

**Where is After-School Headed and
How do Science Learning Opportunities
fit Into the After-School Landscape
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Introduction

“After-school programs can respond to children’s interests and concerns, giving children a measure of control...putting children in active roles as learners...After-school programs provide developmental experiences that schools lack time for, and that low-and moderate-income families may lack resources to purchase. These include, of course, the visual and performing arts, humanities, civics, physical activities and sports. One might argue that, given declining attention to them in school, the natural sciences have to be added to this list.” (Halpern, 2004, Confronting “The Big Lie”: The Need to Reframe Expectations of After-School Programs, p. 16)

In fact, after-school provides an ideal setting for unlocking the potential scientist in every student; and reinforcing the science education received during school hours. Compared to the school day, the smaller groups, the longer time slots and the less formal environment of most after-school programs provide opportunities for kids to visit museums, study neighborhood environmental conditions and perform laboratory experiments. Seventy-five percent of Nobel Prize winners in science echo this sentiment stating that their passion for science was first cultivated in non-school environments.

Evolution of the After-School Movement

Although after-school education is hardly a new concept, the notion that quality, comprehensive enrichment opportunities should be universally available and sustained with public resources is a relatively recent aspiration. In the past, a family’s socio-economic status too often determined their level of access to after-school services. Children from low-income families were often left to their own devices or to care for their younger siblings or in some communities, kids had recreation programs. In comparison, kids from affluent communities were more likely to spend their time after school attending dance, karate, college prep and photography classes. Recognition of this disparity, and its effects on the nation’s widening achievement gap, combined with fact that most parents were now working outside the home provided the impetus for a new movement that advocates for publicly funded, quality after-school opportunities to be made available to all children, regardless of class, race, religion or geographical location.

Moreover, while the information children are required to master grew exponentially beginning in the 1960’s, the school calendar remained essentially the same since the 19th century. It is not surprising then that educators have become more interested in using after-school time to deliver, or at least, reinforce some elements of the academic curriculum. Ironically, the time allocated to the sciences, which contributed significantly to this knowledge explosion, has declined in many schools, in favor of greater focus on the acquisition of literacy and numeracy skills.

Where is the After-School Field Headed

The after-school movement is now entering the new developmental phase: it is becoming a “field.” As the number and variety of supporters of after-school programming has grown, a consensus is growing among kids, parents, youth workers, educators, social service experts and community leaders about what makes a quality after-school program.

This blueprint for the coming decade draws upon the experiences, practices and values of traditional providers such as the YMCA, Boys and Girls clubs, Girls, Inc, civic and church groups, sport leagues, park recreation programs and libraries; it calls for a balanced program that offers a mix and choice of programming – academics, arts, sports, community services – in a nurturing environment where there are opportunities for kids to connect to each other and adults and to be exposed to new experiences. At the same time, after-school providers will most likely be tackling the following issues:

- **Identifying Strategies to Increase Participation Rates**

Research has consistently confirmed the obvious; that “higher levels of attendance in out-of-school-time (OST) programs have been significantly correlated to scholastic achievement, higher school attendance, more time spent on homework and on positive extracurricular activities, enjoyment and effort in school and better teacher reports of student behavior.”(*Harvard Family Research Project, Issues and Opportunities in Out-of-School Time Evaluation Brief, July 2004*) Despite these findings, many programs have neither expected nor achieved high attendance rates. Increasingly though, program operators are taking on this challenge, by redesigning programs and policies to encourage better attendance. For example, New York City is planning to tie funding for OST programs to participation rates. Strategies from the field which increase participation include: offering more choice of activities for participants; providing more engaging, hands-on activities; and making more group projects available so that kids feel a commitment to their peers.

- **Developing Program Models for High School Kids That Support Their Transition Into Adulthood.**

Along with the increased attention on America’s high schools has come a greater interest in the quality of after-school programs for this age group. Attracting teens is a challenge: their interests are more varied and their attendance in school more variable. Even engaged youth have competing activities such as earning money, taking care of younger siblings, or just “hanging out.” Using an apprenticeship model, Gallery 37/After School Matters in Chicago has developed one successful approach, but in the coming years we will need more. Science projects in after-school give high schoolers opportunities to focus on job training, career exploration and college prep. In addition, environmental monitoring projects have shown particular potential for capturing teens’ interest in environmental justice issues.

- **Creating More Curriculum and Professional Development Opportunities for the After-School Field**

With a move towards aligning after-school with regular school day learning, more after-school specific curricula are being developed. KidzMath and KidzLit created by Development Studies Center are two that were created for the diverse staff (college students, teachers, artists, volunteers, parents) who work in after-school programs. Another example is a science textbook that is being adapted for after-school. As more curricula are created, this will guide the development of staff training.

- **Offering More Physical Activity**

The growing concern about the childhood obesity epidemic, coupled with cuts in physical education from the regular school day, makes after-school a natural venue for kids to get exercise and learn about healthy eating.

Activities like yoga, table tennis, tai chi, soccer, sports leagues and kickboxing have become increasingly popular in after-school and are often kids' number one choice of activity. Since science learning in after-school is a natural setting for kids to be outside, explore their communities, learn more about healthy eating and the importance of life-long fitness this can help kids become more physically active.

How Does Science Learning Fit into the New After-school Paradigm

After-school programs provide ideal environments for kids to engage in scientific inquiry, critical thinking skills, teambuilding and problem solving and participate in project-based and experiential learning. Science learning meets the need for balance in after-school programs by integrating math and reading and making real world connections between the theoretical and the observed. And after-school is particularly appropriate for teaching scientific methods, not just scientific content. Science learning is a perfect fit for after-school because:

- **It offers opportunities for stealth learning.** In New York City, The After-School Corporation (TASC) has found that science learning activities are some of the most popular among our students. At one program in the Bronx, students took regular trips to Edgar Allen Poe Park in the Bronx to study wildlife. This project-based learning experience gave kids the chance to get fresh air, exercise, think about the community that they live in, keep journals and discover wildlife they might not normally notice.
- **Experimentation helps give kids the opportunity to learn crucial 21st century skills of team work and problem solving.** At another program, fourth and fifth graders grew lima beans. In one cup, they planted beans and added water. In the other cup, they planted beans and then added one of choice of common household products such as dish soap, bleach or cleaning solvent. They then compared the growth, watching the control group flourish and the experimental group wilt and wither. This process led to inquiry with kids questioning how plants come to life, the effects of sunlight, water, regular care and how they, themselves, could better care for their environment.
- **Science learning in after-school can give older kids the opportunity to mentor younger children.** During a TASC summer program partnership with the American Museum of Natural History (AMNH) -- which grew out of the collaboration between NASA and AMNH -- high school students were trained to deliver a curriculum featuring lessons on bird life in New York City to elementary school students. One of the most critical lessons according to one high schooler was the development of inquisitive minds, "kids were more concerned with learning the right questions to ask rather than just searching for the correct answers." In the Science Mentoring Project, a collaboration among Educational Equity Concepts (EEC), the New York City River Project and a school on Manhattan's Lower East Side, high school mentors led fifth-graders in the school's after-school program in an urban ecology project. In both cases, each group of kids (older and younger) benefited from these mentoring relationships, all while learning science.

- **Science learning prepares students for competition in the global economy and helps to meet the needs of businesses.** The country has a shortage of trained scientists; and invites thousands of workers from other countries to fill these lucrative jobs. At the same time, scientists and other leaders express concern about the under-representation of people of color within the field. After-school programs that serve communities of color, may help to close this gap within the science workforce.

Conclusion

While both the after-school and science fields are at a crossroads, the potential for each to flourish, is enhanced by association with the other. Groups like the Coalition of Science After School, that includes leaders in science education and after-school, are meeting on a regular basis to strategize about how science can be a bigger part of the after-school hours. With dozens of funding equity lawsuits nationwide demanding a longer school day and more enrichment opportunities in the after-school hours, science learning has the potential to gain even greater currency. In addition, science will become an indicator of success under the No Child Left Behind Act next year, making after-school science curriculum and professional training opportunities more necessary and timely. By infusing science learning into after-school, we can take the next step in our efforts to level the playing field for kids.

We've seen that after-school not only helps children and working families but entire communities by keeping kids safe during the hours of 3:00 p.m. – 6:00 p.m. Kids who are in after-school feel more connected to their community, are less likely to get “lost” in the system and often begin to see themselves as life long learners.

Science learning will better prepare them for competition in the global economy and improve their critical thinking skills. We should encourage them to ask critical questions, support the organic and sometimes non-traditional process of finding the answers and most of all – we can encourage many, many more of our children to become scientists.