Be sure to visit the website for additional information and links related to the articles and columns in this issue, as well as new content updated regularly. I hope that you enjoy this issue of THP. I welcome your comments, suggestions, opinions, and ideas.

Jeff Danielian
Editor
jdanielian@nagc.org

NATIONAL ASSOCIATION FOR Gifted Children

● PULL-OUT SECTION ●

In This Issue

● ● ● ●

Teaching for High Potential

Jeff Danielian is the NAGC Gifted Resource Specialist. He is a middle grades gifted and talented science teacher at LaSalle Academy in Providence, Rhode Island.

EDUCACHING: Capturing the Spirit of the Hunt for Learning

Sally M. Dobyns, *University of Louisiana at Lafayette*
Megan S. Dobyns & Elizabeth E. Connell, *Mary Baldwin College*

Where in the world is..?

Nothing captures our imaginations quite like the intrigue of hidden treasure; witness the historic popularity among all age groups of the escapades of Long John Silver, Indiana Jones, and Captain Jack Sparrow. And nothing holds our attention quite like technology; think television, computers, and Game Boys. Imagine how we might capture the interest and attention of our students if we were to combine these notions in educational settings. Many already have. How have an early college entrance program for women in Virginia, two New York City public schools, and an independent school in southwest Louisiana capitalized on these well-known secrets and turned them into learning experiences? Educaching!*

Educaching refers to the educational application of geocaching, the world's fastest growing hobby/sport/game. Made possible by the cutting-edge technology of the Global Positioning System (GPS) and the Internet, geocaching is a high-tech scavenger hunt that entices men, women, and children (a.k.a. *cachers*) to search for hidden treasures (*caches*) all around the world using latitude and longitude coordinates that have been posted for particular caches. Cachers play two roles in geocaching; they are both the hiders (owners) and the seekers of caches. Cachers use the Internet to post the locations (a.k.a. *waypoints*) and written descriptions of the caches they have hidden and want others to find. Other cachers use the Internet to find cache descriptions with waypoints that others have posted and then use handheld GPS receivers and detective-like reasoning to discover the caches.

Caches can take a variety of forms. *Traditional caches* are containers usually filled with trinkets and mementos; *virtual caches* are existing structures such as historic sites; and *earth caches* are geographic features. The latter two types of caches are often posted because the cache "owner" thinks these sites might be of interest to others. Inside traditional caches one might find or place a trackable item, such as a *travel bug* or a *geocoin.* These items have unique tracking numbers which are logged by the finders on a geocaching website (www.geocaching.com), so that as the items "travel" from cache to cache, those watching them can plot their movements on a map or a globe…a super high-tech version of Flat Stanley!

CURRICULAR APPLICATIONS

A major appeal of classroom integration of geocaching is the affordability of the high-tech equipment itself. Handheld GPS receivers are available in a wide price range starting at approximately $100.00 (Garmin Yellow eTrex & Magellan eXplorist 100). Six receivers for a class of 20-30 students are quite sufficient. It is not even desirable for each student or adult to have a receiver while on the hunt; safety and common sense dictate that **at least** one person must watch the surroundings and the path ahead, one must handle the map, one must manipulate the compass, and one must attend to the written clues, making teamwork a natural part of this process.

An obvious and exciting application of educaching is in teaching geography and geoscience. Landforms, mapping, longitude and latitude all attract renewed interest from teachers and students when geocaching becomes the tool for learning. Shaunessy & Page (2006) provide a treasure trove of creative methods and practical information for integrating GPS technology with the study of geography and science. Extensive background information for teachers is provided, and GPS technology learning goals are aligned to various sets of national standards (e.g., National Social Studies Standards, National Science Education Standards, etc.).

In this section we briefly propose a short list of ideas for the less obvious but equally sound and lively curricular applications where geocaching becomes a boon to the teaching and learning processes. These ideas and others are illustrated more in depth in the "Program Enhancement" section that follows.

History: Caches are often designed to draw attention to historical sites and markers of local, state, and national significance, particularly if these are in unexpected locations (e.g., a tiny Civil War cemetery not far from a major highway near Minnesota's Twin Cities or a Viet Nam War memorial in rural New Mexico).

Language Arts: Descriptive, precision, and technical writing are used in writing directions and clues to accompany waypoints; creative writing is used in creating the stories for travel bugs; clues are encrypted and decrypted; and the geocaching "lingo" provides appealing vocabulary-building for students of all ages.

Physical Education: Fun activities for fitness and movement are easily differentiated for various levels of physical demand; caches are often accessible to students with mobility impairments and are noted as such on caching websites; spatial orientation is refined through the real-world use of the GPS receiver, the compass, and the map.

Thinking Skills: Research, observation, and inductive and deductive reasoning are required in every aspect of caching activities. Creativity is necessary in the development of caches and travel bug goals and stories.

PROGRAM ENHANCEMENT

The following case studies provide splendid examples of the multiple and creative ways schools around the country, from small towns to big cities, from elementary schools to colleges, are incorporating educaching into various curricular areas. These schools are at various stages in their implementation of educaching as a learning tool.

Staunton, Virginia

The Program for the Exceptionally Gifted (PEG) is an early college entrance program for gifted girls, housed on the campus of Mary Baldwin College. Students in the program are as young as 12 years of age and have come to college without completing (or, in some cases, even attending) high school. These young females are a diverse group from all across the country, but they share boundless energy and a passion for learning. They are creative, competitive, and constantly seeking new challenges. What could be a better fit for these students than geocaching?

Geocaching offers PEG students an opportunity to develop and refine geography and technology skills as well as an opportunity to hike beautiful trails and learn about historic landmarks in the town and along nearby Skyline Drive and the Blue Ridge Parkway. Using borrowed GPS receivers and compasses, small groups of PEG students and staff members have taken geocaching trips on the college campus, around the town, and in the surrounding mountains. Students and staff are in the process of securing grant funds to purchase GPS receivers and compasses for the program. They will regularly take to the hills looking for interesting caches and plan to spread Gladys the Squirrel travel

*Educaching: term coined by Louise Prejean, Doug Williams, and Sally M. Dobyns

bugs (their college mascot) all around the world. In the spirit of community service, PEG students plan to teach local elementary and middle school students about the fun of learning through geocaching. They also plan to develop, hide, and register caches on the college campus and in the Staunton community. Through their caches, they hope to teach others about the traditions of Mary Baldwin College and of the accomplishments of the "founding mothers" of the Shenandoah Valley.

New York, New York

P.S. 115 and P.S. 203 are elementary schools in the nation's largest school district that have recently added educaching to their already enriched offerings. These schools in Queens serve linguistically and culturally diverse student populations. They began by securing grant funding to purchase handheld GPS receivers and compasses. Equipment in hand, faculty were then trained in the use of geocaching as a learning tool to be embedded into a variety of curricular areas. As of this writing, English Language Learners (ELL) in an after school program are studying heroes and using geocaching as part of their study. Advanced learners from general education classrooms are participating also as guests of the ELL students. Students will investigate heroes past and present that represent all areas of endeavor, dependent upon each student's interests. In the research phase of an initial geocaching activity, each group of five students will investigate the life of one hero with each student selecting one fact of interest. They will then place five facts (clues) about their hero in five different caches around the schoolyard. Each of these five clues then becomes a piece of the puzzle for another group to find and solve. Each series of caches represents a different hero; each cache contains one fact about that hero. For each cache the "hiders" must select an appropriate hiding place, establish a waypoint using the GPS receiver, and write a clue about the hiding place. The waypoints and clues will be provided to another group of students, the "seekers." The written clue for each cache location must be precise enough to point the way toward the cache and yet obscure enough to ensure that the seekers must use their skills of observation and deduction, as well as their skills with the GPS receiver and compass. To further challenge the seekers, the hiders will encrypt the location clues. After caches have been found, each group will reassemble the facts inside their caches to discover the hero.

Faculty in these schools have also created and "released" travel bugs that will be tracked by students using maps and http://www.geocaching.com throughout the school year. These travel bugs are replicas of New York City school buses (a.k.a. Cheese Buses), and they will serve as ambassadors for the schools, as well as models for student-created travel bugs later in the year. Each travel bug has a story and a goal, and each hopes to collect goal-related stories from the cachers who move it from cache to cache. For readers who would like to explore the use of trackable items, the reference numbers for Carole the Cheese Bus (TB15AOR) and Jimmy the Cheese Bus (TB14KOC) are provided here. Other travel bug reference numbers are provided below. Travel bugs are tracked using the website listed above; accounts are free-of-charge.

Lafayette, Louisiana

Elementary Grades

In southwest Louisiana, The Episcopal School of Acadiana (ESA) is in its third year of implementing the Schoolwide Enrichment Model in grades PreK-3 through 5. (Renzulli and Reis, 1985) Students, staff, and parents are most enthusiastic about enrichment clusters (Renzulli, Gentry, & Reis, 2003). Enrichment clusters involve students in authentic learning as they use the methodology and tools of professionals to identify and address what they perceive to be a real-world problem. Geocaching was a recent cluster that generated high interest among students in grades 3-5. Two teachers and a local university professor facilitated the cluster. Large oil companies and smaller oil-related companies represent a major portion of the business and industry in the Lafayette community; hunting and fishing are popular recreational pursuits that attract visitors to south Louisiana from far and wide. GPS technology is very important to both of these industries, representing local real-world use of GPS technology. Professionals employed in these industries participated in the cluster, and the students were quite aware that they were learning how to use the tools and the methods of inquiry used everyday by men and women in these industries. Cluster activities included bringing in a portable satellite dish from the engineering department of the local university, learning how to use the compass and the GPS receiver, designing, hiding, and finding traditional caches, *multicaches* (using a cache to provide clues to the location of the next cache), and *microcaches* (tiny caches such as film canisters), locating virtual caches, and tracking travel bugs. The cluster product, decided upon by the students, was a cache that represented their school that would be hidden in a field near the school's main campus and registered on http://www.geocaching.com. An interesting effect of this cluster was the transfer to the families of cluster participants. Several of the families purchased GPS receivers and continue geocaching activities on weekends and vacations.

Middle School

Since 1980, ESA 8th grade students have hiked and camped together for 8-10 days in the mountains of North Carolina and Georgia. This cross-curricular community-building experience, Globe Trek, is the culmination of their middle school years (grades 6-8). The 45-50 students are divided into 7-8 students per group; these groups take different routes and have a different student leader each day. The student leader of each group carries a compass, a United States Geological Service (USGS) map of the area, and since 2004, a GPS receiver. While trekking, each student keeps a journal and takes photographs of personal significance, and using the group's GPS receiver, each sets waypoints corresponding to the locations of the journal entries and photographs. Upon their return to school, in their physical science class, students enter their personal waypoints into Excel and generate individual maps of their Globe Trek adventures. They compare their maps to the USGS maps. In English class students write about their Globe Trek adventures in various genres. Along with the photographs, journal entries, USGS maps, individual maps, creative writing products, and other self-selected items, each student creates a personal scrapbook of this extraordinary 8th grade trip.

Although *educaching*, the application of geocaching to the learning environment, is new, our intrigue with hidden treasure is timeless, and our capacity to be fascinated and entertained by technology is limitless. Educaching allows us to capture this excitement and use it to facilitate high-end learning for all students in all curricular areas…and all with affordable, easy-to-learn technology. So, in the spirit of the treasure hunt,
DIG IN!

Resources

Some Cajun Travel Bugs For Your Tracking Pleasure
(www.geocaching.com)

Alexandre the Crawfish (TBYTYF)
Andre Crawfish (TBHF31)
Francois the Crawfish (TBGX5K)

http://www.bl.uk/learning/tarea/proj/geo/geocaching.html

http://www.earthcache.org

http://www.geocachingkids.com

www.geocaching.com

http://members.cox.net/inskeep/GeoQuest/introduction.htm

http://science.nasa.gov/Realtime/jtrack/3d/JTrack3d.html (tracks the satellites in real time)

http://www.pocketgpsworld.com/howgpsworks.php (answers all the technical questions about how GPS works)

http://www.topozone.com (the map users' dream site!)

http://education.usgs.gov/common/lessons/gps.html (U. S. Geological Service education site)

Sherman, E. (2004). *Geocaching: Hike and Seek with Your GPS*. New York: Apress.

Peters, J. W. (2004). *The Complete Idiot's Guide to Geocaching.* New York: Alpha Books.

References

Shaunessy, E. & Page, C. (2006). Promoting inquiry in the gifted classroom through GPS and GIS technologies. *Gifted Child Today, 29* (4), 42-53.

Renzulli, J. S., & Reis, S. M. (1985). *The schoolwide enrichment model: A comprehensive plan for educational excellence.* Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S., Gentry, M., & Reis, S. M. (2003). *Enrichment clusters: A practical plan for real-world, student-driven learning.* Mansfield Center, CT: Creative Learning Press.

Sally M. Dobyns is an associate professor and Director of the Center for Gifted Education at the University of Louisiana at Lafayette.

Megan S. Dobyns is the Admissions Director of the Program for the Exceptionally Gifted at Mary Baldwin College.

Elizabeth E. Connell is Director of the Program for the Exceptionally Gifted at Mary Baldwin College.

The information contained in this article aligns with the following Pre-K-Grade 12 Gifted Program Standards: Curriculum Instruction (2, 3, 5, and 5.1). For a complete copy of the Standards, visit www.nagc.org.

Books, Books, and More Books

By Bob Seney, *Professor Emeritus, Mississippi University for Women*

Illustrated Books in Secondary Schools

In my presentation at the NAGC Charlotte conference, I mentioned using picture books with gifted secondary students. Obviously, I hit on something of real interest. Several of the participants enthusiastically shared how they were using this rich, literary resource with their students. Then, a few of the other participants asked some very poignant questions. That experience has prompted this column in *THP*. I have been using illustrated children's literature with older students for years and if their reactions are any indication, this genre is not only a real hit with these older students but a valuable curricular tool as well.

No offense to anyone, but let's do a quick review of Kiddy Lit 101. There are three basic uses of illustrations in children's literature. The **first** *is simply to break up the text with illustrations that may or may not be directly related to the text where the illustration is found. This is what we often find in children's novels. The* **second** *use is what we find in most picture books. The illustrations are directly related to the narrative and provide important visual clues for young and beginning readers. The* **third** *use is the most sophisticated use of the three and is becoming more and more popular with authors and illustrators. In this use, the illustrations play an integral part in the telling of the story. The illustrations amplify the text and add significant details that are not found in the narrative. This use taken to its most dramatic conclusion is found in the increasingly popular "textless" books. David Wiesner is perhaps the best example of an illustrator/author who uses this technique. We will visit Wiesner's work in our next column.*

In this installment, we will visit one of my very favorite picture books, *Emily* by Michael Bedard, illustrated by Barbara Cooney (1992, A Doubleday Book for Young Readers published by Delacorte Press). This book was inspired by one of Emily Dickinson's short poems, "Who has not found…"

In the author's notes, Bedard says that when he visited Emily Dickinson's home in Amherst, Massachusetts, and was standing below her window, Emily "lowered this story to me." The story is told from the point of view of a little girl who has moved into a house across the street from a young mysterious girl. Slowly the narrative unfolds as to whom this mysterious Emily is and at the same time provides a wonderful introduction to poetry. We come to know not only Emily but also the little girl who is interested in her new neighbor. The language, especially the use of similes and metaphors, is absolutely beautiful. This book could be used simply for the analysis of the language and its literary techniques. It is really quite a sophisticated little book.

I have used this delightful book in several ways with older gifted students. My primary uses have been to use it as a read-aloud to introduce a unit on poetry, {It makes a great "anticipatory set" if you have been "Hunterized."} and as a model for an alternative research product. This book wonderfully illustrates (Whoops, no pun intended!) how research can be presented in more ways that the traditional paper. This book presents so much of what we know about Dickinson: her love of children, her home, her love of gardening, her tendency to be a recluse, and many other details of her life. All of this information is presented to a very specific audience in a very unique voice. This book is a great model for a product that easily meets the criteria for a "differentiated" product.

In future columns, we will investigate other illustrated literature that can enliven your class and your instruction. We would also be interested in hearing how you are using this genre of literature with older gifted students. Happy Reading!

Teachers and Kids Dig Old Photos

Christine A. Massey & Paul R. Bierman, *University of Vermont*

Learners of all ages and abilities respond to photographs. From the "Let me see!" voices of young children to the emotions of remembering adults, photographs catalyze engagement, thought, and learning. Because photographs connect learners to places, events, and other people in so many different ways, using photographic images in teaching is something all educators should consider adding to their pedagogical toolboxes. The beauty of images is that they can be used to teach subject matter in a variety of different disciplines.

Landscape Change Program

Starting in 1999, students and faculty at the University of Vermont began creating a public digital archive of historic landscape photographs. The *Landscape Change Program* is a collection of well-described and key-worded images that is available on-line for use by educators. The archive currently includes over 13,000 images documenting 200 years of Vermont's changing landscape and people. Images are easily accessible using a variety of different search and display tools. One can develop personal albums of favorite images, as well as send e-postcards. Tools allow viewers to zoom in and see the details or display image locations on road maps and aerial photographs. Statistical tools allow users to categorize image collections by type, content, and date in order to test hypotheses about change over time.

In order to maintain a fluid and "value-added" collection, the program solicits community involvement in the form of comments, corrections, and new curricular ideas. K-12 educators have developed "Best Practices" example curricula using images selected from the archive. Curricular examples in language arts, social studies, science, and technology use Vermont photographs, but the pedagogy and structure of these curricula are transferable to any location. Indeed, archives of historical images are usually no further away than the local library, town hall, or historical society.

Sense of Place

The *Landscape Change Program* began as a way to document physical geologic change on the Vermont landscape. Supported by a grant in geo-education from the National Science Foundation, program personnel worked intensively with students in a dozen high schools to collect, describe, and analyze the first 800 images. Students were challenged to identify and understand changes to places they or their ancestors knew. Historical context came from local elders, town historians, and town officials, while modern technology served to record the students' work (GPS units, digital re-photography, scanning, image uploading, etc.).

As the archive grew, other providers of images emerged. New images in the program now come from a variety of archives including libraries, historical societies, and personal collections. The *Landscape Change Program* has become a unique source of historical information for environmental planners, cultural historians, students, educators, and the general public. Although physical and natural science images remain central (flooding, mining, deforestation, erosion, excavation, road building), many historic images are useful and attractive to non-scientists because of their architectural, social, or cultural content. Images from the program have been used for books, in papers, on commemorative t-shirts, for environmental and historic preservation research, and for public interpretive signage.

Sensing or understanding place requires not only reference to the physical landscape, but also to the workings of the community that uses the landscape. Landscapes influence human cultural behavior just as people alter the landscape. In modern history, these interactions are documented in photographs, paintings, and maps. For example, images highlighting topography, flooding, or seasons particularly emphasize how landscapes influence the types and location of human infrastructure, agriculture, and lifestyle. Likewise, images of deforestation, mining, road construction and dam building, document human-induced change to the landscape.

Undergraduates at the University of Vermont have used images from the archive to understand the importance of human-landscape interaction and to deepen their own sense of place. One student used nearly 400 images of rivers and streams to assess changes in vegetation along the banks over time. She found that in the 19th and early 20th century, most river banks were devoid of vegetation--a reflection of cultural norms. By 1950, streamside forests began to reappear, likely the result of farm abandonment and the realization that river water quality was important and aided by forested stream banks. Another student used 150 years of Vermont images to link erosion with clear-cutting, verifying the results of modern studies conducted in the Pacific Northwest, an area where forests have been cleared and hill slopes have eroded over the past decades. These data are presented in *GSA Today* (Bierman, Howe, Stanley-Mann, Peabody, Hilke, & Massey, 2005) which is available on-line (see *Important Links*, Page 6).

Educational Materials and Curricula

Efforts to use the *Landscape Change Program* archive in formal educational settings began with the creation of a "stand-alone" on-line tutorial called *Learning Landscapes* (uvm.edu/learninglandscapes). The curriculum uses images and a question/answer format to understand rivers and hill slopes—two fundamental landscape domains that cover the basics of water and land (Figure 1). *Learning Landscapes* has been utilized in first-year undergraduate courses, but would also be applicable to high school learning.

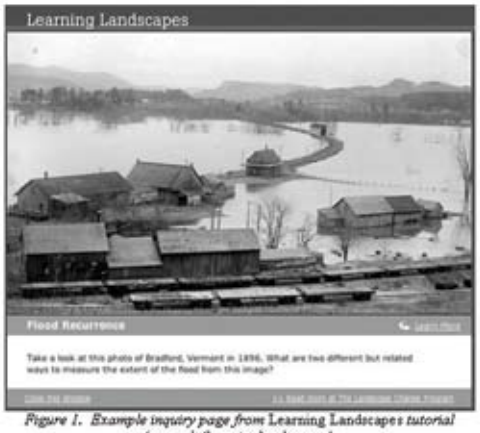


Figure 1. Example inquiry page from Learning Landscapes tutorial (uvm.edu/learninglandscapes).

Under additional National Science Foundation support, work with local educators continues in order to develop "Best Practices" K-12 curricula using *Landscape Change Program* images. Curricula are grouped into two categories--classroom experiences and field experiences. "In-class" curricula utilize images in either hardcopy or on-line form in short lessons within classrooms (see Figure 2 for current offerings). "Field" curricula combine classroom and field learning in longer units of study. Work at this level might include re-photographing, interviewing, adding archive images, mapping, or other hands-on, student-driven activities. Most lessons prepared so far are multi-disciplinary and draw from language arts, social studies, science, and/or technology.

Authentic Learning: Telling Stories, Observing, and Personal Connections

Students like *telling the story* behind the snapshot. They like to decipher and "solve" the inherent mystery of a photo that they've never seen before. The Language Arts curricular examples in Figure 2 include writing stories about photographs using the constructs of storyboards, sensory language, and newspapers. Even in science and social science curricula, unveiling the story behind the photo creates the context for understanding landscape change from those perspec-

Authentic Learning: Telling Stories, Observing, and Personal Connections

Students like *telling the story* behind the snapshot. They like to decipher and "solve" the inherent mystery of a photo that they've never seen before. The Language Arts curricular examples in Figure 2 include writing stories about photographs using the constructs of storyboards, sensory language, and newspapers. Even in science and social science curricula, unveiling the story behind the photo creates the context for understanding landscape change from those perspectives.

Photographs are objects to be *observed*. Students visualize a personal interpretation of a photograph and build their own understanding. Learning how to see details in photographs takes some practice. The best curricula often introduce the "art of observing" early in the lessons. Dividing photos into regions works well. Whether you break the photo down into the foreground, middle-ground and background, or impose an artificial grid on top to focus in on fine detail, improving observation skills becomes an important learning goal. "Reading" photographs helps students "read" the real world, as well. On field trips, students who had worked with images before going outside connected real landscape features with those they saw previously in photos.

Working with local photographs *connects* students to their own past, and provides a context for their personal experience. People are particularly vested and drawn to ideas and events that relate to their own experiences and knowledge base. Local photographs invoke memories, show familiar things, and provide "ownership." Images get kids involved and excited.

Get Involved

The *Landscape Change Program* provides historical snapshots into the physical and cultural "places" of Vermont's past. The program relies on community members to add information, edit descriptions, identify unknowns, contribute historical images, and re-photograph modern views from historical vantage points.

In summer 2008, the University of Vermont will host a National Dissemination Conference for a broad base of institutions including universities, historical societies, museums, and non-profits hoping to create their own local landscape archives. Ideas and best practices will be showcased regarding the collection of images, database management, hiring of professionals *and* students, K-12 and home school curricula using images, and native American oral interpretations of images. If you are interested in participating, contact the Landscape Change Program, glcp@uvm.edu.

We invite educators of gifted children to give us feedback on existing curricula and share their own ideas about how to use this rich archive of historic landscape images with high potential learners. If you have comments or curricula to share, please contact Christine Massey, LCP Outreach, christine.massey@uvm.edu

Additionally, we offer an on-line course at the University of Vermont during the winter session each January entitled "The Changing Face of Vermont Landscapes." This is a 3-credit, on-line course with an applied field component during the spring semester. Register through the Department of Continuing Education (uvm.edu/wintersession.php) or contact Professor Paul Bierman, paul.bierman@uvm.edu, for more information.

Important Links

University of Vermont Landscape Change Program Archive

http://www.uvm.edu/landscape

University of Vermont Learning Landscapes On-line Tutorial on Rivers and Hillslopes
http://www.uvm.edu/learninglandscapes

University of Vermont Continuing Education Winter Session Courses

http://learn.uvm.edu/wintersession.php

Reference

Geological Society of America (GSA) Today Article

Bierman, P.R., Howe, J., Stanley-Mann, E., Peabody, M., Hilke, J., and Massey, C.A., (April 2005). Old images record landscape change through time, *GSA Today*. 15(4), pp. 4-10 (plus cover). http://www.gsajournals.org/perlserv/?request=get-toc&&issn=1052-5173&volume=15&issue=4

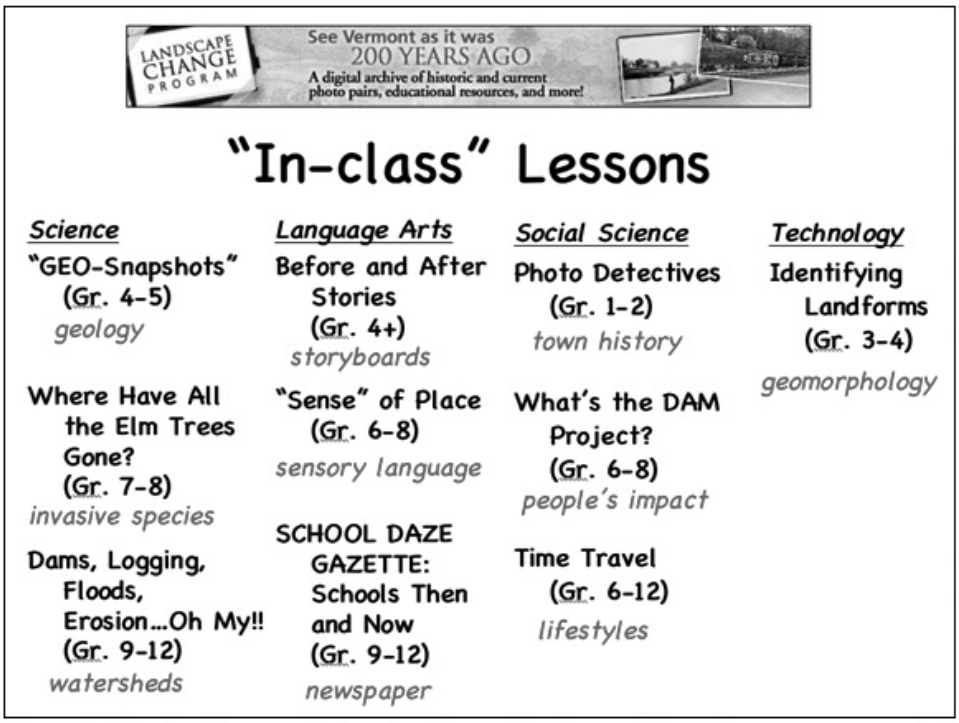


Figure 2: "In-class" curricula developed using Landscape Change Program *images. Red descriptors refer to topical content areas.*

Christine Massey works at the Perkins Museum of Geology at the University of Vermont on grant-funded initiatives. As an Adjunct Instructor in the Education Department, she facilitates science education for students and teachers. Christine holds a BA from Carleton College and an MS from the University of Washington, both in Geology. She worked previously as an environmental consultant and has studied polar ice cores to learn about climate change.

Paul Bierman is a Professor of Geology and Natural Resources at the University of Vermont. Now in his 14th year at UVM, Paul's areas of expertise include understanding how humans and landscapes interact using the fields of hydrology, chemistry, and geomorphology. He has a BA degree from Williams College and his Ph.D. from the University of Washington.

NAGC Standards

The information contained in this article aligns with the following Pre-K-Grade 12 Gifted Program Standards: Curriculum Instruction (2, 3, 5, and 5.1). For a complete copy of the Standards, visit www.nagc.org.

Creativity: An Essential Element in Your Mathematics Classroom

Eric L. Mann, *Purdue University*

We have known for some years now…that most children's mathematical journeys are in vain because they never arrive anywhere, and what is perhaps worse is that they do not even enjoy the journey. (Whitcombe, 1988)

As a classroom teacher I often wondered why my students did not share my enjoyment of mathematics. For me, mathematics was both challenging and intellectually stimulating and I wanted my students to share the pleasure I found in tackling a tough problem. I became increasingly frustrated, not only by my students lack of interest, but also the discovery that many of my fellow teachers and most parents shared the view that math was hard and something to endure, rather than to explore and enjoy. Most shared the view Whitcombe captured in the opening quote to this article.

Literature is filled with references to the beauty and the creativity that is the foundation of mathematics. The vision of an ideal mathematics classroom is one where "students confidently engage in complex mathematical tasks…draw on knowledge from a wide variety of mathematical topics, sometimes approaching the same problem from different mathematical perspectives or representing the mathematics in different ways until they find methods that enable them to make progress" (NCTM, 2000, p. 3). Yet, many students find their time filled watching as mathematical methods are demonstrated and committing to memory facts and algorithms (Pehkonen, 1997). These students often develop the conception of mathematics as a discipline where knowledge is complete and the mastery of mathematics is simply a digestive process, not a creative one (Dreyfus and Eisenberg, 1996). Allowing creativity back into our classrooms is essential to rekindle an interest
in mathematics.

Ginsburg (1996) saw the essence of mathematics not as producing the correct answers, but thinking creatively. Yes, accuracy is important as the students' responses must fit the context of the problem and be mathematically correct, but strict emphasis on accuracy discourages students from taking risks and creating their own contextual understanding of mathematics. All too often I hear both teachers and employers comment about the inability of our students to use mathematics productively, yet how often do we provide such opportunities in our classrooms?

Most of the mathematical concepts we routinely teach in our classrooms were born in controversy, often debated for long periods of time by the mathematicians of earlier eras. Yet we expect our students to memorize and accept without question the rules and algorithms that were the product of those debates. One such debate was the concept of negative numbers. In the 19th century, Busset attributed the introduction of negative numbers as the reason for failures in the teaching of mathematics in France (Boye, n.d.). It was often common practice to ignore negative answers as meaningless. Our students today still struggle with negative numbers and may revisit the same debate. Rather than distill the concept to a set of rules, and in doing so imply that mathematics is all about the application of rules, why not let our students know that their questions are the same as those that puzzled mathematicians for centuries?

Mathematical creatively can be thought of as "the ability to see new relationships between techniques and areas of application and to make associations between possibly unrelated ideas" (Tammadge as cited in Haylock, 1987, p. 60). Balka's 1974 article in the Arithmetic Teacher, *Creative Ability in Mathematics*, is frequently cited in literature on mathematical creativity. In this brief, three-page article, Balka offers five attributes of creativity. These attributes, qualities we must strive to develop in all students, are the ability to:

1. Formulate mathematical hypotheses
2. Determine patterns
3. Break from established mindsets to obtain solutions in a mathematical situation
4. Sense what is missing and ask questions
5. Consider and evaluate unusual mathematical ideas, to think through the consequence from a mathematical situation (divergent)

At the 2006 NAGC national convention, I offered sample activities for each of these attributes. A copy of that presentation, *The Essence of Mathematics*, is available on my web site at http://www.edci.purdue.edu/elmann/. There you will also find links to some of my favorite mathematics education resources that you may find useful. Two other programs that emphasize mathematical creativity are Project M3: Mentoring Mathematical Minds (http://www.projectm3.org) and Extending Process Skills for Able Mathematicians (http://www.franassisi.rbkc.sch.uk/curriculum/centre_for_excellence.htm). Finally, Rachel McAnallen, is a name very familiar to the veterans of the University of Connecticut's CONFRATUE (http://www.gifted.uconn.edu/confratu.html), Purdue University's DISCOVER! (http://www.geri.soe.purdue.edu/profdev/discover institute/default.html) or Edufest (http://www.edufeast.org), her website (http://www.mathchannel.com/) offers a wealth of information to help you instill in your students a love of the wonders of mathematics.

Students often tell me they are no good at math. My response is, "How do you know?" to which they reply with comments about performance in school or difficulty in solving problems quickly. Over the years, these students have learned to equate mathematics with algorithms, the learning of rules, and ability to find the answer the teacher is expecting. A sixth grader's comment that, "It doesn't make much sense. But, we are in math class, so I guess it does here," or a calculus student's comment that, "In math, I do things just the opposite way from what I think it should be and it almost always works" (Linquist, as cited in Heibert et al., 1997, p. vii), are illustrative of the impact such instruction can have. If taught that there is only one right answer or only one correct method, a student's concept of mathematics as only the application of mathematical techniques is reinforced.

The way we teach mathematics is a significant contributor to this perception. Köhler (1997) illustrates this point in a discussion with an elementary classroom teacher about a student who had arrived at the correct answer in an unexpected way. Rather than delight in the student's creativity, the teacher responded:

> *While going through the classroom, that pupil asked me [the teacher] whether or not his solution was correct. I was forced to admit that it was. That is what you get when you don't tell the pupils exactly what to do…." The teacher now reproaches himself for not having prevented this solution. He is obviously influenced by an insufficient understanding of what is mathematics, by the image of school as an institution for stuffing of brains….* (p. 88 (emphasis added))

Constant emphasis on sequential rules and algorithms may prevent the development of creativity, problem solving skills and spatial ability (Pehkonen, 1997). If we want to deepen our students' understanding of mathematics, then we need to recognize that the mastery of rules, algorithms, rules and strategies is not the end goal of mathematics education. Our students should use these procedural tools to explore, test, revise and defend their solutions to meaningful problems.

Mathematics is meant to be performed, not just practiced. In sports, language arts, or music we practice to improve performance; not just for the sake of practice. Yet how often do our students see mathematics this way? Bogomolny's (2000) comments capture the change we need to

make in our classrooms to restore a love of mathematics and develop the mathematical potential of our students.

"Any" fruit of human endeavor shows creativity, if you think about it. The interesting question to me is this: Why is it that a student who is only playing other people's music instinctively understands that those composers were creative, and that s/he might aspire to the same kind of creativity -- or, in English class, instinctively understands that those writers were creative, even when s/he is just reading their creations and answering quiz questions about them -- but doesn't have the same instinctive understanding that Euclid and Newton and Pascal and Gauss and Euler were creative mathematicians? The most obvious answer has to do with the way these disciplines are taught.

Recommend Further Reading

Bogomolny, A. (Feb 2000). What is your answer to that question? *Cut the Knot!* Retrieved on August 15, 2006 from http://www.cut-the-knot.org/ctk/Magic.shtml

Collection of papers presented at Int'l Comm on Mathematical Instruction-East Asia Regional Conference on Mathematics Education-3 symposium on mathematical creativity. Available at http://www.math.ecnu.edu.cn/earcome3/SYM1.htm

Koshy, V. (2001). *Teaching mathematics to able children*. London: David Fulton Publishers.

Sheffield, L. J. (Ed.) (1999). *Developing mathematically promising students*. Reston, VA: National Council of Teachers of Mathematics.

Zentralblatt für Didaktik der Mathematik (International Reviews on Mathematical Education) (1997) *Fostering of mathematical creativity*. Available at http://www.emis.de/journals/ZDM/zdm973i.html

References

Balka, D. S. (1974). Creative ability in mathematics. *Arithmetic Teacher, 21,* 633-636.

Bogomolny, A. (Feb 2000). What is your answer to that question? *Cut the Knot!* Retrieved on August 15, 2006 from http://www.cut-the-knot.org/ctk/Magic.shtml

Boye, A. (n.d.). *Papers on the history of science*. Les Instituts de Recherche sur l'Enseignement des Mathématiques. Nantes, France. Retrieved on September 23, 2006 from http://nti.educa.rcanaria.es/penelope/uk_confboye.htm

Dreyfus, T., & Eisenberg, T. (1996). On different facets of mathematical thinking. In R. J. Sternberg & T. Ben-Zeev (Eds.), *The nature of mathematical thinking* (pp. 253 - 284). Mahwah, NJ: Lawrence Erlbaum Associates.

Ginsburg, H. P. (1996). Toby's math. In R. J. Sternberg & T. Ben-Zee (Eds.), *The nature of mathematical thinking* (pp. 175-282). Mahwah, NJ: Lawrence Erlbaum Associates.

Haylock, D. W. (1987). A framework for assessing mathematical creativity in school children. *Education Studies in Mathematics, 18*(1), 59-74.

Heibert, J., Carpenter, T. P., Fennema, E., Fuson, K. C., Wearne, D., Murray, H., et al. (1997). *Making sense: Teaching and learning mathematics with understanding*. Portsmouth, NH: Heinemann.

Köhler, H. (1997). Acting artist-like in the classroom. *International Reviews on Mathematical Education, 29*(3), 88-93. Retrieved March 10, 2003, from http://www.fizkarlsruhe.de/ fix/publications/zdm/adm97

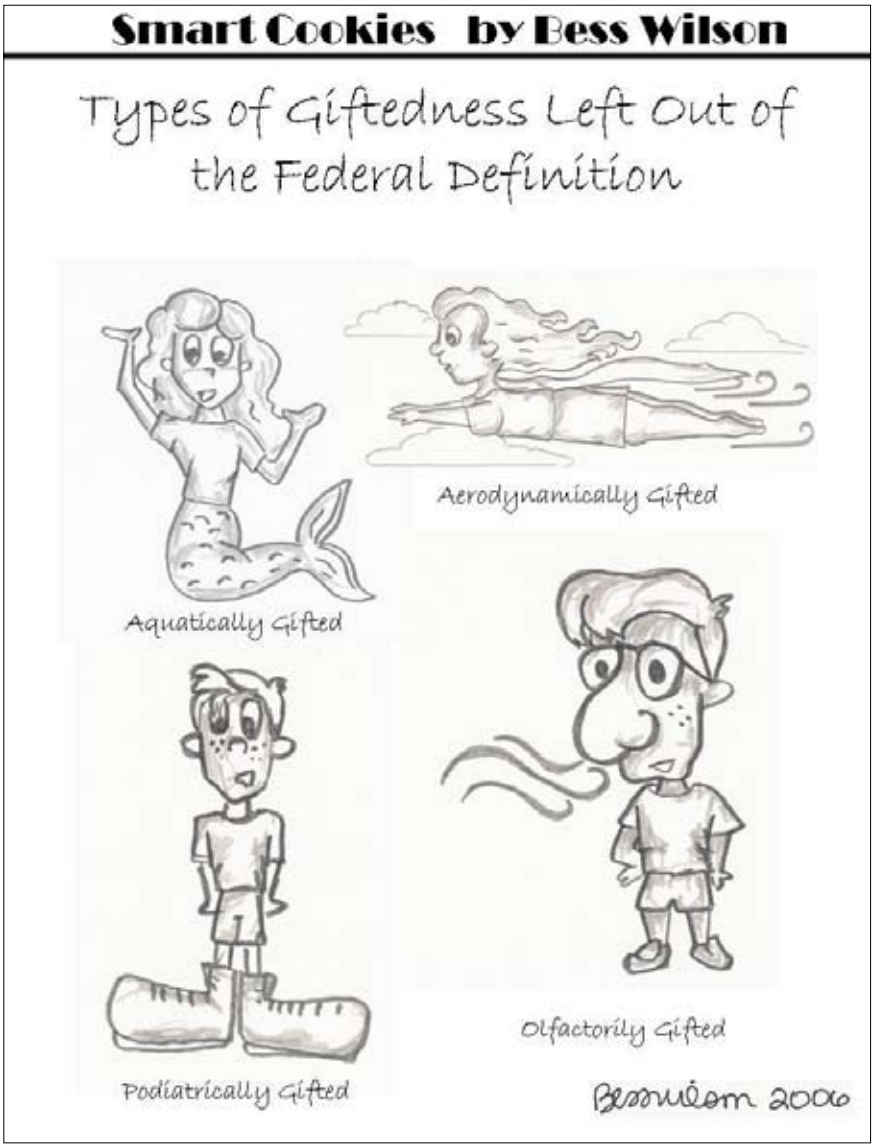
National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: National Council of Teacher of Mathematics.

Whitcombe, A. (1988). Mathematics: Creativity, imagination, beauty. *Mathematics in School, 17,* 13-15.

Eric Mann is a visiting assistant professor in the Department of Curriculum and Instruction at Purdue University. He is interested in research focused on the identification and development of creative talent in mathematics and science.

NAGC Standards

The information contained in this article aligns with the following Pre-K-Grade 12 Gifted Program Standards: Curriculum Instruction (2, 3, 5). For a complete copy of the Standards, visit www.nagc.org.



Rethinking Staff Development: The Power of Coaching

Amy Rettberg, *Sycamore Valley Elementary, Danville, CA*

What is a Coach?

Only in education is one person responsible for evaluating so many employees on a regular basis by means of so few formal observations. In business, middle managers oversee a small(er) group of employees, and interact with them regularly. Education has finally begun to borrow from global business models. A teacher coach is a site or district faculty member who works one on one with teachers to determine needs, establish goals, and illuminate a path to achieving school-wide and personal goals. Such a role has the capability of revolutionizing the way we think about staff development.

How many of us leave professional development workshops satisfied when we have collected one new book to use or one new "trick" to try the following day in our classrooms? And how long do we implement those new "tricks" or even dwell on the content of the meeting? While some development opportunities are **fabulous,** many more are completely forgettable. For both classroom teachers and administrators to be satisfied, the staff development of the future must be different, innovative. It must be cost effective and efficient, relevant to teachers, and results oriented. Coaching may be the answer. A system of coaching promotes using skills and trainings that teachers have already acquired, is differentiated for individual teachers, and can occur within the regular school day.

Many school funds are spent sending teachers to one-day, "inch deep, mile-wide" trainings from which little is gained and less is implemented. To decrease expenditures, many administrators are teaming up to divide the cost and are providing shared staff development experiences across several schools or districts. Some teachers believe that as the audience grows, the specific focus and personalization for their school is lessened and the training is not as effective. If a coaching model is in place, the coach may also attend the training to facilitate dialogue and implementation at the home site. Being able to later observe a coach working with one's students or a colleague in action eliminates this issue entirely.

Differentiation is the educational buzzword of the millennium, but how often do we use it to consider the *process* of staff development, rather than just the content? Not all teachers have the same staff development needs. A coach can help an individual teacher hone his or her skills and experiences to help make the seemingly-impossible a reality. A coach can provide site in-services or work with small groups, depending on individual need.

Teachers feel more confident with the coaching model when their goals are aligned to the current school site plan and when the administrator is supportive of the program. While it may be tempting for the administrator to try to tackle all of the school's relative weaknesses at once, it is imperative that he or she set S.M.A.R.T. goals with the coach: they must be specific, measurable, attainable, realistic, and time-oriented. Another element that is crucial for successful coaching is feedback, both positive and negative. While the coach and the administrator work together to meet the needs of the teacher, the coach works in a non-evaluative capacity. The coach and administrator must determine in advance what information gets shared between them, what information does not, and who is responsible for giving feedback to the teacher. For these reasons, ideally the coach is site-based to facilitate the collegiality necessary in the teacher-coach relationship.

Another compelling reason for implementing coaching at a school site is that it can happen within the regular school day. Teachers are not asked to come to work early or stay late; they have a prearranged meeting with the coach at a mutually agreeable time. If coaching is a measure supported district-wide, then coaches can assist their teachers in a variety of ways. For example, a coach may:

- Take over a teacher's classroom to allow him or her to observe another teacher at the same or a different school site.
- Accompany a teacher to another school site for an observation.
- Facilitate discussion between colleagues at the same site.
- Provide resources to teachers.
- Provide non-evaluative feedback.
- Facilitate veteran/new teacher partnerships (i.e. new teacher observes veteran teach a lesson in the morning; veteran observes new teacher teach SAME lesson in the afternoon, and they debrief afterward).
- Ensure proper implementation of site-adopted curricular materials and methodologies.

Any and all of these steps encourage staff members to discuss best practices. Teachers benefit from a better sense of connectedness and support when coaching is in place at their site.

In conclusion, when discussing "meeting the needs of our students," "pushing them to the next level," and "differentiating" schools often impulsively purchase materials to put a band-aid on the problem. While many great print resources exist, we tend to overlook the greatest resource we have: each other.

Suggested Resources

Cohen, C.S. (1997). Unpublished dissertation. *The effectiveness of peer coaching on classroom teachers' use of differentiation for gifted middle school students.* Storrs, CT: University of Connecticut.

Dantonio, M. (1995). *Collegial coaching: Inquiry into the teaching self*. Bloomington, IN: Phi Delta Kappa.

Glickman, C. (2002). *Leadership for Learning*. Alexandria, VA: Association of Supervision and Curriculum Development.

Meyer, P.J. (2006). *Creating S.M.A.R.T. Goals.* Retrieved October 4, 2006 from http://www.topachievement.com/smart.html.

Robbins, P. (1991). *How to plan and implement a peer coaching program.* Alexandria, VA: Association for Supervision and Curriculum Development.

Showers, B. (1985). Teachers coaching teachers. *Educational Leadership, 42(7),* 48.

Sparks, D. & Hirsh, S. (1997). *A new vision for staff development*. Alexandria, VA: Association for Supervision and Curriculum Development.

Whitworth, L., Kimsey-House, P., and Sandahl, P. (1998). *Co-Active Coaching: New Skills for Coaching People Toward Success in Work and Life.* Davies-Black Publishing.

Zeus, P. and Skiffington, S. (2000).*The Complete Guide to Coaching at Work*. Australia: McGraw-Hill.

Amy Rettberg lives in California. She taught 5th grade for 6 years and recently earned her Masters Degree in Educational Psychology at the University of Connecticut. She is currently earning an administrative credential, working as a part time administrator and part time enrichment teacher.

The information contained in this article aligns with the following Pre-K-Grade 12 Gifted Program Standards: Professional Development (1, 4) and Program Administration and Management (1, 4). For a complete copy of the Standards, visit

The Arkansas Evaluation Initiative in Gifted Education: Accomplishing Change Through Professional Development

...A Javits "Works" Column

Ann Biggers, *Arkansas Department of Education*
Alicia Cotabish, Abby Dragland & Ann Robinson, *University of Arkansas at Little Rock*

The processes used to evaluate the gifted and talented programs in Arkansas are changing as a result of statewide efforts. Funded by the U.S. Department of Education Jacob K. Javits Gifted and Talented Students Education Act, the Arkansas Evaluation Initiative (AEI) in Gifted Education is building statewide capacity to conduct local program evaluations. Over the course of the project, the AEI focuses on professional development designed to increase the knowledge and skills of educators in evaluating programs for high ability learners. The AEI is currently in its final year of implementation.

The Role of the AEI in Promoting Change

The project focuses on improving services, especially for underrepresented groups of students, by building statewide capacity among local districts to conduct program evaluations and to modify services based on the evaluation results. It is designed to engage gifted program administrators in the process of evaluation. AEI has four major components: an Evaluation Status Report, Evaluation Institutes, Evaluation Exemplars, and Evaluation Teams. First, an Evaluation Status Report provides an analysis of annual gifted and talented program reports required as part of the Department of Education accountability system. An Evaluation Status Report offers a snapshot of district level services aggregated at the state level. Second, two Evaluation Institutes provide knowledge and skill building sessions. Third, Evaluation Exemplars are templates for developing evaluation plans for small, mid-sized, and large metropolitan districts. Finally, the AEI model incorporates a train-the-trainers component to establish in-state teams of evaluators who will provide collegial technical support.

Evaluation Status Report: Investigating Arkansas Gifted Programs

The Evaluation Status Report tapped into what practitioners were doing and how well their annual program approval reports communicated evaluation results (Robinson, Cotabish, Wood, & O'Tuel, 2005). Results indicate that documentation of curriculum offered to high ability learners in Arkansas was particularly weak. Program coordinators were not reporting student impact data. Demographics for students, particularly for underrepresented groups, were and are faithfully disaggregated and reported annually. However, the information does not appear to be used to address the issues of diversity, poverty, and under-representation in programs for high ability learners. As a result of the Evaluation Status Report, the annual gifted program reporting form used by the Arkansas Department of Education was revised and put into service in the 2006-2007 school year.

Evaluation Institutes: A Step in the Right Direction

AEI participants were provided with professional development through two Evaluation Institutes influenced by the work of Carolyn Callahan and colleagues (1997) and Joyce VanTassel-Baska and colleagues (2004). The Institutes were designed to assist gifted program coordinators in (a) developing program descriptions, (b) developing program goals, (c) analyzing the major components of an evaluation, (d) developing potential evaluation questions, and (d) conducting focus groups. Institute I focused on developing program descriptions for K-12 services and on crafting questions to guide formative evaluations. Institute II revisited evaluation questions and introduced focus groups as an evaluation tool. After receiving Institute training, AEI participants demonstrated substantially more knowledge and skills in program evaluation. When compared to educators who did not participate in Institute training, participants were more able to: define evaluation, describe their program, develop goals and outcomes for their programs, focus on areas for improvement, formulate components of evaluation questions, articulate essential components of a focus group, identify the appropriate methods for conducting a focus group, and link evaluation questions to the NAGC Standards (Robinson, Cotabish, Wood, Pearson, & O'Tuel, 2006).

District Evaluation Exemplars: The Power of Practitioner Input

To develop large district evaluation templates, three large metropolitan districts participated in two one-day professional development consultations with project staff to address evaluation questions, data sources, instrumentation, processes for data collection, and evaluation timelines. As a result of the two work sessions, large district program evaluation templates have been developed. To develop the small and mid-sized evaluation templates, one small and one mid-sized collaborating district were selected to undergo a comprehensive external evaluation of their own programs. The districts were asked to consider the extent to which the gifted program was implemented according to the written plan and the extent to which the program was perceived by parents, teachers, and students to be effective.

The evaluations used to develop the Evaluation Exemplars included multiple data sources and analyses. Specifically, these were: (a) questions generated by district personnel about their program; (b) district demographic data; (c) focus group discussions with parents, teachers of the gifted, and students participating in the gifted program; (d) parent, teacher and student stakeholder surveys; (e) an analysis of district curriculum used with learners identified as gifted; and (f) a structured classroom observation instrument. The Evaluation Exemplar templates developed through external evaluations and the metropolitan work sessions include revised model stakeholder surveys, procedures for conducting focus groups, and examples of integrating data on student diversity and student impact into state reports.

Statewide Evaluation Teams: A Collaborative Effort to Promote Systematic Change

To build infrastructure and to keep the project viable beyond the federal funding, the AEI model in Gifted Education incorporates a train-the-trainers component to establish in-state teams of evaluators. Teams include three persons: a gifted and talented coordinator from a school district, a gifted and talented supervisor from an educational cooperative service center, and a representative from a higher education institution. To establish credibility, teams assist in evaluations outside of their own regions and are selected from a pool of educators who attend the Evaluation Institutes and whose interests and skills lie in evaluation. External evaluators with substantial price tags are beyond the means of most Arkansas districts. Establishing in-state teams addresses the need for low-cost technical support to districts to improve their programs and services for high ability youth.

What has the AEI taught us about promoting changes in gifted program evaluations?

Gifted program administrators increase their awareness and knowledge of program evaluation when given the opportunity and the resources to do so. Professional development on program evaluation works. However, baseline data on educator concerns also indicates that while practitioners report an interest in evaluation, they are concerned about the time, logistics, available resources and their effectiveness in facilitating the changes needed to implement program evaluation. Additionally, program administrators do not generally connect their local practice with national

program standards. One implication from the project is that additional supports are needed to "personalize" the program evaluation information for coordinators in the context of their individual districts and to address the affective and attitudinal issues about program evaluation as a means for educational change and innovation. In addition to Institute training and a revised annual gifted program reporting form, the AEI offers 'personalized' services and supports that include evaluation templates and collaborative evaluation teams. Working together, the components of the AEI congruently target program evaluation at multiple levels. Specifically, AEI includes small, mid-sized and large school districts as well as project participants from local districts, from regional educational cooperatives and from universities guided by state department leadership.

Conclusion

In a state with a long-standing mandate, the quality of services reflected in Arkansas gifted programs requires consistent review and genuine accountability. By focusing on program evaluation utilization, the AEI model is designed to improve services at the local level, including services offered to under-represented students. Through state department leadership, professional development, field-tested evaluation templates, and collegial Evaluation Teams, our goal is to support local districts in their efforts to offer well-designed, well-documented and effective services to their high ability learners.

References

Callahan, C. M., & Caldwell, M. S. (1997). *A practitioner's guide to evaluating programs for the gifted.* Washington D.C.: National Association for Gifted Children.

Robinson, A., Cotabish, A., Wood, B., & O'Tuel, F. (2005). *Developing a statewide evaluation initiative in gifted education.* Paper presented at the Annual Meeting of the American Education Research Association. Montreal: Canada.

Robinson, A, Cotabish, A., Wood, B., Pearson, C., & O'Tuel, F. (2006). *The effects of a statewide evaluation initiative in gifted education on practitioner knowledge concerns.* Paper presented at the Annual Meeting of the American Education Research Association. San Francisco, CA.

VanTassel-Baska, J., & Feng, A. X. (2004). *Designing and utilizing evaluation for gifted program improvement.* Waco, TX: Prufrock Press.

Alicia Cotabish is the coordinator of the Arkansas Evaluation Initiative in Gifted Education, a Jacob K. Javits project.

Ann Biggers is the State Director of gifted programs at the Arkansas Department of Education.

Abby Dragland is a graduate assistant in the Center for Gifted Education at the University of Arkansas at Little Rock.

Ann Robinson is a professor and director of the Center for Gifted Education at the University of Arkansas at Little Rock.

The information contained in this article aligns with the following Gifted Program Standards: Professional Development (1.1 and 3) and Program Evaluation (1, 2, 3.1, and 3.3). For a complete copy of the Standards, visit www.nagc.org.

Call for Submissions

Can you provide practical classroom applications of current research, theory, and best practices in the field of gifted education? Are you proud of the innovative way you address the needs of gifted students in your school or classroom? Have you created a successful lesson or unit plan that aligns with the *NAGC Pre-K-Grade 12 Gifted Program Standards?* Do you have a story to share about your participation in a Javits research study? If so, we want to hear from you.

Please contact THP Editor Jeff Danielian at jdanielian@nagc.org.

...Javits Works

The "Javits Works" column is designed to showcase success stories and research-based best practices from the only federal program that supports gifted education, the Jacob K. Javits Gifted and Talented Students Education program. The Javits Act funds the work of the National Research Center on the Gifted and Talented (NRC/GT) and 28 additional research projects, reaching gifted and talented students and teachers in over 20 states.

For additional information about the research conducted by the NRC/GT, visit their websites at the University of Connecticut, Neag School of Education (http://www.gifted.uconn.edu/nrcgt.html) and the University of Virginia, Curry School of Education (http://curry.edschool.virginia.edu/gifted/projects/NRC/index.php?option=com_content&task=view&id=899&Itemid=277)

• • • •

Like all federal programs, the Javits grants and the NRC/GT require an annual appropriation from Congress. The gifted education community has had to work hard to secure even modest funding for this important program. For additional information on the program, as well as to learn about the funding status in Congress, visit the legislative update section on the NAGC website at www.nagc.org.

Technology Untangled

By Brian Housand, *The University of Connecticut*

Imagine being able to transport your class instantly anywhere in the world. You no longer have to imagine; the technology is here today thanks to Google Earth. Available as a free download (http://earth.google.com), Google Earth is an interactive three-dimensional virtual globe comprised of satellite imagery, dynamic layers, and enhanced search capabilities.

In the 2006 National Geographic / Roper Survey of Geographic Literacy (http://www.nationalgeographic.com/roper2006/), only 37% of young Americans aged 18 to 24 could locate Iraq on a map. If that was not bad enough, only half of those surveyed could correctly locate the state of New York. These findings suggest that the most recent graduates are unprepared for the ever expanding global economy. By utilizing a tool such as Google Earth, geography can be taught with the same technology and interactivity as the latest video games.

Not satisfied with static overhead views, Google Earth features fluid exploration of our globe with the ability to tilt the perspective and to fly across the horizon. Much more than just a virtual atlas, Google Earth is a data rich reference source that will delight and inform teachers and students of all levels. There are a multitude of ever expanding resources and uses to discover, but here are four that should not be missed.

Data Sources
Embedded within Google Earth are a series of information layers that can be turned on and off. These are rich sources of information waiting to be used for research. Within the *U.S. Government* layer for example, one will find information from the 2000 Census, Congressional district maps, and crime statistics for communities across the United States. Opening the *Geographic Features* layers reveals a vast data bank including recent earthquake activity and the Smithsonian Institution's Global Volcanism Program that features a catalog of all active and dormant volcanoes around the world.

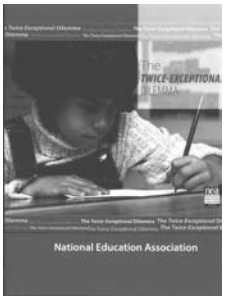
Featured Content
Activating this layer uncovers hundreds of icons are illuminated highlighting physical locations. These in turn are hyperlinked to articles and video content created by sources including National Geographic Magazine and Discovery Networks. Information about U.S. National Parks, including trail maps, are marked on the 3D globe. Rumsey Historical Maps feature a series of overlays, such as a map of the Lewis and Clark expedition from 1814, that provide a visual comparison of historical events to modern locations.

Opportunity to Create Content
Users can also construct their own content by creating placemarks for interesting locations and entering text, photos, video, or hyperlinks. By collecting a series of placemarks in a folder on Google Earth, one is able to create virtual field trips around the world. Students could use this to chart historical events or to create geo-biographies of their own lives.

Google Earth Community
By visiting http://bbs.keyhole.com, literally thousands of additional resources can be discovered. Google Earth has a very active online community that posts messages, sites of interest and virtual tours. Many of these placemarkers can be viewed by turning on the layer within Google Earth. However, some of the best resources are downloadable collections of placemarks. Try searching the site for Shakespeare, and you will quickly find that all of the places mentioned in his plays have been cataloged and marked, noting scene and act numbers. In the spirit of exploration, search for Shackleton and find a detailed history of the exploration of the South Pole featuring photographs linked with path of the journey.

The true power of Google Earth must be experienced to be understood. The whole world is now at your fingertips and waiting for you to begin your adventure. What are you waiting for? Go, explore!

New Resources from the NAGC Bookstore



The Twice-Exceptional Dilemma

NAGC teamed up with the National Education Association to develop a guide for teachers on meeting the needs of children who gifted and have learning disabilities. Many of these "twice exceptional" children are overlooked in schools and their educational needs go unmet. The 26-page guide outlines how to identify twice-exceptional students, delineates the roles and responsibilities of schools districts and educators, and suggests accommodations and available resources to address the needs of these students.

Order your copy from the NAGC bookstore at www.nagc.org

$10 for NAGC members

Overlooked Gems: A National Perspective on Low-Income Promising Learners

Overlooked Gems is a monograph resulting from a 2006 conference on low-income promising learners that NAGC and the College of William & Mary co-hosted with support from the Jack Kent Cooke Foundation. The book includes essays from conference presenters, commentary on promising strategies to serve this population, as well as priorities for action and participant reflections.

The monograph may be downloaded for free from the NAGC website. Limited numbers of books are available at no cost – order yours on the NAGC website at www.nagc.org.