Folio 3: School and Partner Relationships

This folio is one in a series of four designed to capture, discuss, and provide evidence of exemplary implementation of the Urban Advantage Middle School Science Initiative as documented by NCREST, (The National Center for Restructuring Education, Schools and Teaching, Teachers College, Columbia University) in a sample of Urban Advantage Demonstration Schools. The focus of this folio is School and Partner Relationships.

What is Urban Advantage (UA)?

Started in 2004, the Urban Advantage Middle School Science Exit Project Initiative, (UA), is a science education initiative that partners eight New York City science-rich cultural institutions with the New York City Department of Education and many of its middle schools across the city. In addition to the American Museum of Natural History, which houses Urban Advantage Administration, partners include the Brooklyn Botanic Gardens, New York Botanical Garden, New York Hall of Science, Queens Botanical Garden, Staten Island Zoo, Wildlife Conservation Society-Bronx Zoo, and the Wildlife Conservation Society New York Aquarium. Middle school students, particularly 8th graders, enrolled in NYC public schools, are the focus of this alliance and benefit directly from its efforts.

Funded by the New York City Council and a private donor, Urban Advantage captures, celebrates, and shares the wonder and excitement of scientific discovery by engaging learners in authentic inquiry-driven contexts. The teaching and learning experiences of adults and children participating in Urban Advantage are enriched through high quality teacher professional development, direct access to scientific knowledge through firsthand experiences at UA Partner institutions, classroom resources chosen for their value in promoting scientific inquiry, family participation, and direct support of students throughout the Exit Project process.

Urban Advantage is a fluid mosaic consisting of six components, each essential to maximizing the partnership between the NYC Department of Education and science-rich institutions to benefit the science education of NYC middle school students. These six components include: UA Administration, UA Partners, UA Principals, UA Lead Teachers, UA Teachers, and UA Parent Coordinators. The success of Urban Advantage is achieved through the effective and ongoing communication among these essential supports, each with its primary area of focus, yet all members of a learning community committed to continuous improvement.
**Who are Urban Advantage Partners?**

**What structures and opportunities are in place to maximize the UA School and UA Partner Interface?**

UA provides a variety of opportunities for UA Schools and UA Partner Institutions to interface and collaborate to advance the teaching and learning of science in NYC’s middle schools. Such opportunities include UA Professional Development, UA Parent Coordinator Meetings, UA Partner Meeting and UA Principals’ Meetings.

**Professional Development**

UA Teachers play a key role in the successful implementation of the Urban Advantage initiative through their direct and ongoing interactions with UA Students and UA Partners. With support from UA Administration, UA Teachers focus on deepening their own science content knowledge, embedding inquiry strategies into their teaching, providing guidance and support to their students throughout the Exit Project process, and increasing students’ access to Partner Institutions. UA Teachers participate in UA specific professional development opportunities organized and facilitated by UA Administration and UA Lead Teachers. Each of the partnering institutions offers professional development for UA Teachers at four different levels designed to match teachers’ experiences with Urban Advantage; these include: Cycle 1, Cycle 2, and Cycle 3 and Continuing Teacher Workshops. The agendas for these meetings include review and explanation of voucher-use, field-trip planning and logistics, recommendations for outreach efforts, support for Exit Project research with institution-based lessons, focusing students’ interests into investigable questions, science journal writing and an interactive science experience specific to the hosting UA Partner.

This year we are planning to focus on the following in order of priority during UA Professional Development:

1. Looking at student investigations: sources will be EXPO 07 student work and other tri-fold projects.
2. Pacing calendars and other Lead Teacher resources to support long-term 7th and 8th grade student investigations.
3. Specific investigations that focus on UA provided classroom materials.
4. Important URLs for data in the classroom:
5. Time permitting: hands-on experiences exploring secondary data online.

Excerpt from UA Update E-mail, Dr. Hudson Roditi, UA Project Director

**Cycle 1:** (12 hour) “The Basics” is a two day orientation to Urban Advantages that provides teachers with an overview of UA, ideas to plan curriculum embedded field trips to UA Partner Institutions, opportunities to attend min-presentations about each UA Partner Institution and its specific supports and resources, best practices to pace the Exit Project and opportunities to explore and integrate UA provided Year 1 and Year 2 classroom materials.
Come to The New York Botanical Garden from 9-2 and learn about how to help your students study forest and wetland ecology. As part of this class we will review the creation of transects and practice using the equipment that you have as members of Urban Advantage.

UA Professional Development, Cycle 2, NYBG

**Cycle 2:** (24 hours) four six-hour sessions scheduled on weekends and designed to highlight the specific content, resources, and pedagogical practices unique to the hosting institution. Offered at each of the UA Partner Institutions, teachers choose which institution to attend. Each teacher completes a self-directed Exit Project, thereby experiencing first hand the process students will go through in the production of their Exit Projects.

“This session was co-taught by a botanist from the New York Botanical Gardens and two Urban Advantage Lead Teachers. The instructors posted their e-mail addresses on the board and invited participants to contact them as often as needed. One of the lead teachers shared her Exit Project materials she developed and uses with her students. This packet divided the Exit Project into a series of discrete and manageable steps. Some discussion ensued about the packet, Exit Projects and the role of science teachers and their support of students. Teachers checked on their plants that were set up the week prior in a controlled experiment. One group looked at the effects of motor oil on plant growth, while the other looked at the effects of coffee (caffeine) on plant growth. Participants made and recorded their observations. The primary focus of the professional development session was water assessment and some field ecology. Each teacher was given a water testing kit to assess water chemistry: pH, T, DO, phosphates and nitrates. Tools to assess physical properties of water were discussed: turbidity, rate of water flow and vegetation. Teachers worked both in the lab and in the field at NYBG.”


**Continuing Teacher Workshop:** (5 hour minimum) these content-specific workshops are scheduled after school in two hour blocks throughout the school year. This category of professional development opportunities is open to teachers who have previously participated in UA Professional Development (Cycles 1-3). Teachers attend Continuing Teacher Workshops at the institution of their choice and receive stipends for their participation and the $8 per student allocation for classroom resources.

November 10, 2007 from 10 AM to 3 PM

**Continuing Teacher Education: Earth Science Content at AMNH, UA Equipment, Exploring Secondary Data Online**

Instructors: Jay Holmes, Christine Kola

We will select from the following topics, in approximate order of priority:

1. Exploring the use of exhibits at the AMNH for earth science related topics. Halls may include the Hall of Planet Earth, The New York State Hall, the North American Mammals Hall and the Hall of Minerals and Gems.
2. Hands-on experiences in field and secondary research projects in the area of earth science.
3. Focus on UA Equipment – What should you have? What do you have? How do you use it? What equipment do you think would be helpful?
“This Cycle 3 professional development session was co-taught by an instructor from the New York Hall of Science and a UA Lead Teacher. The session centered on the exhibit, *Genome: The Secret of How Life Works*. Participants viewed the exhibit which was immediately followed by a lab-based session where numerous activities related to the exhibit (including crime scene analysis) were conducted. The instructor asked many questions to engage the group and to surface their understanding of DNA, heredity and related concepts. The instructor checked for accuracy and added to and explained responses as needed. Participants followed a protocol as they collected cheek cells and extracted DNA. This was followed the Alien Genetics Activity, a simulation of Natural Selection and allelic frequency. Tall aliens died off because the only shelters available were short caves- unable to accommodate the needs of the tall aliens. Participants made Punnett Squares to predict the possible frequency of the different genotypes from surviving alien crosses. The instructor connected the exhibit and subsequent activities to genetic engineering, genetically modified organisms, and implanting genes from one organism to another. ... The instructor talked about how to connect kids and their research projects with people at the partnering institutions...”

Excerpt from NCREST Observation of New York Hall of Science Cycle 3, Professional Development Session, Spring, 2007.
In what ways have UA Teachers applied their UA professional learning experiences to enhance their teaching practice?

“Professional development shows us how to implement inquiry. The equipment we get from UA helps us implement inquiry... Even if you are a certified science teacher you take away something from the professional development sessions... especially in those [content] areas that you are not certified in.”

Source: UA Teacher Interview, Urban Advantage Demonstration School

“Went from lecture mode to hands-on investigative and learned the value of self exploration and the inquiry process...”

Source: UA Teacher Interview, Urban Advantage Demonstration School

“After starting UA and seeing how my students enjoyed the process, I created a small zoo in my classroom and used that as a basis for inquiry and made a microcosm of the UA program in my classroom... [We had] rabbits, birds, turtles, gerbils, hamster, armadillo, fish, a guinea pig... we bred crickets and studied plant growth. [We] had a touch and learn center... microscopes and scales and lab equipment was set up. UA materials allow us to do this stuff.”

Source: UA Teacher Interview, Urban Advantage Demonstration School

UA Parent Coordinator Meetings

In addition to teacher focused professional development opportunities, UA Schools and UA Partner Institutions interface through UA Parent Coordinators. The Parent Coordinator position, mandated for every NYC school by Mayor Bloomberg, provides support and assistance to families to enhance parent involvement in their child’s education. The role of the Parent Coordinator is integral to the successful implementation of the Urban Advantage Initiative through their outreach
efforts and direct, ongoing interactions with UA Teachers, UA Principals, UA Families, UA Students and UA Partners. Supported by UA Administration, UA Parent Coordinators focus on enhancing parent involvement in their child’s science education, growing parent awareness and understanding of the Exit Project, and increasing family participation and direct interaction with UA Partner Institutions. UA Parent Coordinators organize Family Science Fieldtrips to UA Partner Institutions; assist in Student Science Fieldtrips, co-plan Family Science Nights, Science Fairs, and offer Exit Project Workshops. UA Parent Coordinators participate in UA Parent Coordinator Meetings organized and facilitated each of the UA Partner Institutions. The agenda for these meetings includes review and explanation of voucher-use, trip planning and logistics, recommendations for outreach efforts, opportunities for networking with other UA Parent Coordinators and an interactive science experience specific to the hosting UA Partner. These hands-on experiences build science-confidence and provide background information for UA Parent Coordinators to share with parents during Family Science Fieldtrips, and Exit Project Workshops.

**UA Partner Meetings**

UA Partner Meetings occur throughout the year and are hosted in turn by each of the Partner Institutions. These meetings are attended by UA Partners from each of the partner institutions, UA Administration, NYC Department of Education liaisons, and UA Lead Teachers. These meetings provide opportunities for members of each of the UA Partner Institutions to collaborate and plan for UA sponsored events such as teacher professional development (Cycles 1-3 and Continuing Teacher Workshops), Family Day, UA EXPO and various strategies to best support UA Teachers. Recent meetings yielded a redesign of the Cycle 1 “The Basics” after teachers’ responses to surveys were considered. Additionally, looking at student work has become the unifying theme across professional development sessions in Cycles 2 and 3. Under the current restructuring of science education in NYC’s middle schools, UA Partners have developed a scope and sequence document that is a modified curriculum map that aligns the NYC middle school science curriculum content with each of the partner institution’s strengths, expertise and resources. Between-meetings-communication is ongoing through e-mail and electronic UA Partner Updates.

“UA has been wonderful for us. We get a lot of middle school requests from schools in the Bronx to do animal behavior studies, etc. Professional Development for teachers runs all year. I now get to see what teachers do through student projects. The impact of Professional development on teachers is transferred to student work.”

Jenell Ives, Education Department, WCS Bronx Zoo
"We have all learned a lot from the science research institution perspective from teacher feedback. We asked, "What do you need from us?" Originally we went into it thinking we knew what they needed from us. Fieldwork and controlled experiments are the primary research types at NYBG – teach teachers how to use the garden as well as any outdoor space. We emphasize process, skills, etc. What has changed our focus has shifted onto ‘How to do an exit project’ – so that they [teachers] can have the experience of doing and seeing them…”

Jamie Boyer, Education Department, NYBG

**UA Principals’ Meetings**

Sponsored by UA Partners and attended by UA Principals, UA Administration and UA Partners, UA Principal’s Meetings occur several times throughout the year. While the agenda does allocate time for UA specific topics and concerns, contemporary issues in education are often discussed through the lens of Urban Advantage. UA Principals play critical role in the recruitment of potential UA Principals and ultimately the city-wide growth of Urban Advantage.

**Topic: What are the linkages between the science and math teachers and curriculums in relation to UA?**

“We are looking at this. For example, sequencing needs to be considered, e.g. for formulas that need to be taught in math before they are used in science. Math teachers are getting involved with Exit Projects. The challenge is that the math curriculum is set [more sequential]—and difficult to change sequences. There is much pressure to improve math outcomes.”

Excerpt from NCREST Documentation UA Principals’ Meetings, March, 2007.

**Topic: Teacher Retention**

“UA contributes to teacher satisfaction; lessens the propensity to leave. There is a lot of ground lost when teachers leave—student performance is affected; learning communities are disrupted. PD [professional development] also helps. Part our [school-based] PD involves intervisitations among teachers; they need more time for study groups to discuss what they observed and learn from it. Their science department is a role model on this for other departments. The school also has a big family science initiative; and is also focusing on improving the quality of exit projects.”

Excerpt from NCREST Documentation UA Principals’ Meetings, March, 2007.
What practices are in place to maximize the UA School and UA Partner Interface?

Establishing a Learning Community
A learning community consists in a group of people who take an active, reflective, collaborative, learning-oriented, and growth-promoting approach to teaching and learning. Three big ideas that guide this school reform effort are: commitment to student learning, a culture of collaboration, and a focus on results.


Distributed Leadership
In a distributed perspective on leadership, three elements are essential:
- Leadership practice is the central and anchoring concern.
- Leadership practice is generated in the interactions of leaders, followers, and their situation; each element is essential for leadership practice.
- The situation both defines leadership practice and is defined through leadership practice.

James Spillane, Distributed Leadership (January, 2006)

Action Research
Action research is a “process where participants- who might be teacher, principals, support staff-examine their own practice, systemically and carefully, using the techniques of research.”

Jon Richardson, Tools for Schools: Teacher Research Leads to Learning, Action. National Staff Development Council (Feb/March 2000)

Constructivist Leadership
The reciprocal process that enables participants in an educational community to construct meanings that lead toward a shared purpose of schooling.

Linda Lambert, Deborah Walker, Diane P. Zimmerman, and Joanne E. Cooper, The Constructivist Leader (July 2002)

Collaborative Inquiry
Involving teams of administrators and teachers working together …the full power of the inquiry process is unleashed when school faculty work together, not in isolation, through constructive dialogue to develop a shared understanding and ownership of problems and solutions being pursued.

Nancy Love, Using Data Getting 2002)

Building Capacity
Professional learning communities that serve to instill educational ideals, share wisdom, improve practice, and enhance capacity across the system by focusing on the reconciliation of individual and organizational expertise, vision, and needs through a variety of collaborations, activities and projects—ranging from classroom-related work to broader issues of policy.

Giselle O. Martin-Kniep, Communities that Learn, Lead, and Last: Building and Sustaining Educational Expertise (forthcoming Dec 2007)

Documentation of the Urban Advantage Initiative
Jacqueline Ancess, Ed. D., Elisabeth A. Barnett, Ph.D. and Mary Elizabeth Wilson

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NATIONAL CENTER FOR RESTRUCTURING EDUCATION, SCHOOLS AND TEACHING