

The
**Robert
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Afterschool Matters

OCCASIONAL PAPER SERIES



In between Work and School

Youth Perspectives of
an Urban Afterschool
Multimedia Literacy Program

KATHERINE SCHULTZ,
EDWARD BROCKENBROUGH,
AND JASKIRAN DHILLON

The Connection between Afterschool Programs and In-School Success

The Science
Mentoring Project

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The Robert Bowne Foundation publishes Afterschool Matters Occasional Papers twice a year. This peer-reviewed series provides a venue for publishing research that explores key issues in the theory and practice of afterschool programming, youth development, and learning during the non-school hours.

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AFTERSCHOOL MATTERS INITIATIVE

The Robert Bowne Foundation (RBF), seeking to have a long-term and substantial effect on the field of out-of-school education, launched several new initiatives to accomplish this mission. Afterschool Matters is one of the initiatives, the goals of which are to:

- Generate and disseminate research about community-based organizations serving youth during out-of-school hours
- Build a network of scholars studying community-based organizations serving youth
- Contribute to basic knowledge and the improvement of practice and policy in the area of community-based youth programs

AFTERSCHOOL MATTERS/OCCASIONAL PAPERS

One of the projects of the Afterschool Matters Initiative is the journal *Afterschool Matters*, a national, peer-reviewed journal dedicated to promoting professionalism, scholarship, and consciousness of the field of afterschool education. The journal serves those involved in developing and running programs for youth during the out-of-school hours, in addition to those engaged in research and in shaping policy. Articles for the journals are solicited from the field, and a range of academic perspectives are considered along with personal or inspirational narratives and essays, book reviews, artwork, and photographs.

The RBF Occasional Papers is a peer-reviewed series published twice a year. The goal of the Occasional Papers is to provide a venue for publishing research that explores key issues and topics in the practice and theory of afterschool programming, youth development, and learning during the non-school hours. In addition, the Occasional Papers address key policy issues in the area of youth development. The intended audience for this series includes researchers, university staff, afterschool program managers and practitioners, and policy makers. Prospective papers are solicited by the RBF.

Copies of both *Afterschool Matters* and the Occasional Papers are available on the RBF website, www.robertbownefoundation.org.

RESEARCH GRANTS/RESEARCH FELLOWSHIP

The RBF sponsors a national Research Grant competition. Four grants of \$10,000 are awarded to support either original empirical research in or about community-based youth programs during the non-school hours or research syntheses or policy analyses of community-based youth programs.

Now in its third year, the RBF Research Fellowship is dedicated to building the capacity of youth program staff to design and conduct research in the areas of youth development and education during the out-of-school hours. The goals of the Research Fellowship include generating and disseminating research in the area of education in community-based organizations serving youth during the out-of-school hours, building a network of scholars, contributing to basic knowledge and the improvement of practice, and informing policy in the area of community-based youth programs.

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In between Work and School: Youth Perspectives of an Urban Afterschool Multimedia Literacy Program

by Katherine Schultz, Edward Brockenbrough, and Jaskiran Dhillon

Executive Summary

In recent years, afterschool programs have come to be envisioned as sites for addressing the failure of urban schools to provide adolescents with the requisite skills and knowledge to participate in a rapidly shifting social, political, and economic landscape. The purpose and nature of such educational endeavors has taken many varied forms, as a growing number of stakeholders become invested in shaping the direction and implementation of afterschool programming. However, youth, as the recipients of these programs, have rarely been looked to as sources of experiential knowledge about the potential roles of afterschool programs in their personal development and academic education. Drawing on data from a yearlong ethnographic project documenting a media arts program housed in an urban comprehensive high school, this article foregrounds youth perspectives on their experience in an afterschool program, addressing in particular the ways in which this arts-based program functioned as a hybrid space between work and school. An investigation of youth perspectives invites us to rethink the potential of such educational spaces to enhance the learning of students who are most often marginalized in traditional school settings. It also raises important questions about knowledge production, skill development, and youth empowerment in afterschool programming.

The failure of urban schools across the United States to educate adolescents has received wide attention in recent years. Though concerted efforts have been made to reform urban public schools, a large segment of the adolescent population remains underserved. In response, policymakers and educators have looked to afterschool programs as a means to complement, supplement, or replace the education students receive in school. As school curricula have become increasingly scripted and tied to high-stakes testing, many afterschool and summer programs have been designed to conform to the goal of improving academic achievement. Alternatively, educators have turned to afterschool programming as a way to build on students' interests in academic and social arenas in order to sustain their participation in school. In recognition of the importance of drawing students into their education, these programs are designed around content and skills that engage students in the process of learning.

Although different afterschool programs have various purposes and serve youth of various ages, research has focused on afterschool programs geared to students between the ages of six and fourteen (Halpern, 2003). Further, this research has documented primarily external structures and outcome measures (Eccles & Templeton, 2002; Fashola, 1998; Halpern, 2002). As the recipients of afterschool education, youth themselves have rarely been seen as sources of information about the role of afterschool programs in their development.

Drawing on data from a yearlong ethnographic project to document a multimedia literacy program in an urban comprehensive high school, this article presents youth perspectives on their experience in an afterschool program. We argue that the insights gained by listening closely to youth offer critical knowledge for understanding and reconceptualizing the role of afterschool programs in the education of urban adolescents. In particular, this article addresses youth perspectives on the ways in which a technology and arts-based afterschool program functioned as a space between work

The insights gained by listening closely to youth offer critical knowledge for understanding and reconceptualizing the role of afterschool programs in the education of urban adolescents.

and school. Located inside a school building, yet outside the mandated curriculum and beyond the school day, this program represented a hybrid space for learning. Student perspectives on their participation in the program invite us to rethink static notions of educational, community, and work locations and identities. These perspectives push us to ascertain how afterschool programs can enhance the learning of students who are often marginalized in traditional school settings. Before we describe the program that is the focus of this article, we provide a brief overview of the history of afterschool programs in the United States.

AN HISTORICAL PERSPECTIVE

Afterschool programs first appeared in the U.S. in the late 19th century as boys' clubs, often located in storefronts or church basements and staffed by middle-class volunteers (Halpern, 2002). The growth of such programs can be linked to labor laws that instituted compulsory schooling and banned children from factory work. As a result of being released from work, particularly in cities, youth found themselves with free time after school. Social service agencies developed afterschool programs in response to concern that youth were endangering themselves and others in their unsupervised street life. From their beginning as supervised playground activities intended to "improve" working-class youth, these programs gradually expanded to include indoor activities (Gagen, 2000) and academic content. During the early 1900s, many afterschool programs followed Dewey's (1963, 1966) principle of providing children with opportunities to learn by actively following their interests. Afterschool programs during this time often attempted to close gaps between learning and doing and between school and work. They aimed to protect youth from the "unhealthy and dangerous urban environment" and teach them technical and social skills (Halpern, 1990, p. 215).

Recent years have seen a renewed interest in designing and funding a range of afterschool programs. These programs are developed for a wide variety of reasons, including the extension of youths' school learning

through supervised, structured learning and play. In addition, concern about failure in schools has led to the development of afterschool programs that provide direct academic support for students. Some programs aim to teach students new skills related to their interests or to future work. Others are designed as enrichment programs that provide cultural awareness and knowledge through arts-based projects. Some programs also emphasize sports, crafts, and other leisure activities to promote athletic skills, social interaction, and enjoyment. As Noam and colleagues (2003) explain, there seem to be two distinct purposes for afterschool programs. On one hand, school-based educators and those concerned with school reform emphasize academic alignment. On the other, community organizations tend to develop programs that focus on athletic or leisure activities, leadership development, and democratic participation, though the avenues through which these programs attempt to reach their goals vary.

At the same time that programs' goals have diversified, the number of youth participating in afterschool activities has grown considerably. It has been estimated that youth in the U.S. spend almost a third of their organized time in afterschool programs (Noam, Biancarosa, & Dechausay, 2003). Further, an estimated three to four million low- and moderate-income children attend afterschool programs in the U.S. (Halpern, 2002). In 2001, 67 percent of public school principals reported having afterschool programs in their schools; 60 percent of these programs had begun in the previous five years (Zief, 2004). Parallel to this growth in participation, funding for afterschool programs has increased dramatically, illustrating renewed interest in such programs as educational sites. The 21st Century Community Learning Centers program, for instance, increased its budget from \$1 million in 1997 to \$1 billion in 2002 (Noam, Biancarosa, & Dechausay, 2003). In 2004, these programs are projected to reach nearly 2.5 million students (Zief, 2004).

CATEGORIZING AFTERSCHOOL PROGRAMS

Afterschool programs can be categorized along several different dimensions. One such dimension is programs' location and the extent of their connection to schools. Community-based organizations (CBOs) and youth-based organizations (YBOs) are located primarily in the community and often have tenuous relationships with schools. They provide alternative educational models and opportunities frequently not available in schools. As Heath (2004) explains:



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Within the out-of-school ecological zone of learning provided by YBOs, the young develop a sense of themselves as learners within community contexts and pursue information, skills, and contacts in the course of high-risk work tightly governed by rules they themselves develop. (p. 46)

A wide variety of CBOs and YBOs in the U.S. offer afterschool programs for adolescents, including national organizations such as the YMCA, Boy Scouts, Girl Scouts, and Boys and Girls Clubs. These and more locally based youth programs, which may be located in religious institutions or in community centers, are often tied to grassroots organizations. They are structured around arts, sports, and other activities that draw on the interests of the leaders and the youth themselves (Heath, 1994, 1996, 1998, 2001; Heath & McLaughlin, 1993; McLaughlin, Irby, & Langman, 1994).

In contrast, school-based programs, often physically located in school buildings, are closely connected to aca-

demical programs, designed to extend the school day by linking academic assistance directly to classroom requirements. Other school-based configurations include programs located beyond the physical boundaries of schools that nevertheless provide students with opportunities to reinforce their school learning. Alternatively, programs may be physically located within schools yet draw on students' interests and connections to the community or on community center programming. Afterschool programs located in school buildings can be classified according to the sponsoring organization: school personnel, CBOs, or school/community partnerships (e.g., Dryfoos, 1998, 1999; Polman, 2004).

The Multimedia Literacy Program (MLP) we describe in this article falls into this final category. MLP was designed to build on students' interests in learning new skills related to technology and the arts, to provide an opportunity for students to work and earn money, and to draw on community resources to engage students in learning. Located in a large urban comprehensive high

school that serves low-income students and students of color, and staffed by school teachers and a community-based artist, MLP drew from several of the configurations described above. In the program's final year, student participants received payment for their work. Providing this wage added a new layer of complexity to the afterschool program. Our description and analysis of the program from the perspective of its participants—the high school students—suggest both the opportunities and the difficulties of implementing such a program.

LISTENING TO YOUTH PARTICIPANTS

Most research on afterschool programs has focused on quantitative studies that measure participation rates and student outcomes in relation to attendance (Eccles & Templeton, 2002). In addition, several researchers have conducted surveys as well as descriptive and comparative analyses of programs. Results from this empirical research have yielded varied findings. For instance, in its evaluation of the 21st Century Community Learning Centers' elementary and middle school programs, Mathematica Policy Research found little evidence that

While afterschool programs are often evaluated by achievement measures tied to classroom learning, such as standardized tests, we argue that a different set of indicators can help capture the broad array of experiences possible in afterschool programs.

participation in afterschool programs improved students' academic, social/emotional, or behavioral development (U.S. Department of Education, 2003). Qualitative analyses complicate the quantitative findings by adding nuanced analyses of descriptive data on what happens in programs. Such studies suggest several dimensions for understanding the learning that transpires outside classrooms. However, the perspectives of the participants themselves are often missing in evaluation and outcome-based research.

This article adds to the field's understanding of afterschool programs by analyzing youth perspectives. Our analysis suggests questions about learning that can, and we argue should, be pursued across varied educational settings and research methodologies. We argue that systematic interpretive analyses can help us under-

stand the impact of afterschool programs, particularly those that are markedly different from classroom practice. Close description and analysis of a single site can provide a generative framework for the design of larger-scale research projects.

In response to the push for increased test scores fueled by the No Child Left Behind Act of 2001, afterschool programs—particularly those located inside schools—have tended to mirror traditional school practices. Afterschool programs focused on the arts and community work have become less common. Our research documents the knowledge and skills students gained in a program that built on, yet diverged from, the school curriculum. While afterschool programs are often evaluated by achievement measures tied to classroom learning, such as standardized tests, we argue that a different set of indicators can help capture the broad array of experiences possible in afterschool programs. In particular, our project emphasized youth perspectives and analyses of the Multimedia Literacy Program as a site for education and work. The research questions that guided our project were:

- What are the youths' reflections on and understandings of their experience in the afterschool project?
- What are the salient experiences, skills, and knowledge that youth took from their participation in the program?
- What are the guiding roles and relationships between and among students and staff in this program?

RESEARCH CONTEXT

The Multimedia Literacy Program (MLP) was located in a large urban comprehensive high school in a major east coast city. During the years of this project, the school district in which MLP was located experienced constant turmoil, which resulted in a state takeover. The high school, one of the oldest and largest in the city, had six principals during the three years of the program. As a result, plans to house the program in a small learning community in the school and to use team teaching to connect the afterschool program to the school day never materialized for more than a few months. Relegated to afterschool time, the program had to be layered on top of the busy lives of the teachers and students.

MLP began as a collaboration between the two classroom teachers on a school newspaper supported by a local university. The newspaper project brought the teachers' interest and talent in writing and computer use together with their commitment to working on community-based

projects with their high school students beyond the school day. The close collaboration between Carrie Morris¹, an African-American English teacher, and Meryl Lewis, a white computer teacher, crossed both racial and subject-area lines. Soon after the two teachers began their collaboration and planning for multimedia work, they were introduced to Lori Green, a white video artist interested in bridging institutional settings by bringing the community into the school. Lori Green became the third member of this collaborative team. Over the years of the program, these leaders solicited participation from school colleagues, some of whom worked briefly with MLP.

Program Focus

With support from the university and a CBO, the teachers wrote a grant to fund a program in critical multimedia literacy. They received funding from an arts-in-education initiative sponsored by the U.S. Department of Education to support their work with MLP for three years. From the beginning, the program was designed to support groups of students to produce videos for the community and websites for the school, with a focus on critical media skills. As Carrie Morris, the English teacher, explained:

We started in January 2001. We had a small group. All boys. We thought, how are we going to teach them camera skills? We decided on video biographies. We asked them to write about their lives and put it on tape. There were three boys. They had a series of unsuccessful experiences in schools. So they wrote about their lives. Then they went out and made videos. First they went to one boy's elementary school. He related how people would pick on him, and how he would fight. He acted that out. In the end there were three biographies about these young men and how they were turning themselves around. (Interview, CM, 5.20.03)

Early on, the program leaders also decided to produce video projects commissioned by a community organization that would serve as the client. Learning about and producing videos in the afterschool program would thus be built around ideas or products desired by local nonprofit organizations. The critical media focus of the afterschool program receded into the background as the emphasis developed around the creation of videos—one at a time—for nonprofit community clients such as a literacy program, a community garden, and a nutrition initiative. Despite this shift in the program's focus, the teachers held on to the central idea of providing a space



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for students to respond to issues that affected their lives and communities.

Describing her own commitments to the project, Carrie Morris explained that her goals began with the belief in:

Cutting down violence in the community, in our own ways. The kids we've been involved with will not get involved in doing various things. We are part of a process, developing young people who will become assets to the community, now and as adults. Seeing how adults can work with kids. The joy of learning new things. Opportunities that pop up because we know them. It all comes down to the idea of cutting down violence. (Interview, CM, 7.29.03)

Thus the concept of MLP mirrored the goals of the early 20th century reformers, who envisioned afterschool programs as protected spaces for young people to pursue their interests and to develop as leaders. In a high-poverty urban community, the MLP teachers sought to provide new opportunities for their students. Further, they saw



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the program as a means to foster community among the students. As Carrie Morris explained:

Our goal was to develop the collective, the community, the collaboration. We wanted students to see that it's never just one person. We wanted them to find success when they worked together to translate what they learned after school into academics. (Interview, CM, 7.29.03)

The teachers made explicit connections to school learning while emphasizing the importance of forming a group, an aspect of learning they found nearly impossible to achieve in a large comprehensive high school.

The teachers used the afterschool program to reconfigure their relationships with students in ways often not possible during the school day. As they attempted to create a sense of family within the program, the teachers also maintained close connections

“We are part of a process, developing young people who will become assets to the community, now and as adults.”

to the youth's families. Carrie Morris described this connection:

Family. We talk to all their families and guardians. They know and trust us. We take them home. We're like school mothers. There are things we'd do like we'd do for our own children. Sense of family. We call home so often, parents trust us enough we can take them places. (Interview, CM, 7.29.03)

The goals of community and of knowing youth as individuals through their identities in and out of school were critical to the program leaders, each of whom was committed to providing multiple opportunities for youth to succeed through education, broadly defined.

Program Design

MLP took place three to five days a week for up to three hours after school, in a schedule that changed each year. In addition, the program was run during the summer following each of the three school years. The program had two sites in the school building: a computer classroom, where students often gathered immediately after school, and a video production room in the basement that had sophisticated equipment and large open spaces

for meeting and working. For the most part, the three leaders divided their time among small groups of students who worked on smaller projects that would later be incorporated into the final media production. At times they held discussions with the whole group or some subset of it. For instance, during one session, one teacher led a large group in a critical discussion about a series of *Adbusters* magazines while small groups of students explored animation techniques on computers. The classroom teachers taught some, although not all, of the students during the school day; over the years they developed close personal relationships with students.

MLP had two clients during the first summer of the project; each project began in the summer and was completed during the school year. First, students and leaders documented Arbor Day in the neighborhood as a project for the university; next, they made a film of the children in a family literacy program. During the second summer, they initiated work for a community-based nutrition project located at two nearby schools. They followed the same pattern of work from the previous year, initiating the filming for the video in the summer and continuing with the production after school during the school year. This film took almost a full year to produce, in part because of disruptions due to the instability of the school that housed the program.

When the leaders found themselves competing with students' need to earn money after school, they decided to find a way to pay the students. Through their relationship with a CBO, they found money through two different school-to-career grants—one federal and one sponsored by the city—to pay students to apprentice in work placements. Students were offered a weekly salary—but not without a cost to the integrity of the program. In the year of our study, 2002–2003, the school-to-careers grants required that students attend the program five days a week, more days than either the teachers or the students would otherwise have chosen. The red tape and paperwork required to pay students often filled entire afternoons. Students went for long periods of time without payment, requiring the leaders to spend additional time to track down the money and to create procedures to ensure students were paid. These periods without payment led the students to feel disillusioned; they connected their work with employment rather than with learning and enjoyment. The employer/employee relationship changed the dynamic between teachers and students. All the same, in their description of the program, the leaders explained that students attended because they wanted to work on this particular topic with these particular people (Interview, ML, 7.29.03).

RESEARCH DESIGN

With funding from the Robert Bowne Foundation, our research team began to document MLP during its third and final year. Our research project was designed to foreground the experiences and understandings of the students. Employing ethnographic research methods including participant observation, interviews, and focus groups with students and facilitators, we documented the lived experiences of the youth in the program. In

The employer/employee relationship changed the dynamic between teachers and students.

particular, by observing as participants in the program, we gathered rich, nuanced data; learned participants' perspectives; and collected students' narratives of their experience. In addition to collecting data, two of us acted as mentors to students in the program, spending substantial time nearly every week during the school year assisting with various activities in order to foster relationships with students. We were committed to creating a reciprocal relationship with the project by providing assistance to the students and program leaders in exchange for their involvement in the documentation.

Building on our initial observations, we gave surveys to approximately 40 out of a total of 57 students who participated in the program in its third year: those who were still in school or whom their teachers could locate. We used this information, along with our developing understanding from observations, to conduct a series of focus groups and interviews with youth and with program leaders. These focus groups and interviews, which generally took place on the university campus, were designed to augment our initial understanding. Becker (1996) describes the importance of collecting participants' words and perspectives in qualitative research: "It is not enough to honor, respect, and allow for the actors' point of view. One must also allow them to express it themselves" (p. 58).

We began this phase with two student focus groups and with interviews with program leaders. The focus group discussions centered on student experiences in MLP and the relationship between students' learning in the afterschool program and their daily experiences of school; students described how their afterschool learning differed from school activities. In addition, we asked students to draw connections to their communities and activities outside school. In this way, we gave students

the opportunity to engage in a reflective discussion alongside their peers about their experiences in MLP. Afterward, we encouraged them to write down any further feedback they did not wish to offer in a group setting. From these two groups, we invited a few students to participate in individual interviews, based both on their interest in the documentation project, as shown in their participation in the focus group, and their availability. We also interviewed a few additional students who did not feel comfortable participating in a focus group. A total of 22 students participated in this phase of the documentation.

During this same period, we met individually and in small groups with the program leaders. These interviews supplemented the students' viewpoints, providing an historical overview of MLP's internal organization and design. The leaders also offered insights about the context of teaching and learning both in and after school, as well as about their shifting roles in relation to these contexts. Though we conducted focus groups with teachers in order to supplement the students' stories and perspectives, we made a concerted effort to focus on the voices and words of the students as the primary source of data for our findings. The leaders' perspectives were used to provide context and background.

The information collected from these multiple data sources was analyzed for themes and patterns according to standard ethnographic methods (e.g., Bogdan & Biklen, 1982; Erickson, 1986). We compared data sources to uncover points of convergence and discrepancy. We drew our findings in this paper from themes that recurred across the various data sources.

Despite our systematic collection and analysis of data, there are several limitations to this study. First, we spent a limited amount of time collecting data from the program. Ethnographic and qualitative research relies strongly on the element of time in producing reliable and valid analyses. Second, we had limited access to student participants. Because we were introduced to the program in its third and final year, we were not able to speak with or observe the initial participants who had already graduated from high school or otherwise moved on. We were thus restricted from using a potentially important data source, one that could have provided insight into the program at its inception, when it was perhaps more reflective of the leaders' original vision. In addition, many of the students moved in and out of the program, making participation in MLP somewhat transitory. As a result, we sometimes had difficulty in devel-

oping and sustaining relationships with particular students or in encouraging them to continue to participate in the documentation project.

Our findings thus reflect a relatively limited exposure to the research site and constrained access to student perspectives. While we believe that our research was sufficient to offer some preliminary insights and questions about afterschool programming, a more comprehensive investigation over a longer time period would have strengthened the validity of the findings and provided greater scope to our overview and representation of the program. Hatch (2002) elaborates this point: "Ethnographers who claim to have captured their participants' perspectives in field notes and interviews and then written these into accounts that objectively represent the cultural experience of those participants are said to be *creating culture* rather than representing reality" (p. 5). Nonetheless, we argue that our findings raise critical questions, contain valuable insights for program designers and leaders, and suggest avenues for future research.

A THREEFOLD SPACE

Several educators and researchers have called for the creation of educational *spaces* for youth (e.g., Fine & Weis, 2003; Weis & Fine, 2000). Some have also suggested that we understand youths' learning in school as extending beyond the school day and outside the space defined by the school building (e.g. Schultz, 2002, 2003). The nature of out-of-school spaces for youth and the quality of the time they spend after the school bell rings are most often described in three different contexts: afterschool programs, employment opportunities, or unstructured free time in front of the television or on the street. Students' reflections on their experience in MLP indicate that this program was a hybrid space that crossed and extended some of these distinctly drawn categories, suggesting new ways we might conceptualize afterschool spaces for youth.

Initial descriptions of MLP offered by both students and leaders centered on the program's physical location in the school. They described MLP as an afterschool and summer program, lead by two teachers and a videographer, that was located in specific spaces inside a high school. However, when asked to describe their experiences in the program, youth often added three dimensions to this initial description, describing MLP as a:

- Location for the production of knowledge
- Community that extended beyond their classrooms and school building
- Site of employment

Students' descriptions of the Multimedia Literacy Program thus complicate common understanding of spaces for learning in afterschool programs and form the framework for our discussion of findings.

Site for the Production of Knowledge

Students articulated several ways in which MLP functioned as a site for them to acquire a wide variety of skills, as well as a disposition toward learning, both independently and as members of a community. Many students viewed the program primarily as a place for learning new skills in video production and website design. They described this learning as differing significantly from the largely skill-based academic curriculum in their school. Some of their comments on their learning were general, as reflected by one student in the first focus group: "We learned stuff we probably wouldn't have learned until college, or never learned." Often, however, students made specific reference to new knowledge of media technologies or to new facility with software such as Adobe Photoshop, Dreamweaver, and Flash. Students also discussed aspects of producing films, including

work with cameras and video production. Several students chose to engage in the program because they wanted to acquire these technical skills. Although one original intent of the program was to teach critical media literacy, students gave scant evidence that this was a central aspect of their learning. Instead, the focus of their learning was work for clients on videos and websites that frequently took several months to complete.

Though they began by describing technical skills associated with video and web-based media, students also articulated additional aspects of learning, including skills related to working in a group or independently. For instance, when asked to identify the most important aspect of the MLP experience, a student in the first focus group immediately responded, "Patience." Asked to elaborate, the student explained, "Cause things may not get done like they're supposed to. Or for me, my people skills aren't all that good." In their interviews, several students elaborated this idea of having learned patience, adding that in the program they learned to work with others and get along with people who were not necessarily like themselves.

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Bringing together these academic and social skills, students described how their confidence grew during their time in the program. Students described particular situations, especially public presentations, that led to increased self-confidence. As one student explained, “When you do a movie or something, and then you have to show it to everybody else and hear what they have to say, sometimes you don’t like what they have to say, but it helped me learn to deal with it.” Another student described an unrehearsed presentation about her work on a public service announcement: “I’m doing better at that. I ain’t scared of nobody no more.”

Although they emphasized the collective nature of the projects, students frequently mentioned how much of their learning occurred independently. The balance of independent and collective activity was both part of the program design and a consequence of the multiple demands on leaders to both manage and lead the program in a sometimes tumultuous school context.

When asked to identify the most important aspect of the MLP experience, a student in the first focus group immediately responded, “Patience.”

Because teachers could not always be available, students often taught themselves or each other the requisite skills for producing video and web-based materials. As one student explained:

I gained many strengths. I became very computer literate. Like, I was able to go further with that. Because it pushed me to do things on my own. Like, I would also say that I want to do things on my own but never do it.... But this time it pushed me to do that because I was the only one working on web page design.

This student went on to explain that he carried these independent learning skills into his school day, using his time to accomplish tasks on his own. While some students complained that they didn’t get enough guidance from the leaders, one student described the benefits to the group of having learned to work together on their own. Asked whether community-building activities would have helped, she replied, “Yeah, I think it was better if we figure it out on our own. Because if they had tried teaching us how to do it, we would’ve resented each other, and resented them, too. So it’s better if we learn by ourselves.”

While the conception of an afterschool program as a site for learning new knowledge and skills is commonplace, academic learning was not the only or, for many, the overriding goal of MLP. Students rarely mentioned specific skills they learned in MLP that supported their academic learning or engagement during school. However, they frequently included their abilities to work both independently and in collaboration with others as a significant part of their learning. Their comments suggest that broader measures of outcomes should be sought in the evaluation of afterschool programs.

Site for Building and Bridging In- and Out-of-school Communities

A critical goal of MLP was to provide youth with an experience of working collaboratively on projects. Leaders worked to develop a sense of community by deliberately designing projects that required students to look to each other for knowledge and skills. In addition to fostering relationships with and among the students, leaders sought opportunities to bring youth’s outside communities and experiences into the school building. They did so primarily through projects that required the students to collaboratively produce a film or website for an outside client, often from the surrounding neighborhood.

Throughout this work, students held various conceptions of community. We began the initial focus groups by asking students to define the term *community*. In one focus group, students offered these words and phrases in rapid succession to a question about what community meant to them:

- S1: People get to know each other.
- S2: Friends.
- S3: Neighborhood. Water ice.
- S4: Building.
- S5: Cousins.
- S3: Murals.
- S6: Fun.
- S3: [The name of the city’s public transit system].
- S6: Neighbors.
- S3: School.
- S4: Sharing.
- S7: Working.
- S8: Flowers.
- S9: Thieves.
- S10: Cars.
- S9: Thieves.
- S11: Being on one accord.

Given the pace and flow of their conversation, as well as its purpose, we did not ask why students offered these terms. Nonetheless, the range of descriptors students offered included both concrete images and more abstract notions. This interweaving of particularity and multiplicity suggests that students used shifting lenses to construct, experience, and understand community. Several responses, such as “water ice” and “murals,” marked community as a concept closely connected to the city where the students lived. In addition, the coexistence of terms related to work, school, neighborhood, and family reflects students’ multiple notions of space and place and their understanding of community as a shifting state rather than a fixed condition. Students’ definitions of community also included notions of cooperation and conflict, a theme that recurred throughout our interviews and focus groups.

In focus groups and individual interviews, students frequently mentioned that they valued the ways in which the afterschool program itself functioned as a community. For instance, they offered analogies connecting their work in MLP to their understanding of family. One student explained, “It’s like working with your family. Sometimes you have good times, sometimes you have bad times.”

Another student elaborated the idea that MLP functioned as a community that included both harmony and discord. When we asked him what it was about the program that helped the students get along with each other, he replied:

One thing, we were all in the same community, in the same [small learning community in the school]. . . . Another would be, we went to middle school with one another, so we knew each other from middle school, some from our childhood. And, we generally got along with each other in the classroom. Because, like [Multimedia Literacy] forced us to, kind of like, become friends because we. . . . we’re working with each other so we might as well make peace.

This student went on to elaborate the histories students brought to their interactions in the MLP program. He described the range of their relationships: “friendliness,” “professional,” “hating,” and “liking more than liking” (that is, more than amorous loving). He elaborated: “I would say the friendliness put it over the top. Because for the most part we were all friends, no matter what. We could be sniping at each other one day, hugging the next day, emailing each other the next day, all that stuff.” He attributed their care for each other to both their prior his-

stories and the community developed in the program. His description of the community included ways in which the program overlapped with other communities in the school and neighborhood, drawing on participants’ shared urban context. He echoed the sentiments of others when he explained that the MLP community included both harmony and conflict.

Another student iterated the importance of MLP as a space that supported students to be members of a community that extended beyond the time and space of the program:

Like, in regular school, we didn’t talk to each other at all. We, like, ignored each other. But now that we’ve gotten through the program, we see each other in the hallways, we say to each other in class, like, “Do you need help with that?” or, “Can I help you?” or, “I need help” or something like that, or “I’m doing this, you wanna join, too?” It’s like we all grouped together from that point on, since we learned that. We became a pact, a silent bond between us all. There didn’t have to be no words, did not have to be on paper, we just knew we were going to be friends from after that point on, and we were—in school, and the streets—“Hi, how ya doing, everything okay?” And we also be at each other’s houses, and we knew each other’s families. It was good.

This description of community, which bridges MLP, school, and home, illustrates the ways in which students transported their experience of community across place—the typical boundaries of school—and across time—during and after school.

Afterschool programs are often set up to provide safe havens for students, though this aspect is most frequently analyzed in relation to programs for young children. An added layer of the community students in MLP experienced was their trust in the leaders. One student explained:

The teachers act a certain way towards people. If [there] weren’t good in [those students] somewhere, [the teachers] wouldn’t, um. . . . let’s see, the proper words. . . . They’ll probably be more distant from them and be more strict with them. But no, they trusted them. So of course we trusted them. We look to adults to [see] who to trust.

Following cues from teachers and adult leaders, students constructed a community that, while in no way devoid of conflict, nonetheless drew heavily on a sense of intimacy and trust.



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Even as they explained how MLP allowed them to draw on their community knowledge, students articulated ways that the program did not take up this knowledge. One student discussed the connection between a video on urban environmentalism she worked on in the program and her own efforts to promote recycling and conservation in her neighborhood. She expressed disappointment that she was not given the opportunity to follow up on these interests in her multimedia work. Others complained that the program's restricted structure meant that they worked on a single project for a client, so that they had few opportunities to build on their own interests or experiences from outside school.

Students understood *community* both as a way to describe the collaborative nature of their work and as the

connection between their work in MLP and their work in their school, homes, and neighborhoods. Students explained that the community of the program, like their other communities, included both harmony and conflict, along with a commitment to work through difficult times.

Site of Employment

During the final year of MLP, the leaders found a way to secure weekly payment for the students, which transformed the afterschool arts program into a job site for some participants. The leaders had discovered that many students chose not to participate in the program because they felt the responsibility to work after school in order to earn money for their families. As mentioned earlier, the introduction of stipends brought new requirements for students and teachers such as attendance five days a week and seemingly endless amounts of paperwork. Leaders and students spent countless hours filling out forms and making phone calls to ensure payment.

The decision to build film projects around service to nonprofit clients also connected the program to the notion of employment. The leaders negotiated with one nonprofit program to serve as project client each year so

Following cues from teachers and adult leaders, students constructed a community that, while in no way devoid of conflict, nonetheless drew heavily on a sense of intimacy and trust.

that students would have an authentic purpose and audience for their work. Because of this relatively formal client relationship, students did not focus on learning to critique media, though this was one of the original goals of the program. They did not simply experiment with and learn the skills of multimedia and technologies. Instead, the students' work was focused on specific products they designed for outside audiences.

In their discussion of MLP as a work site, students most often mentioned responsibility, maturity, and the ability to meet deadlines—qualities they did not associate with school—as aspects of their work that distinguished it from schoolwork. Their sense of responsibility for their work in MLP motivated them to take it seriously. The students did not necessarily tie this sense of responsibility to their wages but rather to a belief that the work was important. As one student explained:

We were expected to act not like we did in [school]. We were expected to act more mature, and we had our deadlines. In school if we had like a report due or something like that, you can always bring it in a week from now and you might get 50 points off or something like that, but at a job you can't do that.

Students treated the afterschool program differently from school because MLP brought expectations similar to those of a job. Setting up outside clients not only provided authentic audiences and purposes for students' work but also meant that people the students did not know were anticipating its completion.

In addition, students took on different identities corresponding to their understanding of the program as a site of employment. As one student explained:

Before, I was like, not a private person, but normally what I'd do in school, I would do at home. So if I was quiet in school that day, I would be quiet at home. If I was loud at school that day, I would bring that loudness home. And it would normally mean that I was loud that morning at home and brought it to school and brought it back home again. So, it was like, it wouldn't really be so much as personal, so much as out there in the open. Until [Multimedia Literacy] started, like, okay, I'm gonna have to try to change it up a little. Like, there's a work persona, and then there's a relaxed one, and then there's a school one.

This student described how his participation in the MLP project helped him to develop an identity or "persona" different from his usual demeanor at home and

school. He explained that when he became engaged with work in the afterschool program, he reconsidered and reconfigured his identity to match the work context. Articulating his understanding of MLP as a hybrid place between work and school, he elaborated:

[Multimedia Literacy] would be sorta in between the work and school, because I was at work and I was in the school at the same time. So it would be like a little bit of seriousness, and then like a little bit of almost playful, and then the seriousness again, because I'm very serious about my school work.

Bringing together school and work, afterschool time and school itself, students articulated their understanding of where MLP fit as both a work and an afterschool space. Students acknowledged the connection to real projects that carried consequences and attendant responsibility as central to their conception of MLP.

At times, especially in the summer, students identified MLP teachers as bosses because the leaders were responsible for monitoring attendance. The relationship of the students' work to a product for an outside client meant that the leaders had to be critical of the work and, at times, to dictate the kinds of changes students should

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make. Students frequently bristled at these revisions to their work, but, as one student added, "But then you like, you can't really say nothing 'cause they the boss and must've wanted it this way for a reason." As workplace roles became more dominant, the dynamics of the group shifted, with the adults critiquing students' work as if they were the employers.

Students also said that they felt they had an advantage over their peers because they knew and had experience with their teachers in various roles both during and after school. One student described the leaders of the program as "teachers during work and sometimes as employers during school," suggesting that he had little difficulty negotiating these changing relationships. Another student combined the two roles

in her description: “They were there to help us learn how to relax and learn how to work in a workspace environment. They wanted to make sure we learned.” As the leaders of MLP took on multiple roles as teachers, bosses, and nurturers, students’ perceptions of them shifted according to the context.

The MLP project was not specifically designed to teach workplace skills. However, when it became a site of employment, some students used their experience as preparation for work. One student explained that his work experience in MLP prepared him for a paid position outside school.

No, I wouldn’t have developed that sense until, like, the summer time when I was—when I’m working at [his summer place of employment]. Because, I had that work experience during the school year that gets me started. So, like, that’s also a good thing, too. ‘Cause I do many other things during the school year. It’s just that that one work experience helped me out in the long-run.

USING STUDENT VOICES TO RE-IMAGINE AFTERSCHOOL PROGRAMS

Afterschool programs are most frequently categorized into three distinct components: homework help and tutoring; service learning and other projects not directly related to school learning; or non-academic areas such as sports, crafts, and play. Many programs include one or two of these areas, often balancing academic activities with projects that are considered enjoyable. The Multimedia Literacy Program did not fit squarely into any of these categories. Students articulated their under-

These distinct, yet overlapping, spaces suggest that simple categorization or design of programs might miss at least some of the critical knowledge and experience students gain from participating.

standing of MLP as a hybrid space bridging work and school. This fluidity allowed the program to function as a set of distinct spaces for students. Students’ understandings of the program cross conventional categories and suggest a new set of dimensions for conceptualizing afterschool programs: as spaces for learning, as venues for developing relationships and connections between school and community, and as locations for participating

in a work environment. These distinct, yet overlapping, spaces suggest that simple categorization or design of programs might miss at least some of the critical knowledge and experience students gain from participating.

Evaluation of afterschool programs often focuses on a single aspect of the programs, drawing on outcome measures typically associated with schools to assess effectiveness. An analysis of this single program from the perspective of its participants suggests that academic skills were only one salient aspect of the program. An understanding of the program as multiple sites for learning provides a framework for seeing possibilities for youth engagement in afterschool programs beyond academic learning.

We are living in a time characterized by enormous changes in social, cultural, political, economic, and technological domains (Cope & Kalantzis, 2000) and changes in the ways in which learning transpires. While schools are often slow to respond to these changes, afterschool programs provide us with opportunities to rethink not only teaching and learning but also the skills and dispositions essential for the future. This analysis of an afterschool program that used technology and multiple learning modalities suggests possibilities for reconceptualizing both how we evaluate programs and how we design afterschool spaces in the future. Understanding a single program as providing multiple sites for learning suggests several questions that can serve as a guide for future programs. These questions address the following themes: definitions of space, discourses of work, and youth empowerment.

Definitions of Space

The evolution of MLP demonstrates the ways in which the constraints, values, and complications of a particular space and context can alter the shape of an afterschool program. Initially conceived as part of a broad vision of youth empowerment programs at multiple sites, MLP was reconfigured under the constraints of an urban comprehensive school that lacked the resources and stability to accommodate the designers’ original intentions. Because the school did not include MLP in the curriculum and made at best inconsistent connections to students’ out-of-school lives, plans for alignment between the formal school curriculum and afterschool programming, and between these and community-based activities, never fully materialized. Furthermore, emphasis on critical media literacy as a means to encourage youth empowerment and self-determination gradually gave way to emphasis on acquiring technical skills for projects

defined by the interests of outside clients. What began as an attempt to forge a dynamic experience that would enable students to become critical learners ultimately came closer than the leaders ever intended to the more modest forms of learning and production of knowledge that typify many urban comprehensive high schools.

This is not to say that MLP was a failure; students did express appreciation for the skills they acquired and the sense of community they developed through the program. Indeed, MLP's location in an urban comprehensive high school facilitated learning and community building, making the program an advantageous space and experience for students in several ways. Our documentation project illuminates some of the trade-offs to situating an afterschool program within a school, especially a comprehensive high school in an under-resourced urban district (cf. Polman, 2004). While such settings can facilitate certain forms of learning and a sense of community, they can also impede afterschool initiatives whose objectives are not easily accommodated by the limited resources, institutional instabilities, and emphasis on skills-based learning often found in urban public schools. Situating a program in an urban comprehensive high school raises such questions as:

- What opportunities and challenges do such locations present?
- How should afterschool programs draw on—or resist—the interests that shape learning in such spaces?
- What are the effects of proximate and distant relationships between afterschool programs and school buildings?
- How are these spatial relationships translated into relationships between students and teachers during the school day, and between youth and leaders (or employees and employers) after school hours?

Students' perspectives on the tensions between the multiple notions of space that informed their participation in MLP and the interests and constraints imposed by the school setting raise additional questions:

- How can we structure afterschool programs located within schools to acknowledge, value, and incorporate the identities, experiences, and knowledge students bring with them from out-of-school contexts?
- How can we negotiate the roles and responsibilities of, and the power dynamics between, adults and youth in afterschool programs as both groups invoke multiple understandings of space and time?

Discourses of Work

A second area for further investigation is the discourses of work that marked the MLP project. The gradual transformation of the afterschool program into a work site had a significant effect on the program. On the positive side, providing stipends was necessary to allow some students to even consider participating in MLP; the decision was motivated by a sincere desire to make the MLP experience a viable option for young people from modest financial backgrounds. Moreover, the perception of MLP as a job encouraged some participants to develop a sense of responsibility, maturity, and self-awareness that they did not evidence in school. However, student reflections indicated that opportunities for learning in programs like MLP can be undermined in significant ways by the dynamics brought about by receipt of payment. As students increasingly perceived program leaders as bosses, they accepted changes in their work from adult authority figures without questioning or careful thought. Their own sense of agency as learners and producers of knowledge was unintentionally, yet undeniably, compromised by

How are these spatial relationships translated into relationships between students and teachers during the school day, and between youth and leaders (or employees and employers) after school hours?

their compliance as workers. Furthermore, some students abandoned the program when payments were delayed or perceived to be insufficient. We also found some evidence that the discourses of work prompted some students to police the quantity and quality of each other's labor.

Eliminating the possibility of stipends from programs such as MLP seems both rash and unfair to students with pressing financial needs. In recent years, schools have responded to the demands of employers by adding workplace skills to the curriculum. If afterschool programs follow suit and begin to pay participants, the mixed reactions to the introduction of stipends in MLP—and to the discourses of work that accompanied this change—suggest several important questions:

- What are the trade-offs in conceptualizing an arts-based afterschool program as a job?
- How does paying students for their work change the goals of a program?
- Whose goals should be prioritized in decisions to shift the focus of a program in this manner?



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- How can we invoke discourses of work in afterschool programs to facilitate students' emerging sense of responsibility, maturity, and self-awareness, without also positioning them as compliant workers?
- What theories and arrangements of power might enable afterschool programs to pay students without also positioning them as compliant workers to adult authorities perceived as bosses?

What theories and arrangements of power might enable afterschool programs to pay students without also positioning them as compliant workers to adult authorities perceived as bosses?

- How might discourses of work in afterschool programs enhance or hinder participants' relationships with each other?
- What funding sources should afterschool programs secure, and what disbursement procedures should they establish, to ensure consistent and timely receipt of student stipends?

Youth Empowerment

The implications of locating afterschool programs within schools, as well as the dilemmas that emerge when programs are constructed as workplaces, lead us finally to

raise questions about definitions of youth empowerment. The educators who originally conceived MLP held notions of youth empowerment in which young people would critically assess the world around them, apply their assessments to the production of knowledge, and use the knowledge to respond to critical issues in their home communities. Though the students who participated in MLP valued the learning and the sense of community that characterized their experiences in the program, their experiences diverged in important ways from the program designers' original vision of empowerment. The work produced through MLP did not emerge as organically from students' own interests as initially intended. Although students were able to reflect on and address issues of social justice and equity, these foci were not as integral to the work as the program designers had envisioned. Nevertheless, there were signs of students' critical investigations of self, peers, school, community, and society at large. With increasingly savvy understandings of the spaces through which they traveled, some students went on to explore, shape, and complicate the constructions of their own multiple identities within and between these myriad spaces. While the production of knowledge related to media technologies was ultimately driven by client needs and adult/boss dictates, students found ways to explore their identities and understandings through this work. Such understandings, taken together with the acquisition of technical skills and the creation of community, point to opportunities the stu-

dents in MLP encountered to engage in both vocational and critical learning. Thus, throughout the evolution of this program—from its initial conception as being closely tied to social justice goals, to its final configuration under the constraints of an urban comprehensive high school in a district undergoing upheaval—multiple definitions of student learning, youth development, and student empowerment were enacted.

As educators; policymakers; private foundations; federal, state, and local agencies; community organizers; parents; students; researchers; and a growing list of stakeholders direct their attention to afterschool programs, the vision of how such programs might empower and enrich the lives of young people is destined to become more contested. As afterschool programs become more varied, and as a burgeoning host of constituencies become invested in their direction, envisioning the future of afterschool programs leads us to old and familiar questions:

- What are the purposes of our educational enterprises?
- How can multiple stakeholders work together to establish and further common goals in afterschool programming?

As afterschool programs venture into the unexplored terrain of combining work, community, and school, we must revisit these questions using multiple lenses. Student perspectives give us a critical starting place for this investigation. Of all the many stakeholders in the afterschool enterprise, the one we can least afford to ignore is the young people whose education is at the center of our programs.

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Of all the many stakeholders in the afterschool enterprise, the one we can least afford to ignore is the young people whose education is at the center of our programs.

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NOTES

¹ All names of people and places are pseudonyms.

The Connection between Afterschool Programs and In-School Success: The Science Mentoring Project

by Cheri Fancsali and Nancy Nevárez

Executive Summary

This study investigated the ways in which the Science Mentoring Project, an afterschool program with a youth development focus and mentoring component, helped fifth-grade participants develop key competencies in five areas: personal, social, cognitive, creative, and civic competencies. Development of these competencies, in turn, positively affected participants' school experiences. Using program observations, teacher interviews, student surveys, a student focus group, and mentor feedback forms, researchers studied *how*—not just *whether*—the project's youth development activities affected school performance. The study's evidence suggests that developing the key competencies affected three areas of participants' school experiences: engagement and motivation, including increased interest in possible science careers; constructive behaviors, including positive risk-taking; and academic skills and knowledge, including increased awareness of environmental issues and vocabulary. The role models provided by high school mentors also helped build a critical foundation for student success. The findings of this study suggest the importance of including a youth development focus in afterschool programs.

Evidence of the positive impact of afterschool programs on academic achievement has been accumulating over the last decade. Recent examples include the following:

- A longitudinal study showed that higher levels of participation in Los Angeles's BEST afterschool programs was associated with higher school attendance and higher achievement on math, reading, and language arts standardized tests (Huang, Gribbons, Kim, Lee, & Baker, 2000).
- McREL's meta-analysis of 56 studies that used comparison or control groups found that afterschool and summer programs had a small but statistically significant positive impact on reading and mathematics achievement (Lauer et al., 2004).
- Policy Study Associates' evaluation of The After School Corporation (TASC) afterschool programs found that participants showed significantly greater gains in math standardized tests, as well as better school attendance, than similar nonparticipating classmates (Policy Studies Associates, 2002).
- Mathematica's first-year study of the 21st Century Community Learning Centers, though it did not

show improvement in academic achievement for students overall, showed positive results for several subgroups of students (Dynarski et al., 2002). Specifically, African-American and Latino participants showed statistically significant academic gains and a decrease in absences. African-American students also showed increased effort in class. Girls demonstrated significant gains in mathematics achievement and in class participation.

These and numerous other studies have not, however, examined exactly *how* afterschool programs affect student achievement. Further, there has been much debate about *what types* of afterschool programs can effect positive change in student outcomes, including academic outcomes (Roth, Brooks-Gunn, Murray, & Foster, 1998.) While afterschool educators generally agree that afterschool programs should not provide "more of the same" type of instruction that students receive in school, the field has not yet determined what types of programs have positive impact or what program characteristics are essential to produce academic outcomes.

In their review of research on community-based programs, Eccles and Gootman identified characteristics of afterschool programs that are critical to promoting positive outcomes for youth (National Research Council and Institute of Medicine, 2002). They found that program characteristics linked to promoting positive development and outcomes include opportunities for youth to:

- Experience supportive relationships and receive emotional and moral support
- Feel a sense of belonging
- Be exposed to positive morals, values, and social norms
- Be efficacious, do things that make a real difference, and play an active role in the program
- Develop academic and social skills, including learning how to form close peer relationships that support and reinforce healthy behaviors
- Acquire the skills necessary for school success and a successful transition to adulthood (National Research Council and Institute of Medicine, 2002)

Other researchers have found that afterschool programs that promote youth development can help foster nonacademic competencies that are critical to academic competence and therefore promote school success (Hall, Yohalem, Toman, & Wilson, 2003; Miller, 2003; Noam, Biancarosa, & Dechausay, 2002). For example, in a review of research and evaluation of afterschool programs, Beth Miller (2003) found that

This study investigated an area of youth development and afterschool programming about which there is a dearth of understanding: It focused not just on *whether* but on *how* the program's development of youth competencies affected students' school success.

afterschool programs can play a key role in engaging youth in learning by providing opportunities to explore interests, gain competence in real-world skills, solve problems, assume leadership roles, develop a group identity with similarly engaged peers, connect to adult role models and mentors, and become involved in improving their communities. Miller

argues that such opportunities allow youth to build “prerequisites” to learning, which support both academic achievement and long-term competence and success. In brief, she proposes a theory of change in which effective afterschool programs result in participant outcomes, including positive peer-group membership, relationships with caring adults and role models, practice of new skills, acquisition of new knowledge, and increased sense of academic self-confidence. These outcomes in turn lead to increased school engagement—better motivation, attendance rates, work habits, and cognitive skills—and increased school achievement (Miller, 2003).

Lastly, research by the Search Institute on developmental assets—positive factors in young people, families, communities, schools, and other settings that promote healthy development—shows that these factors have as much or more impact on student achievement than other demographic factors such as racial or ethnic background or income status (Scales & Roehlkepartain, 2003).

The Academy for Educational Development (AED) conducted a study of the Science Mentoring Project, in which fifth-grade participants in a local afterschool program experienced hands-on science learning with the help of high school mentors, to investigate the ways in which the development of youth competencies can affect school success. This study investigated an area of youth development and afterschool programming about which there is a dearth of understanding: It focused not just on *whether* but on *how* the program's development of youth competencies affected students' school success. Understanding *how* competencies affect school achievement can not only allow researchers to develop better instruments and methodologies to measure such impact but also provide information to improve program design and delivery.

RESEARCH DESIGN

AED studied the Science Mentoring Project in 2004. In order to examine how development of youth competencies affects school success, we framed the following research questions:

- What specific youth competencies does the Science Mentoring Project address?
- How does Science Mentoring Project develop these competencies?
- In what ways do these youth competencies reveal themselves in academic settings and affect academic success?



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Research Context: The Science Mentoring Project

The Science Mentoring Project is a unique collaboration among Educational Equity Concepts (EEC), the New York City River Project, and the afterschool program at a public elementary school on Manhattan's Lower East Side. The project, which incorporates many youth development principles, combines EEC's After-school Science PLUS (AS+) curriculum with the River Project's field experience. Working with high school role models, fifth-graders in the school's afterschool program participate in hands-on urban ecology projects using the rich resources of the Hudson River.

Program Design

The daily afterschool program uses EEC's AS+ curriculum every week. AS+ is a hands-on, literacy-based science curriculum that emphasizes gender equity and career awareness. Activities focus on developing higher-order thinking skills such as decision making, problem solving, and creative thinking; on introducing students to diverse role models in science; and on helping students explore science careers. Each activity also

includes a component called The Literacy Connection, which strengthens students' reading, writing, speaking, and listening skills. Ongoing evaluation has demonstrated the success of the AS+ curriculum, showing that students learned to experiment and think in new ways, using teamwork and cooperative learning skills as they participated in AS+ activities (AED, 2003). They also sharpened their literacy skills by documenting their AS+ experiences in science journals and writing original and creative stories.

These activities, which are implemented at the afterschool program throughout the year, served as the groundwork for students' participation in ongoing hands-on environmental science activities at the River Project, a marine biology field station at Pier 26 in Manhattan. From March 2004 to June 2004, students spent six two-hour sessions at the River Project working with scientists and with a diverse group of high school-aged mentors who were accomplished in science. Topics covered during the six sessions included water quality, oyster restoration, video microscopy, plankton ecology, and fish ecology and population. Students worked collaboratively in small groups to

collect data and to record observations and reflections during each session. For example, students collected data on the water quality of the Hudson River Estuary. They also collected data for the River Project Oyster Restoration Project and performed a plankton tow to gather specimens, some of which were added to the River Project collections.

Using the data collected at the field station, pairs of students constructed a “report board” that included the raw data as well as graphs plotting change in water quality over time, oyster growth patterns, types of species in the Hudson River, and salinity of the samples in relation to tides in the estuary. The students presented their boards to their peers and mentors at the River Project; the boards were also posted at a school fair viewed by teachers, administrators, parents, and community members.

Through the hands-on afterschool activities, the site-based research activities, the emphasis on collaborative group work, and the mentoring component, the Science Mentoring Project aimed to develop specific youth competencies in several areas:

- Personal competencies including the ability to work with others
- Social competencies including respect for others and for diversity
- Cognitive competencies including critical and higher-order thinking
- Creative competencies including original thinking and the ability to express oneself orally and in writing
- Civic competencies including an orientation to community service and the ability to advocate for the interests of oneself, someone else, or the community

Participants

The River Project recruited 13 high school students from three New York City public high schools to serve as mentors. Two of the high schools had a science focus and one was a comprehensive high school. Most mentors had an interest in pursuing careers or post-secondary studies in science. A few mentors did not have science-related aspirations, but were interested in teaching and working with youth. Mentors participated in three days of training prior to working with the students. EEC staff conducted two days of training focused on the AS+ science curriculum and on equity issues such as encouraging equal participation by girls and boys and avoiding stereotypes. Hudson River Project staff conducted the third day of training, which focused on the specific activities and experi-

ments used during the project. Each high school mentor worked with two fifth-graders.

Participation in the Science Mentoring Project was open to all fifth-graders in the afterschool program who expressed an interest; teachers were also asked to recommend students. Twenty fifth-graders—13 girls and 7 boys—were recruited in October 2003. Most of the students were Latino, three were Asian/Pacific Islander, and three were African American. All of the participants lived in low-income neighborhoods in New York City; they reflected the overall demographics of their Lower East Side school. About half the school’s students in 2002–2003 were English language learners, approximately one-tenth were recent immigrants, and almost all (over 99 percent) were eligible for free lunch. Just over half the students, 55 percent, at this school met the standards in English language arts, and 62 percent met the standards in mathematics (New York City Department of Education, 2003).

Research Methods

We used several research methods to explore the relationship between the Science Mentoring Project and students’ academic success. Through case studies, we took an in-depth look at the competencies six students developed in the program. These six students, two boys and four girls, were those who had the same teacher for both the school day and the afterschool program, were enrolled in school the entire year, completed the student surveys described below, and returned active consent forms signed by their parents. The fact that these students had the same classroom and afterschool teacher was beneficial in that it helped us identify competencies that transferred from the afterschool to the school setting, though this staff overlap was not part of the project design. To develop the case studies, we collected data at multiple points and sites of observation through detailed interviews with the classroom/afterschool teacher, written feedback from mentors, classroom and afterschool program observations, a focus group interview with participants, and a pre- and post-participation student survey. We also reviewed program documents and participating students’ science journals. Each method is described below.

Teacher Interviews

We interviewed the classroom/afterschool teacher on two occasions to explore the impact of the Science Mentoring Project on students and on their behavior

and success in the classroom. We conducted the first interview immediately following the end of the program and the second a few weeks later in order to explore issues that emerged in our analysis of the data. The teacher was a white female with several years of elementary-level teaching experience. She also had prior experience teaching in afterschool programs and other settings such as museums. She taught the school's afterschool program and had worked with the Science Mentoring Project for two years. In the interviews, we asked the teacher to describe participation, engagement, and school performance in the afterschool and school settings for participating students from her class in general and for the six case-study students in particular. As a measure of change, we asked her to rate the six case-study students on relevant competencies—personal, social, cognitive, creative, and civic—at the beginning of the project and again at the end. The teacher rated each student using the following five-point scale: not developed, emerging, capable, proficient, and advanced. We also asked her whether the competencies students developed in the Science Mentoring Project transferred to the classroom setting, and, if so, in what ways. Specifically, we asked the teacher to describe the project's impact on students' academic performance and in-school behavior.

Mentor Feedback Forms

AED asked each high school mentor to complete a feedback form for his or her mentees at the end of each Science Mentoring Project session. The forms asked mentors to provide feedback on the competencies the fifth-graders developed in the Science Mentoring Project and on changes in students' behaviors, attitudes, knowledge, and skills.

Observations

AED conducted non-participatory, direct observations at several points: six observations of the Science Mentoring Project site, two observations of the afterschool program, and two observations of the afterschool teacher's school classroom. The project observations provided evidence of case-study students' development of personal, social, cognitive, creative, and civic competencies. The project observations also documented the ways in which these competencies were developed in youth—through hands-on activities, use of high school mentors, and activities emphasizing science careers and scientists of racially and ethnically diverse backgrounds. The afterschool observations

looked for students' connections between the AS+ curriculum and their experiences at the Hudson River. The classroom observations collected evidence on changes in the case-study students' academic success as defined by increased student interest and engagement, especially around science content; increased understanding of science content and research skills; and development of critical-thinking skills.

Student Focus Group

AED conducted a focus group with case-study students at the end of the program, asking students to reflect on the project's impact on their competencies and whether they believed their participation had affected their success in school.

The project observations provided evidence of case-study students' development of personal, social, cognitive, creative, and civic competencies.

Pre- and Post-Participation Survey

We asked all fifth-graders who participated in the Science Mentoring Project to complete a survey at the beginning of the school year and at the last Science Mentoring Project session. Both surveys asked students about their knowledge of science—environmental issues, ecology, and biology—and included attitudinal questions about science studies and careers in science. In the post-participation survey, students were also asked to comment on the program's impact and on their experience with their mentor. Nine students completed both surveys.

Document Review

As part of our research, we reviewed relevant program documents and materials including the Science Mentoring Project proposal, the AS+ activity guide, session agendas, training materials, and all session handouts. In addition, we reviewed the participating school's annual report card and students' science journals.

Data Analysis

Four AED researchers collected the data for this study using the quantitative and qualitative sources described above. While there was overlap in the roles of the researchers, each researcher was primarily



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responsible for collecting one type of data. For example, one researcher was responsible for conducting observations of all the sessions, another for collecting and analyzing the survey data, and a third for conducting the focus group interview. The number of sources, varying qualitative and quantitative formats of the data, and multiple researchers presented some challenges to analyzing the data in a way that would allow us to triangulate findings and to benefit from the perspectives of the various researchers. To address these challenges, we used a multi-step process. First, each researcher typed up his or her field notes from observations, interviews, and the focus group. These notes were shared among the researchers. Results from the pre- and post-participation student survey, the quantitative questions from the mentor feedback forms, and the teacher ratings of student competencies were summarized through frequencies, means, and cross tabulations; these results were then also shared.

To explore patterns among case-study students, data from all sources were organized by, and compiled for, each case-study student. For example, a folder was created for each case-study student to hold data from the pre- and post-participation surveys, the mentor feedback forms, the teacher rating of the student's competencies, and the student journal. After completing data collection, each researcher reviewed field notes and descriptive quantitative data. When reviewing the data, researchers looked for evidence related to the research questions, as well as for emerging themes.

The researchers then met to discuss the data and themes. The purpose of the meeting was for researchers to share data, especially since each researcher collected different types of data; to discuss and develop emerging themes; to identify sources of evidence for the themes; and to discuss possible theories emerging from the data. The discussion started by one researcher listing the major themes arising from

the data that researcher was primarily responsible for collecting. The team discussed these themes and then systematically added themes emerging from other data sources. In this iterative process, we discussed the results, interpretations, and corroborations among different data sources. We then went through the themes one at a time to note examples of evidence from the data. For example, under the theme of mentors as role models, we noted evidence from the surveys, focus group, and interviews with the teacher that supported the finding that mentors provided positive role models for students.

After going through each data source, researchers reviewed all the themes to see if any were missing and where they overlapped. We then discussed possible theories about why and how participation in the project had improved students' performance in school, grouping these explanations into categories.

HOW DEVELOPING YOUTH COMPETENCIES AFFECTS SCHOOL PERFORMANCE

By triangulating results from multiple sources, we found that the Science Mentoring Project's site-based, hands-on research activities and mentoring component helped participants develop competencies that research suggests are related to academic success. The data also suggest that participation had an impact on students' school experiences in several areas including confidence in their abilities, increased involvement and engagement in school, and increased responsibility for learning. The high school mentors also had a positive impact on students, serving as positive role models and enhancing students' motivation in school.

Developing Youth Competencies

Our evidence suggests that the Science Mentoring Project did indeed facilitate development of the five kinds of youth competencies listed above as its goals: personal, social, cognitive, creative, and civic competencies.

Personal Competencies

The Science Mentoring Project activities fostered cooperation and group work among participants. For example, activities required students to collaborate to conduct tests and create graphs of water-quality levels and to play games aimed at teaching students the interdependence of the ecological system and the importance of each person in a community. One game, called the "food-chain game," involved students selecting a picture of a sea animal and then forming a big

circle. The object of the game was to connect creatures at different levels of the food chain by means of a rope. After everyone was connected, the rope formed one big interconnecting web. The students representing creatures directly dependent on oysters were asked to drop the rope. Doing so caused the entire web to fall apart, showing the importance of every animal in the sea in maintaining the ecosystem.

The Science Mentoring Project's site-based, hands-on research activities and mentoring component helped participants develop competencies that research suggests are related to academic success.

Program observations and mentor feedback forms provided evidence that these activities helped students develop personal competencies. For example, when asked on the feedback form what changes he had seen in the participant with whom he worked, one mentor reported that he noticed a change in his mentee's ability to work with other students. The mentor reported that, at the beginning of the project, the student tended to do "most of the work by himself" during the group activities and did not interact much with the female students in his small group. At the project's end, the mentor noted that the student had "learned to let others help out with the activities. He also learned to work with [the female students in his group]." The mentor saw this ability to work with the female students as an accomplishment, given the mentee's previous lack of interaction with girls. Other mentors also commented in their feedback forms on how well their mentees worked with other students: "He looked out for his partner by making sure she had all the information," for example, or, "She helped her peers by explaining what they didn't understand."

Development of students' ability to work with each other was also evident in quantitative data from the weekly mentor feedback forms. Mentors were asked at the end of each session to rate how well their mentees worked with other students, using a response scale of not at all, not very well, somewhat, and very well. At the first project meeting, mentors rated 12 out of 19 (63 percent) of mentees as working "very well" with other students. Later in the project, 8 out of 10 (80 percent) of mentees earned a "very well" rating.¹ Additionally, the classroom/afterschool teacher con-

firmed in an interview that students increased their competence in working together over the course of the project.

Social Competencies

The Science Mentoring Project activities also fostered social competencies by emphasizing respect for others and for diversity. Group activities emphasized mutual respect, speaking in turn, and listening to what others had to say. In addition, the mentors and project leaders encouraged students to appreciate each other's opinions, observations, and impressions.

Development of these competencies was observed by mentors, who rated students weekly in this area, as well as by the classroom/afterschool teacher. When asked for examples of how students showed respect for others, mentors wrote:

She always allows other students to do the hands-on activities also.

She is really courteous. She gives everyone a chance to work hands-on.

Once I asked her to give others a chance to do the experiments—she let others do it and was helpful.

One student started talking about becoming a veterinarian, and another talked about wanting to be a psychiatrist—careers the teacher had never heard students consider before the project.

In an interview, the classroom/afterschool teacher stated that the program promoted social competence by recruiting mentors and guest speakers in scientific fields who were similar to students in terms of their racial and ethnic background, gender, and socioeconomic status. As a result, the teacher reported, students “saw themselves” in these role models and began considering careers in the sciences.

In addition, once students saw that scientists “come in all shapes and sizes,” as the teacher put it, some began talking about taking up scientific careers. For example, one student started talking about becoming a veterinarian, and another talked about wanting to be a psychiatrist—careers the teacher had never heard students consider before the project.

Further, when asked to rate case-study students on their development over the year in social competencies, the teacher reported that all of the students increased in this area. By the end of the year, she rated all six as either “proficient” or “advanced” in social competency.

Cognitive Competencies

A variety of measures gave evidence that students in the Science Mentoring Project had opportunities to develop critical higher-order thinking skills as well as to add to their knowledge about environmental sciences. For example, researchers observed students discussing in depth the reasons oysters were disappearing from the Hudson River. Through a brainstorming activity, students determined that the oysters were disappearing because of pollution and overharvesting. Students were also encouraged to use critical-thinking skills by making predictions and drawing conclusions about data they collected. For example, during one of the last sessions, students created a graph of the air and water temperature data they had collected over the previous weeks. They then analyzed the relationship between the two, discovering that air and water temperatures were not directly proportional to each other.

Evidence from the student focus group and surveys also indicated that students learned a great deal about environmental sciences. For example, when asked in the focus group what they learned from the Science Mentoring Project, students responded:

I learned how to use the water kit. I compared the Ph levels and then did the graphs.

I learned to get the water's temperature. I learned all the equipment you need to do it.

I learned that oysters have their own language.

I learned how to observe and how to compare how things look.

Students' self-reported knowledge about environmental issues also increased during the project. Of the nine students who took both the pre- and post-participation surveys, four (44 percent) reported knowing “a great deal” or “a good amount” (other choices were “I've never heard of it,” “nothing,” “a little,” and “some”) about environmental issues such as pollution and water quality before the project; the number increased to seven (78 percent) who gave those answers at the end

of the project. Mentors also reported that most students showed high levels of understanding of the concepts and knowledge taught in the activities. For example, in two different weekly feedback forms, mentors reported 10 out of 15 (67 percent) and 10 out of 11 (91 percent) of students understood “very well” the concepts and knowledge taught in each session.

Creative Competencies

Student participants in the Science Mentoring Project were consistently prompted to think, make connections and observations, and ask questions—thus fostering students’ creativity and communication skills. Students gained in oral communication skills by discussing topics with their peers and by making a presentation to the group on the results of their water-quality tests at the end of the project. Writing skills were fostered by encouraging students to record observations, activities, and data in their journals. Here are two sample journal entries:

My most memorable moment was today because I never thought that today would ever come. My mentor was kind, cool and nice. My mentor was the best. I’ll never forget her.

My favorite moment was when we went downstairs to check the air and water temperature. It was fun. We had a good time.

Students were also encouraged to explore the water station and river environment using all of their senses. For one activity, students constructed a chart of what they observed by seeing, hearing, touching, and smelling. One student’s response is below:

Smell	Touch
Salt	Water
Water	Cold air
See	Hear
Dirty water	Water falling
Dead fish	

In addition, students were encouraged to write creatively about their experiences at the river. In one activity, students were given a half hour to draw, write a poem, or write prose about their experience. The teacher also gave evidence of opportunities to develop written and oral communication skills. She reported in an interview that students even used what they learned in the project to write a speech to convince other classes in the school that recycling was important.

Civic Competencies

Observations showed that the project raised students’ environmental awareness and that students began to understand the importance of caring and advocating for the environment. For example, in one session that emphasized valuing and protecting the community and the environment, students discussed environmental cleanups; the meaning of “reuse, recycle, and reduce”; and endangered fish. Students showed their increased awareness of environmental issues in their

“The Science Mentoring Project helped students understand pollution and made it real to them. They started the battery recycling project at school as a result.”

journal reflections, for example, “The river keepers protect the river by making sure people and factories do not dump sewage and junk in the river.”

Participation in the project not only raised students’ awareness of environmental concerns, but also spurred their sense of responsibility for the environment, according to their teacher. In rating the six case-study students’ ability to advocate for the interests of themselves, someone else, or the community, the teacher reported at the beginning of the project that two students were at the “emerging” level and four were at the “capable” level. By the end of the project, she rated one student as “capable,” while the other five moved into the “proficient” category. To illustrate students’ development in this area, the teacher explained in an interview, “The Science Mentoring Project helped students understand pollution and made it real to them. They started the battery recycling project at school as a result.” One of the students corroborated this statement in a focus group:

I understand better now why we should recycle, like our recycle project in school. I know how batteries affect the water and I learned how we should care for the water more.

In summary, evidence from multiple sources indicates that the Science Mentoring Project did foster students’ personal, social, cognitive, creative, and civic competencies. In the next section, we describe the ways these competencies revealed themselves in students’ school performance.

Impact on School Performance

Data collected for this study revealed that students' participation in the Science Mentoring Project had an impact on students that went beyond gaining knowledge about the content areas covered. According to the students' classroom teacher and their self-reports, their participation also positively affected students' engagement in school, their positive behaviors, and their academic skills.

Impact on Engagement

According to the afterschool/classroom teacher, the Science Mentoring Project helped students become more engaged with school because the activities helped students take responsibility for their learning:

The activities at the Science Mentoring Project improved students' involvement and engagement in class. The students started getting more serious and focused in their school work. At the Science Mentoring Project, they worked hard and they felt good about it. They saw the tie between what

Assuming responsibility for carrying out tasks, completing experiments, and documenting results transformed students into active learners.

they were doing at the river and what they did at school. As a result, they worked harder in school.

The Science Mentoring Project gave students responsibility for their work and for the equipment they needed to accomplish that work. For example, students were responsible for taking careful notes on all the water-quality tests and for charting the results. Because their results were posted at the field station for the staff to use to monitor water quality, the students' work had meaning and purpose. Students were also responsible for handling the equipment they used in experiments and for cleaning and storing it properly. According to the teacher, the real-life, hands-on nature of the activities was powerful because it "gave the students a sense that they were doing something important—[the activities] had a purpose." Having a sense of purpose and meaningful participation are two factors that have been identified as cultivating resilience in school (Bernard, 1991; Topf, Frazier-Maiwald, & Krovetz,

2004). Further, assuming responsibility for carrying out tasks, completing experiments, and documenting results transformed students into active learners.

Observations showed that students were most excited and engaged when their learning was active; one researcher noted that students were "extremely enthusiastic and asked a lot of questions" during the activities. Student responses in focus groups corroborated this finding. When asked to describe their favorite activity in the Science Mentoring Project, students pointed overwhelmingly to hands-on activities such as doing experiments and observing marine life firsthand.

I like doing the experiments. In school, we just learn about these things, we don't experiment. In the Science Mentoring Project we checked the water temperature.

It was cool to test the water and the temperature. Touching the oysters was my favorite part.

Going out to the dock and pulling the net for the planktons that was my favorite part.

My favorite part was catching the fish and the shrimp.

Further, in response to the post-participation survey question, "What did you like best about the Science Mentoring Project?" 14 out of 17 respondents reported liking best the hands-on activities and experiments.

According to the teacher, the enthusiasm generated through hands-on and engaging activities carried over into the classroom, motivating students to learn and helping them to assume ownership of and take responsibility for their learning. One example she gave in an interview was that students began to ask more questions in class.

To illustrate this "carryover" effect into the classroom, the teacher described one student, Jorge,² who was very disengaged from school at the beginning of the project. He never did his homework, even though his parents were involved in his education and attempted to follow up on homework at home. According to the teacher, "Jorge didn't own the work" and therefore was not interested in completing it. At the Science Mentoring Project, the teacher saw a different student. Jorge was engaged in the activities and found the work of the project to be fun. He worked hard in the Science Mentoring Project and "felt good about his work," according to the teacher. After a few



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weeks, the teacher reported that Jorge started to see the tie between the Science Mentoring Project and his school work: “He saw that he could do the work at the Science Mentoring Project and be successful, so he began to do his work in school too.” Of all the case-study students, Jorge also showed the most growth in the key competencies emphasized in this project. According to the teacher’s pre- and post-project ratings, Jorge jumped one level in three areas (respect for others, respect for diversity, and original thinking) and two levels in four other areas (ability to work with other students; critical thinking and higher-order skills; ability to express oneself through verbal and written communication; and ability to advocate for the interests of oneself, someone else, or the community).

Students’ increased interest in science was also indicated by their responses to the post-participation survey. All of the survey respondents either agreed or strongly agreed that “going to the Science Mentoring Project made me better at science.” In addition, eight out of nine (89 percent) agreed or strongly agreed that participating in the project made them more interested in science; seven out of nine (79 percent) agreed that their participation had changed the way they felt about science.

The student surveys also indicated that the project had an impact on students’ motivation towards coursework and careers in science. Several students changed their responses to questions about their interest in taking science courses from “I’m not sure” on the pre-participation survey to “very” or “somewhat” interested on the post-participation survey. Additionally,

“He saw that he could do the work at the Science Mentoring Project and be successful, so he began to do his work in school too.”

of the nine students who took both surveys, the percentage of students who agreed or strongly agreed that a career in science would be “dull and boring” decreased from four (44 percent) to two (25 percent).

Impact on Positive Behaviors

The teacher and mentors reported seeing changes in students’ behavior, motivation, and level of participation, indicating increased levels of confidence and of

positive risk taking. For example, the teacher reported greater participation in activities by the girls over the course of the project. At the beginning of the project, the girls tended to hang back during experiments, letting the boys do all the hands-on work. Encouraged by project staff and the mentors, the girls began to

Science Mentoring Project activities helped bolster students' confidence in their ability to ask questions and to experience learning in new and different ways.

take a much more active role, asserting themselves in group projects and contributing more to discussions. On their feedback forms, mentors noted increased participation for both girls and boys:

She hesitated at first to participate but towards the end she was really eager to work hands-on. She gained confidence trying new things, like touching animals and going out on the floating dock.

My mentee was able to break out of his shell, and became less shy. In the last weeks he participated more and talked a lot more.

She started asking more questions and became more involved in the activities. She was more willing to speak.

For one student, Emily, the most apparent change in behavior had to do with her interactions with others. In an interview, the teacher described Emily's typical classroom behavior before the project as "either not participating in class or constantly calling out. She's very into being 'cool' and often rebels against authority." The teacher noticed that during the project Emily started participating in more appropriate ways and began giving other students a chance to participate. The teacher also reported that Emily described the mentors as being "cool" and "smart": "This is an issue that Emily is dealing with, and it was important that she saw that the mentors could be cool *and* smart." The teacher's ratings of Emily in the competency areas of respect for others, respect for diversity, and ability to work with other students also showed marked improvement, moving two levels from an "emerging" or "capable" level at the beginning of the project to "proficient" or "advanced" at the end.

Both the teacher and the mentors observed that Science Mentoring Project activities helped bolster students' confidence in their ability to ask questions and to experience learning in new and different ways. The teacher reported that students' increased confidence affected how they behaved in school:

I saw students coming out of themselves. For example, Federico—who never says anything in class—all of the sudden started talking and giving his opinion [at the Science Mentoring Project]. He was never asked his opinion before, and the Science Mentoring Project gave him a safe environment to express himself. This helped build his confidence in school.

In another example, the teacher said that Martha was initially very hesitant to participate in Science Mentoring Project activities, especially those that involved either handling fish and other animals or taking risks such as walking out on a platform over the water to collect water samples. With encouragement from her mentor and from other students, Martha began to participate more in such activities. The teacher saw this increased confidence carry over into the classroom in several ways. For example, Martha became comfortable handling the classroom guinea pigs—something she was previously afraid to do—and showed more confidence in classroom discussions:

Before, Martha would never raise her hand in class. Then, she started raising her hand but would preface a comment or question with, "I don't know if this is the right answer" or "I know this is a dumb question." The response from the adults and mentors at the Science Mentoring Project was, "There are no dumb questions." Martha doesn't start her questions out that way any more. I think by hearing from other adults (besides me) and young people that there are no dumb questions, she started to believe it.

This finding is particularly notable in light of research indicating the importance of a learning environment that encourages expression of ideas, risk taking, and questioning (National Research Council, 2005).

Evidence from the student surveys also showed a shift in Martha's perspective about science. For example, Martha indicated on the pre-participation survey that she was "not sure" if she was interested in taking science courses in high school or having a science-related job or career. On the post-participation survey,

she reported that she was “very interested” in both. She reported on her pre-participation survey that she knew only “a little” about environmental issues; on the post-participation survey, she changed her answer to “a good amount.” She also strongly agreed on the post-participation survey that her mentor encouraged her to learn things and that going to the project made her better at doing science.

Impact on Academic Skills

When asked in a focus group if project activities had helped with school work, a few students made the connection that what they had learned in the project increased their scientific knowledge:

When we go to middle school, we will be doing chemistry. I'll be using chemicals and I won't be afraid because I've already worked with chemicals. If you are learning about the environment, we already know how to care for the water, and to not pollute.

The teacher also indicated that she had seen an increase in the students' vocabulary: “Students used words they learned at the Science Mentoring Project in class.” A student corroborated this observation in the focus group: “If you are learning about the ocean, you can use the language you've learned at the Science Mentoring Project, like brackish water, salt water, fresh water.”

The teacher commented in an interview that she believed the project had a powerful impact on students because it gave them a chance to succeed in an academic area. She noted that many of her students have failed in school, not meeting the standards on the city and state English language arts and mathematics tests and repeating grades as a result of their poor performance. At the Science Mentoring Project, students successfully completed activities and assignments including experiments and had the opportunity to share their results through a presentation.

The teacher also concluded that the Science Mentoring Project helped students learn skills that would help them become better students:

The project exposed students to adult and high school students modeling different ways of thinking and solving problems. This helped the students increase their metacognitive skills, their understanding of finding a learning strategy that works for them.

This comment was supported by her ratings of the case-study students' competencies in critical thinking skills and ability to express themselves in written and oral communication. At the beginning of the project, the teacher rated two students as “emerging” and four as “capable” in higher-order thinking skills. At the end of the project, the teacher rated all six students as

“The project exposed students to adult and high school students modeling different ways of thinking and solving problems. This helped the students increase their metacognitive skills, their understanding of finding a learning strategy that works for them.”

“proficient” in this area. In the area of communication skills, the teacher rated three students as “emerging,” two as “capable,” and one as “proficient” at the beginning of the project. At the end, she rated five students as “proficient” and one as “advanced.” Martha, the student mentioned earlier whose confidence grew during the course of the project, jumped two levels in both critical thinking and communication skills from “emerging” at the beginning of the project to “proficient” by the end. The teacher noted in an interview that, “The project gave her a place to practice—speaking, volunteering answers, and writing about her experience. The project gave her a reason and context for the writing, which is important.”

Impact of the Mentors

A key catalyst of the impact of the Science Mentoring Project was the mentor-mentee relationship. Students were clearly impressed by their mentors. For example, a review of the students' journals revealed that a good part of the student writing revolved around the mentor-mentee relationship.

My favorite memory is when I first met my mentor.

I will remember the most is my mentor because he helped me out a lot and he taught me a lot of stuff. He taught me about the different type of fish and crab.

My mentor was funny. We had a good time. I wish we could meet again. I wish him a lucky year.

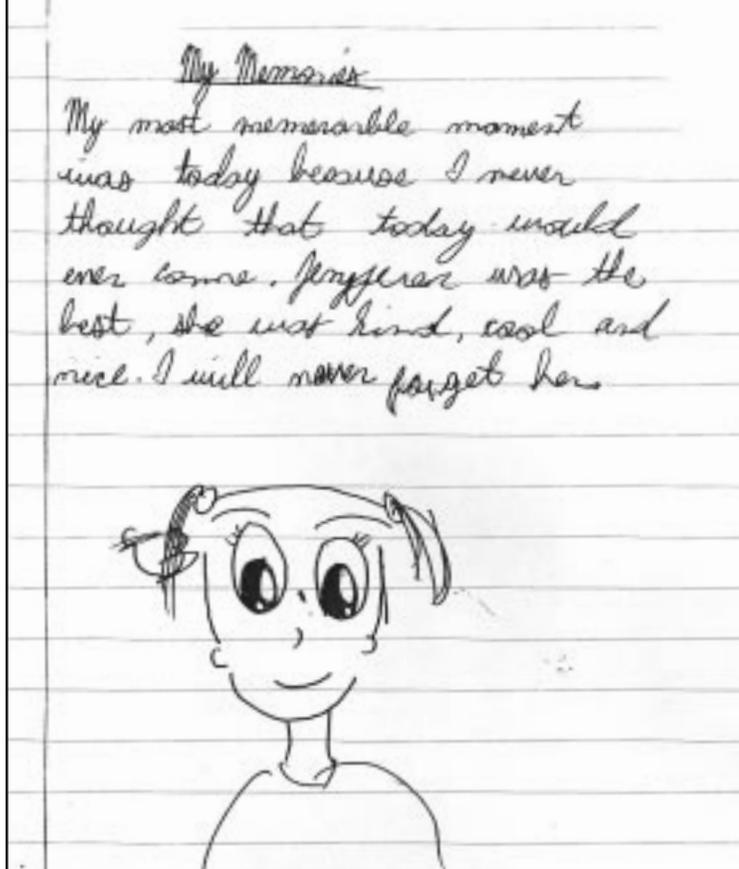


Figure 1

“The students saw the high school mentors as role models. The students liked that the mentors looked like them. The mentors were ‘cool’ but also did the work. The mentors showed the students that you can be cool and still do well in school.”

Students expressed similar sentiments during the focus group:

My mentor was my favorite part. I was nervous at first, but she was a lot of fun. She helped me fill out the logs.

I got to know my mentor. She helped me a lot. What I will remember the most is my mentor. She was fun. I think about her.

At the Science Mentoring Project, I was excited because I got along with my mentor. She helped me.

The observation of the final session of the Science Mentoring Project also showed the prominence of the

mentor-mentee relationship. The observer's field notes stated:

The students and the mentors were given about half an hour to draw, write a poem or some prose about their experiences at the river. It was very moving to hear students describe their feelings about the project. The focal points of the drawings were the relationships that the students had developed with their mentors. Most of the students drew pictures of themselves with the mentors performing experiments in the river.

One example of a student's tribute to her mentor is shown in Figure 1.

The teacher attributed many of the positive effects of the project to the mentors: “The mentors made a personal connection with students, which made the project more engaging and fun to students.” The teacher noted that much of the project's impact on students' confidence and attitudes was due to this bond between the students and their mentors and to the positive role model the mentors provided.

The students saw the high school mentors as role models. The students liked that the mentors looked like them. The mentors were “cool” but also did the work. The mentors showed the students that you can be cool and still do well in school. . . . The students became more comfortable with their mentors and more confident about talking, having discussions and raising their hands to ask questions. The high school mentors modeled different ways of learning, which helped the students' confidence.

The teacher's comments were corroborated by the student surveys, in which 15 out of 17 (88 percent) of respondents agreed or strongly agreed that they looked up to their mentors; 16 out of 17 (94 percent) agreed or strongly agreed that their mentor encouraged them to learn; and all 17 agreed or strongly agreed that they enjoyed spending time with their mentor. These findings are further testimony to the powerful impact of a caring older person in young people's lives, as revealed in the literature reviewed at the beginning of this article.

IMPLICATIONS FOR RESEARCH AND PRACTICE

This study, through multiple qualitative and quantitative methods, investigated the ways in which the Science Mentoring Project's youth development focus



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and mentoring component helped participants develop key competencies that positively affected their school experiences. Specifically, evidence from this study suggests that the competencies participants developed in the project had an impact on three areas of their school experiences. First, the project helped increase students' engagement in school and motivation toward both school and careers. Jorge, for example, discovered that academic "work" could be fun and therefore began to complete more of his assignments and homework. Second, the project, by helping participants increase their self-confidence, brought about positive changes in their classroom behaviors. Emily, formerly an unengaged and rebellious student, discovered in the Science Mentoring Project that smart people could also be cool; she transformed into an engaged student whose classroom interactions were more appropriate than before the project. Similarly, Martha's hesitation to participate in class discussions and hands-on activities dissipated. Third, the project had an impact on students' skills and knowledge, including increased awareness of environmental issues and vocabulary. The higher-order critical thinking skills participants developed through the project's hands-on scientific exploration will be crucial for those students' academic success.

Areas for Further Study

Further study on the effect of youth development programs on school success is warranted. Our research

suggests several avenues such research might take. For example, the changes in students' attitudes and behaviors through the Science Mentoring Project are especially impressive given the project's short duration. The question arises whether longer or more intense programs will yield greater impact or whether the effect of youth development programs on students' school experiences reaches a "ceiling" at some point. Longitudinal studies are also needed to investigate the long-term impact of youth development programs on school success.

Another question our study raises is related to the importance of basing youth development programs on a specific content area. Grounding the activities and

The changes in students' attitudes and behaviors through the Science Mentoring Project are especially impressive given the project's short duration.

mentoring component in a science curriculum gave the Science Mentoring Project an authentic purpose for addressing cognitive and civic competencies, including issues of diversity. A study comparing outcomes from youth development programs with and without a content-area focus would be revealing.

Our findings lead us to encourage researchers to combine quantitative and qualitative techniques, as we did in this study. Additional quantitative techniques—academic self-concept scales and other standardized measures, as well as traditional indicators of achievement such as test scores and attendance—might be brought to bear in order to measure the impact of youth development programs on academic competencies. Such quantitative data provide rigorous evidence of program outcomes that are persuasive to funders and policymakers as well as to practitioners. However, while measuring student outcomes using rigorous quantitative techniques is critical, understanding the mechanisms that produce the outcomes is equally important. Qualitative data that explore the nuances of participants' and leaders' experiences can help open the "black box" of youth development programs to illuminate how, why, and in what circumstances such programs produce particular outcomes.

Programmatic Implications

In general, our findings speak to the importance of including a youth development focus in afterschool programs. In particular, this study showed how powerfully a mentoring component and hands-on, real-world activities can affect students' school engagement, behaviors, and skills. Our findings indicate that programs do not need to be extensive in duration in order to have impact in these areas.

The findings point to the mentors as a key factor in the project's success. Informal interviews with EEC staff revealed that training for mentors in equity issues was crucial to helping the mentors to encourage equal participation by girls and boys and to avoid stereotyping and biased behavior. This training helped mentors identify when such instances occurred and gave them strategies to address these situations with students.

The Science Mentoring Project's impact on students' engagement, motivation, and positive risk taking are important because these attributes help build a critical foundation for student success. Our findings fit into Miller's (2003) theory about how afterschool programs can build "prerequisites" to learning that support students' school performance. The five key youth competencies identified in this study are areas that are often not developed in typical day-school curricula. Afterschool programs such as the Science Mentoring Project provide an ideal setting to promote and facilitate positive youth development while, at the same

time, offering fun activities that expose youth to areas of knowledge and possible career opportunities they may not otherwise experience.

ABOUT THE AUTHORS

Cheri Fancsali, Ph.D., is a senior program officer for the Academy for Educational Development (AED), where she has worked for over a decade. Her areas of focus include research and evaluation of school- and community-based educational programs, especially pertaining to school reform, teacher professional development, afterschool programs, youth development, and gender equity. She has directed several large-scale evaluation and research projects for AED. Her evaluation, with Constanca Warren, of New Jersey's school-based youth services program was published in 2000 in *Improving Results for Children and Families: Linking Collaborative Services with School Reform Efforts*. Prior to her work with AED, Dr. Fancsali was an early childhood and special education teacher in New York City. She holds a Ph.D. in sociology and education from Columbia University, where she also received her master's degree in educational policy.

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NOTES

¹ More students were present at the first meeting than at the last.

² Pseudonyms are used to protect the anonymity of the students.

PHOTO CREDITS

The Robert Bowne Foundation thanks the following organizations for contributing photographs to this publication.

GirlSpace/Interfaith Neighbors

Interfaith Neighbors was a nonprofit, nonreligious social service agency founded in 1954 to serve youngsters in East Harlem, Manhattan's poorest and most underserved community. It provided an array of counseling, education, and recreation services to adolescents ages 10–15, with the goals of helping children stay in school, boost academic skills, discover personal strengths, avoid high-risk behaviors, and build healthy friendships with adults and peers. Believing in the importance of addressing the unique needs and interests of girls and young women, Interfaith Neighbors consolidated its services for girls under one roof at GirlSpace: The East Harlem Center for Girls. Programs offered at GirlSpace included the Reading Lab, the Math Lab, Homework Help, Friends, Families & Loving Others, Youth 4 Youth Internship Program, and a variety of social and recreational groups. GirlSpace also offered individual and group counseling, family counseling, and advocacy and referral services.

New York Hall of Science

The New York Hall of Science After-school Science Club meets every week throughout the year, serving approximately 150 students in grades K–8. Each afternoon, students receive homework help and, after a light snack, participate in two hours of fun-filled, hands-on science activities. Many science themes are investigated throughout the year ranging from astronomy to microbiology. Workshops are correlated to the science exhibits featured at the New York Hall of Science and serve to supplement what students are learning in school. Students generally return each year for the program; many go on to become paid staff at the New York Hall of Science as high school interns.

Your Program in Pictures

Does your youth development program have photos that you would like to contribute to the Robert Bowne Foundation's Occasional Papers? If so, please submit high-resolution photos of youth, staff, and community members in a range of activities during the out-of-school time. We will ask you to fill out a form indicating that you have permission from all participants who appear in the photos. Send to:

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