CENTER FOR Children & Technology

AOL Foundation Interactive Education Initiative Year 1 Evaluation Report

CCT Reports
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Introduction

Background

In 1999, the AOL Foundation's Interactive Education Initiative (IEI) funded 54 educational technology projects in schools, community-based organizations (CBOs), and youth-serving institutions around the country. IEI's long-term goals are

- To maximize the benefits of interactive technology in K-12 learning environments
- To develop models and/or identify best practices that can be replicated by other schools and communities
- To produce an expanding network of educators and others dedicated to promoting effective educational use of interactive technology.

The Foundation is also committed to targeting its efforts at school and community-based organizations serving socioeconomically disadvantaged populations in diverse communities.

The mission of the AOL Foundation is to

> *use online technology to benefit society, improve the lives of families and children, and empower the disadvantaged*.

The Education Development Center's Center for Children and Technology (CCT) was hired by the AOL Foundation to conduct an evaluation of the 54 one-year implementation projects that constituted this initiative. The goals of the evaluation were to:

- Document the characteristics of the schools and organizations that received the AOL IEI grant.
- Identify the characteristics of successful projects as well as factors that impede their success.
- Identify those projects that exemplify best practices. "Best practices" in this case refers to both the ability to achieve self-identified project goals, and to effectively leverage grant funds to expand and improve institutions' overall use of available telecommunications technologies.
- Assist the Foundation in identifying projects that could benefit from additional investment on the part of the AOL foundation.

CCT used a variety of methodologies – site visits, telephone interviews and questionnaires, surveys, and case studies – to assess the impact of the IEI project at the local level and understand the projects in the context of the institutions in which they were being implemented. CCT also helped sites define their own goals and benchmarks for success.

Over the past seven months, the research staff was witness to the possibilities inherent in providing practitioners with direct access to resources that they can put to immediate and highly effective use. Educators, working in both formal and informal learning contexts, often find themselves thinking "If only I had …" At this point a modest investment can be an effective catalyst for innovation. Because IEI privileges practitioners' ideas, the program has the immediate benefit of building initiative, capacity, and leadership skills among educators. Further, IEI empowers teachers to implement creative ideas at the grassroots level, so that results are felt most immediately and directly by the children they work with.

In the following report, we outline the factors that enable these grassroots initiatives to succeed, as well as the factors that make success more challenging and elusive. Our intent is to make the research useful not only to the AOL Foundation, but also to the practitioners

who are working to make their IEI initiatives relevant and exciting for their local communities.

Evaluation Overview

This report has four sections:

I. Grantee Profile
II. Project Profiles
III. Case Studies
IV. Appendices

The first presents a detailed analysis of information culled from a survey, site visits, and phone interviews with the IEI grantees. After summarizing the research information, in the second section we describe our observations and conclusions about the projects. We also present criteria used to rate the sites into three categories: exemplary, promising, and struggling. The third section gives more complete pictures of a variety of projects on a continuum of successful to less successful implementation.

The analysis of the IEI projects indicates that while basic access to technology as well as coordinators' personal and professional experience with technology are necessary to the successful integration of technology and education, these factors are not sufficient by themselves. Other, more subtle factors appear to be crucial in determining the success of a project.

Methodology

The evaluation used multiple methodologies and included both quantitative and qualitative information. Data was collected through two core strategies: 1) Gathering baseline quantitative information through surveys given to all 54 IEI sites.[1] 2) Conducting site visits, phone interviews, and collecting formative evaluation reports from project sites to develop a qualitative understanding of the projects in the larger context of the schools and community-based organizations in which they were implemented. The information collected by these methods is presented in the form of case studies and was used to identify characteristics that contributed to successful implementation and factors that hindered their success.

The Survey

The survey collected basic demographic information from project coordinators, including:

- Types of organizations in which IEI projects are found
- Student populations served by the IEI projects
- Project coordinators' teaching background
- Project coordinators' prior experience in working with technology and telecommunications resources
- Type and accessibility of technical infrastructure at IEI locations.

Site Visits

The researchers and AOL Foundation staff selected 22 projects for site visits. The sites were chosen to vary in terms of size and type of organization (e.g., schools, CBOs, youth-serving institutions) as well as population served (e.g., urban, rural, and suburban). Selected sites were also to meet one or more of the following criteria:

- The IEI grantees were able to articulate clearly the goals of their projects and their plan to evaluate their work.
- An AOL employee was involved at the site.

[1] 51 sites responded.

- The site was collaborating with other institutions, thus involving greater resources and different perspectives.
- The site was implementing new and emerging technologies in ways that were designed to enhance and strengthen core programmatic goals.

During site visits researchers learned about the IEI grantees' goals as well as the culture of the school or CBO in which the project was implemented. The site visits were guided by the following questions:

- Is technology being used to extend and enhance core teaching and learning objectives?
- How is the leadership at the school involved? How do they support the project?
- What other support systems are in place that might help to foster the project?
- What obstacles do sites face as they implement their projects?
- What factors contribute to successful AOL employee participation?

A site visit always included a two- or three-hour interview with IEI grantees, as well as informal meetings with the director or principal of the institution. Researchers toured facilities, made classroom visits and observations, and usually ate lunch with the grantees either on site or nearby. A variety of information was collected at each of the sites including archival information (newsletters, school report cards) as well as documentation directly related to or produced by the project.

Telephone Interviews

Telephone interviews were conducted with IEI project leaders in the remaining sites. We asked a series of questions including:

- Has the project achieved its goals?
- What are some of the obstacles?
- What are the resources or circumstances in the school or organization that are supporting or facilitating the implementation of the project?
- Is the IEI project integrated into other educational initiatives going on in schools?
- How does the integration of telecommunications technology support and enhance the project?

We also tried to develop an understanding of organizational setting, the project vision, and the nature of the organizational leadership.

Evaluation Forms

Formative Evaluation Forms developed by CCT were completed by almost all of the participating projects. These forms asked sites to describe their

- Project goals
- Obstacles faced during implementation
- Plans for ongoing evaluation
- Understanding of the unique contributions of telecommunications technology to their project
- Future plans for the growth and sustainability of their projects.

In addition to these evaluation reports, many projects sent CCT researchers other supporting materials about the project, including student work and newspaper articles. The evaluation team used these self-reports as well as data from the phone interviews and site visits in its analysis.

Section I. Grantee Profiles

In January of 1999, AOL IEI grantees attending a conference in Washington, D.C., were given a survey to help CCT develop a profile of the types of organizations that had received the IEI grants. A total of 41 project coordinators (out of 54) completed the survey.

Prior research indicates that significant factors for successful technology integration and reform include the technology expertise and teaching experience of the project coordinators; teachers' experience using technology with students; and technological infrastructure.[2] CCT therefore developed a survey to collect demographic data and descriptive information about the individuals and organizations participating in the AOL IEI project. We further gathered information about these individuals' experiences with technology, their experience using these technologies with their students, and the availability of telecommunications resources at their sites The information collected would serve at least two purposes: It would help determine if the grants reached the target population. It would also be the basis of a profile of the grantee institutions and project coordinators to help identify the characteristics that contribute to the success of a project.

The full results are tabulated in Appendix B. To summarize briefly, the survey indicated that in this first round of IEI grants:

- The majority of projects were housed in school settings and initiated by classroom teachers. (Approximately a quarter [13] of the projects were housed in community-based organizations, vocational training centers, or alternative schools.)
- The grant sites were predominantly serving ethnically diverse students from economically disadvantaged communities.
- Most project coordinators were teachers of general curricula working at the K-8 level.
- The majority had been working in the education field for six years or longer.
- As a group, they had considerable experience in using computer and telecommunications technology for personal and professional purposes, although they were less likely to have used these technologies directly with students.
- The majority of sites had robust connections to the Internet (ISDN or better), and they provided access to the Web for teachers, students, and administrators in their settings.

The data suggest that the grants went to precisely the population of both teachers and students intended by the program. That is, the teachers were sufficiently experienced so that they knew what to do with technology and could make good use of small, direct grants to support ongoing curriculum efforts. The students were ethnically diverse and lived in economically disadvantaged communities. (Over 50% were non-Caucasian, and 80% of survey respondents reported that over 50% of their students were eligible for free or reduced-price lunch.)

[2] See, for example, Barbara Means, J. Blando, K. Olson, T. Middleton, A. Remz, & J. Zorfass (1993), *Using Technology to Support Education Reform (*Washington, D.C.: U.S. Department of Education); or Margaret Honey, Fred Carrigg, & Jan Hawkins (1988), "Union City Online: An Architecture for Networking and Reform," in Chris Dede, ed., *The 1998 ASCD Yearbook: Learning with Technology* (Alexandria, Va.: Association for Supervision and Curriculum Development).

Section II. Project Profiles

Because the AOL Foundation is interested in investing in projects during their crucial formative stages, we defined success as the likelihood for sites to implement their projects. At this stage in the development of educational technologies, and given the complexity of learning environments, this definition should prove useful in identifying where further funding will prove most effective.

We determined the potential or likelihood of project implementation by examining the project's goals, the thoughtfulness with which they were developed, and the project's self-reports. We also examined the context – the technology infrastructure and the school's support for its use – of the project. We looked at the level of training of individuals in the schools, the level of administrative support (did they know about the project, did they make room in teachers' schedule to support the project)? We also took into account the common barriers to successful implementation (lack of communication among staff, rigid scheduling, lack of administrative support, low expectations about students).

After looking across multiple data sources, we found that the IEI projects fell into three distinct categories: exemplary, promising, and struggling, depending on where they were in the process of implementation. The exemplary sites were able to implement their project goals successfully. Promising sites were able to partially implement their projects; in some cases they needed further support, and in many cases, more time. Struggling sites faced many obstacles and were largely or completely unable to implement their projects.

This process of implementation encompassed several factors, such as a project's ability to:

- Achieve its articulated project goals
- Modify goals when obstacles arose
- Develop a project that integrated technology that supported and enhanced their program's goals
- Integrate the AOL grant with existing initiatives to sustain the project beyond the term of the grant.

Significantly, we found that *none* of the demographic or technological factors examined in the survey account for the differences in the degree of success. For example:

- The type of organization is not a factor in success. The majority of projects were in schools in every category. Projects in community-based organizations and other institutions were struggling almost as often as they were exemplary.
- The age of the students targeted by a project is not a factor. All ages of students are targeted in each of the categories.
- The ethnic composition of the student body is not a factor. Diverse populations were represented in each category.
- The socioeconomic status of the population served is not a factor. The ratio of projects designed for students who are eligible for free lunch programs is about the same in each of the three categories.
- The geographic location is not a factor. All settings are represented in each of the categories.

Summary Demographic Characteristics for Three Groups of Projects
(see Appendix for detailed information)

Rank (assigned by CCT)	**Org.** (types of institutions)	**Age** (target for program)	**Ethnicity** (majority of population)	**SES** (eligibility for free lunch)	**Location** (geographic setting)
Exemplary Projects 17	11 schools 6 CBOs	4 elementary 4 high schools 3 preK 2 middle	5 Hispanic 4 African American 4 Caucasian	6 free lunch 4 mixed 3 middle class	6 urban 6 rural, town 4 suburban
Promising Projects 16	16 schools	8 high schools 4 elementary 3 middle	6 African African 6 Caucasian 2 Hispanic	10 free lunch 2 mixed 1 middle class	11 urban 3 suburban 1 rural
Struggling Projects 14	10 schools 4 CBOs	4 elementary 4 middle 3 multi-grade 2 preK 1 high school	4 African American 3 Hispanic 1 Caucasian 1 Native American 1 Mixed	8 free lunch 2 middle class	6 rural, town 4 urban 4 suburban

N.B. For Ethnicity and SES, each number represents the schools in which the majority of students fall into a given category; e.g., "6 free lunch" means that in 6 schools, a majority of students are eligible for free or reduced-price lunch.

We found exemplary projects in some poor urban schools with less than adequate technology infrastructure, whereas a suburban school with a robust technology infrastructure and experienced staff, for instance, had difficulty implementing its project. We found innovative uses of technology in small schools and large schools and in community centers. We found projects struggling to achieve their goals in poor neighborhoods and in more affluent areas. We found successful projects among teachers with decades of experience and those with just a few years in the profession, with technology experts and with those who were only really beginning to explore the possibilities of the new media for teaching and learning.

Our next task, then, was to understand and explain this diversity of circumstances and analyze what factors contributed to or hindered success.

Factors in Implementation

Below is a synopsis of the factors that affect the ability of a project to achieve its self-defined goals and objectives.

We grouped the IEI projects into three categories – exemplary, promising, and struggling – and observed that programs within each category shared several common characteristics. In general, exemplary projects shared a focus on genuine innovation in the educational

program that was supported by technology rather than a focus on either using new technology to support traditional educational practice or experimenting with technology for its own sake to discover its potential uses. Exemplary projects were reflective and flexible in their use of technology, and always aware of the need to use technology to support learning goals rather than finding ways to integrate technology into the curriculum. They focused on how technology can support learning rather than on how to find good uses for technology. Exemplary projects were led by staff with a strong vision and a clear sense of the realities of the school that had to be coped with. Project leaders also had a firm grasp of how their particular IEI project fit into a larger set of curriculum initiatives.

The projects designated promising and struggling had not yet achieved these levels of experience or understanding.

Below is a more detailed description of the kinds of characteristics shared by the projects in each of the three categories. Identifying and grouping these cross-site characteristics is helpful in determining which projects will most benefit from additional support and also in assisting other projects achieve their own goals.

Exemplary sites had the following characteristics:

- *Innovative educational design*
  Exemplary projects often integrated technology as part of an overall educational reform strategy that included inquiry-based learning, teacher collaboration across subjects, flexible scheduling, and the use of experiences and resources beyond the boundaries of the classroom. For example, many of the exemplary projects focused on local environmental and conservation efforts where teachers and students conducted research with local experts on site. Technology supported this by making the work more collaborative (teachers emailed each other about the project), inquiry-based (students used a digital camera to examine and document their findings), and allowed students to gather information through a variety of resources (i.e., students supplemented knowledge derived from direct examination of the local environment with indirect knowledge derived from research on the Internet).

- *Reflective use of technology*
  Exemplary projects carefully considered how interactive technology would benefit and enhance their programs. Some project staff at one innovative program, for instance, were concerned that the integration of Internet technology into their program might interfere with the students' hands-on experiences. As a result, the technology component was designed to support and improve the hands-on experience of the actual visits rather than a more customary focus on virtual field trips to a range of websites. Reflective use, then, meant subordinating the technology to the learning goals of the project and making sure that the technology contributed to those goals, in addition to any serendipitous opportunities it afforded. Exemplary projects integrated technology to deepen student engagement in the learning activity. In one project students used small, inexpensive, portable word processors (digital keyboards) in class and at home for independent assignments. As a result, the project team leaders reported that students were motivated to produce a greater volume and higher quality of writing as evidenced by their scores on pre- and post-writing tests.

- *Leadership and vision*
  In many of the exemplary sites, project leaders who had a well-developed understanding of the core goals and objectives of their projects were able to overcome challenges they confronted along the way. When faced with obstacles, they modified project goals and/or negotiated the often-difficult political environments of their schools and districts.

Additionally, the grassroots nature of the IEI grants contributed to teachers' becoming leaders in their schools and districts. In some cases, the AOL IEI project was a catalyst for other technology initiatives and/or sped up the districts' plan to wire the school.

- *Pre-existing programs*
  Many of the exemplary projects integrated technology into pre-existing programs and, as a result, were able to build their respective IEI projects on solid educational foundations. These projects faced fewer implementation challenges because the educational groundwork was already well established. Thus, they were spared the burden of having to start an entirely new project while trying to integrate technology at the same time.

Promising sites had the following characteristics:

- *Early stages of implementation*
  Promising sites have begun the process of implementing their project goals but need more time. Projects encountered multiple challenges including hardware problems, limited human infrastructure and/or inadequate time to coordinate the implementation details of the project. For example, many of these projects created websites that required district-level approval, and consequently, faced constraints that they had not anticipated at the beginning of the project.

- *Lack of clarity around project goal*
  We considered some of the successfully implemented projects promising rather than exemplary because their goals were the general infusion of technology rather than the attainment of specific curricular goals for students in the IEI project. At some sites, the project leaders assisted students and teachers in learning how to use authoring programs and the Internet, but have not yet considered how the use of these tools fits in with the schools' larger curriculum goals.

- *Starting from scratch*
  Sites that tried to implement a brand-new program, set up new hardware and/or network wiring, as well as teach teachers and students how to use software and the Internet more often than not could only begin the process of reaching their project goals.

Struggling sites had to contend with:

- *Political obstacles*
  For some IEI project leaders, project implementation aroused the opposition of the people in charge of the institution where the project was to be launched. In some sites the political obstacles were so formidable that the implementation of the project was prevented.

- *Technology for technology's sake*
  Some projects appear to be struggling to integrate technology into their larger instructional goals. Some projects created websites where the goal appeared to be the display of a new technology rather than student learning. In contrast to the exemplary sites, there was no critical examination of technology use in the school curriculum.

- *Multiple projects on site*
  Some sites had such a robust technology infrastructure and so many substantive initiatives that the IEI project was relatively insignificant in such a setting. With so many successful programs competing for the attention of teachers, when obstacles arose during the implementation of the AOL project, they were not addressed.

- *Failure to implement*
  Some projects simply failed to get off the ground and the evaluation team was not provided information as to the cause.

Section III. Case Studies

The following case studies are intended to convey the combination and range of factors that may account for the relative success of different projects. They reflect the complexity of the issues that must be negotiated in implementing technology and reform in schools and informal settings. The sites described represent both schools and community-based organizations in a range of geographic locations.

The case studies exemplify three categories:

Exemplary

Craig House – Project Discovery
Hard Bargain Farm – Bringing the River to the Classroom
Richard Henry Dana Elementary School – Pacific Currents

Promising

Burtonsville and Pine Crest Elementary Schools – Stream Teams On-line
Gallaudet University – The Friday Science Circle Project

Struggling

Andrew Robinson Elementary School – Across the C's: Collaboration, Communication and Construction
Southside Area Education Center – High School Wellnet

Craig House

Project *Project Discovery*
Location *Pittsburgh, Pennsylvania*
Category *Exemplary Site*

Project Summary

Project Discovery at Craig House puts common educational uses of the Internet to extraordinary interdisciplinary purposes. The strong educational program at Craig House has been in place since 1965, and the interactive technology project supports its pre-existing goal of instruction, which is to "normalize" the educational experiences of all its students.

Project Description and Goals

Project Discovery was an interdisciplinary project that enabled emotionally disturbed children to broaden their awareness and exposure to the world through Internet access. It was originally designed as a cooperative effort between English, science, and social studies teachers. For instance, the English classes would read assigned novels and participate in online discussions of the book. The science and social studies classes would email classes in schools in areas where the novels took place to learn about the history and environment of the settings.

The project directors wanted to give the students some sense of normalcy and self-esteem through their participation in a forum where their designation as emotionally disturbed would not prejudice other students. The project directors further hoped that using a cyber-connection in conjunction with mutually reinforcing work across disciplines would have the educational effect of reconnecting alienated students with the world.

The project goals formulated by the project directors were:

- To reconnect disenfranchised students with the local and global community via an interactive Internet connection enabling them to be included in real-world activities/experiences while being supported in the therapeutic environment they needed.
- To build self-esteem for special-needs students by engaging in interactive Internet projects anonymously (i.e., without their assigned educational label).
- To "normalize" the educational experience for special-needs students through interactive Internet projects with regular education classes in other schools.
- To nurture at-risk students in the core academic subjects by increasing access to qualified teachers, resources, and opportunities through the Internet.
- To motivate at-risk students to participate actively in their own education through interactions on the Internet.

Setting and Demographics

Craig House, a combination private school and day psychiatric hospital, is a diagnostic and treatment services center for severely emotionally disturbed children. The students, who enter between the ages of two to twelve, have multiple behavioral, educational, and emotional handicaps, disabilities, and symptoms. (Sixty-eight percent have problems with their peers; 65% are categorized as impulsive; 54% are diagnosed as having attention deficit disorder;

82% exhibit oppositional behavior;[3] 71% have been physically aggressive in the past. Nearly 10% are classified as psychotic.)

For the students' own protection, the environment resembles a jail: every single door is locked, and students must be given permission before moving from one room to another.

The profile of the Craig House student body is:

Grades	K-12
Students	185 students with severe emotional and behavioral problems
Free/Reduced Lunch	95%
Ethnic status	
African-American	75%
Native American	1%
White	24%

Implementation

Innovative Educational Design

Treatment at Craig House depends on insights developed via group psychotherapy. Behavior is managed through a program called the Student Transition and Expectation Program (S.T.E.P.), a positive-reinforcement program based on increased responsibility and privileges. S.T.E.P begins with a high degree of structure that decreases as students progress through the program and demonstrate the ability to accept responsibility, follow rules, and work cooperatively with each other. Students earn points for "expected behavior" each period of the school day and can use these points to purchase items in the classroom store each week.

The educational component focuses on offering an individualized program for each student according to the provisions of the student's Individualized Education Plan (IEP), which is prepared by the multidisciplinary planning team that includes the student's parents or guardians. A certified special education teacher and a behavior management specialist staff each classroom. Each classroom team, in turn, is directed and supported by an experienced supervisor, a child psychiatrist, and a social worker.

At Craig House, with its locked doors, the electronic freedom of the Internet is one of the few ways that students can escape the confines of their classroom while still receiving the therapeutic support they need. In addition, the presentation tools of the project (e.g., PowerPoint) gave students who communicate with others a form in which to express themselves in a polished way and be accepted by other people.

Project Discovery was successful far beyond what the project directors had imagined possible. The project was originally targeted to gifted students, but when teachers and students saw the power of the medium, they clamored to expand the audience to the entire student population. In the first year alone, thirty unplanned-for student initiatives became part of Project Discovery. In one instance, an oppositional student embarked on an interactive project with NASA, entered a science fair, and was able to explain to the judges, calmly and politely, the dynamics of flight. In another case, a child diagnosed as psychotic was able to give a PowerPoint presentation on his state project to the administrative board of

[3] According to the *DSM-IV*, oppositional behavior means more than simply defying authority. It often takes the form of behavior and words contradicting each other (e.g., the student will be doing the task while verbally refusing to comply), or refusing to complete the requirements necessary to receive credit (e.g., the student will refuse to hand the work to the teacher or will not complete the last step of an assignment).

Craig House. In yet another, reluctant readers read 304 books as part of their participation in an Internet group.

Reflective Use of Technology

The limited, indirect nature of the connection with the real world offered by the Internet served to mediate the Craig House students' interaction with reality. Specifically, the project directors found that the absence of labeling of Craig House students that would normally be present in real-world interactions, liberated the students' inherent potential. Teachers had observed that students found it easier to write up and then email their ideas than to express themselves verbally in a face-to-face interaction. Based on these observations, the project directors realized that the Internet was a powerful tool for helping their students attain their educational and emotional goals

In response to the power and success of the project, the project directors expanded their target population to include all the students at Craig House. (Indeed, they have added a sixth project goal: "To demonstrate the ways the Internet can be used as a vehicle to educate all students.") With special educational strategies and adaptations, they were able to broaden the implementation of the project without destroying the integrity reflected in the original five goals. They have recently begun sharing their experiences and suggestions for projects with every student at Craig House via bulletin boards, listserv discussions, and conferences. The project leaders want their own success stories to help other teachers use Internet activities for daily academics, not just enrichment.

Project Discovery is now being used as the vehicle to help "normalize" the educational experiences of all students – a major pre-existing goal of educational instruction at Craig House. Project Discovery has helped include students in authentic educational situations, to mainstream special-needs students with what Craig House calls "normal" students, to motivate underachievers, to enable interactions in which their students were not hindered by their label, and to cultivate technological skills in a real-world setting.

Project Discovery enabled Craig House students to interact with other students while receiving the therapeutic support they needed, but without those other students being aware of that support. The Internet was the great equalizer for the project students: they were not burdened by their diagnoses. The "normal" students at other schools also served as positive role models for their students. In addition, the real-world setting provided an opportunity for their students to publish their work for an audience of their "normal" peers anonymously.

Leadership and Vision

Because of the leadership of the project directors and the staff at Craig House Project Discovery was able to progress toward its goals. The IEI grant was used to purchase the necessary equipment and services for involvement in online projects, but since this technology was new to the school, time was needed to train the staff in using the equipment. Dedicated instructors came in early and stayed after work to learn how to use the equipment so they could assist in the student projects. The administration supported student participation in the various projects by buying the necessary supplies needed (e.g., materials to make quilt squares for a fifty-state cooperative project) and visiting classes where the projects took place and encouraging the students. The staff joined a variety of listservs to help locate suitable projects. They took the time to match the project with their curriculum and student educational/behavioral goals from the IEPs.

Pre-existing Programs, Other Initiatives

Project Discovery integrated into Craig House's overall program. Specifically, the project meshed well with the group organization of students. Every student goes through Craig House as part of a group of no more than 12 students. The group, maintained throughout

the year, takes classes together. This group organization facilitates designing projects over the Web around the particular strengths of each group since teachers know their groups so well that they're able to assess which group is best for what project.

Additionally, the pre-existing therapeutic structure of Craig House contributed in a major way to the success of Project Discovery. The classroom team works together to meet the emotional/behavioral and academic needs of the students. The classroom team is part of a larger interdisciplinary team that supplies the supportive environment the students need to develop the technological and social interaction skills necessary to successfully reconnect with the local and global community via the Internet.

As a direct result of their success with Project Discovery, Craig House is now in the unique position of having open dialogues with various other schools and classes based on the fact that they service students from 37 school districts. As part of their contract with each student's home school district, they're able to share that student's success story about using Project Discovery to educate that student.

Project Discovery has also led to two other mini grants for a national honor for Craig House and for Sharlene Ballas, one of the project directors. The Pioneering Partners organization selected PRIDE, a branch of Project Discovery, as Best Practices in Technology Education Project. The project directors have also been invited to Chicago this summer for training with teams from eight Great Lakes states. When they return to their region, they, in turn, will train other teachers in the uses of interactive technology. Their involvement in "The Read-In," yet another branch of Project Discovery, led to a $250 grant from Chapbooks. This grant enabled the school to publish an anthology of student writings as a bound book. They have submitted various student activities from Project Discovery to Compaq's Best Practices in Technology Contest and Curriculum Associates Creativity in Education Contest. Based on her work with Project Discovery and the IEI, Sharlene Ballas was awarded the Information Technology Pathfinder Award by the American Library Association (this award is given to a librarian who integrates technology creatively and effectively into the classroom). Part of the award is a $500 grant to the school. The project leaders will continue to seek funding to supplement Craig House's limited budget.

Technology Infrastructure

The computer lab at Craig House consists of twelve Macs without CD-ROM capabilities. The classrooms have a mix of PCs and Macs. To complicate the dual platform situation even further, there is a hodgepodge of computers and neither the PCs nor the Macs can share data and programs even among themselves. Even though all the students at Craig House come from public schools, Craig House, as a private school, is not eligible for public school money for a computer lab or a network. They also need teacher training in the use of Internet, word processing, etc.

Prior to the AOL IEI grant, Craig House had three computers with modems with very slow connection speeds. This slowness was particularly frustrating for students who were clinically categorized as impulsive and made it very difficult for them to participate in any Internet projects. The local ISP was ineffective and often down. The AOL IEI grant underwrote the purchase of three new computers with faster modems and gave the school AOL as its ISP, making access to the Internet much easier.

This year, the Internet can be accessed from three locations within the building (although two locations share a phone line). On any given day, the new computers are in continual use from 6:30 am through 3:00 PM. Even with the new equipment, Project Discovery was not able to accommodate every group wanting to be involved in projects and eventually

hopes to extend the project to every classroom in Craig House. The project was eventually able to include them, but only on a rotating schedule due to the limitations of the old computer equipment. Scheduling for the projects was further impeded by the fact that access to the Internet is unfiltered so that teachers must always monitor students when they go on the Internet.

Hard Bargain Farm

Project *Bringing the River to the Classroom*
Location *Accokeek, Maryland*
Category *Exemplary Site*

Project Summary

Hard Bargain Farm (HBF) has converted great ideas and time-tested outdoor activities into online activities that work within the parameters of the limited technology and schedule restraints of Washington-area schools.

Project Description and Goals

Hard Bargain Farm is a 501(c)(3) working farm and nature center (administered by the Alice Ferguson Foundation) that has provided environmental education to more than 10,000 schoolchildren a year from the Washington, D.C., area since 1970.

HBF wanted to develop and pilot an interactive website that would offer multidisciplinary activities, focused on the Potomac River, for use in classrooms throughout the Washington, D.C., metropolitan area. These activities would give students the opportunity to exercise critical thinking and problem-solving skills through virtual exploration of the Potomac watershed, thus increasing their knowledge as well as fostering environmentally responsible behavior. Along with creating a website for students, HBF also wanted to provide technology-training workshops for teachers to help them incorporate environmental education into their classroom activities.

Setting and Demographics

The farmhouse and conference center is half a mile down a dirt road. Its "backyard" has a stunning view from high atop a hill of a rolling green meadow, forest, the Potomac River, and the Washington Monument ten miles upstream. Straight across the river on the Virginia shoreline sits Mount Vernon, home of George Washington. The Piscataway Bay, bordered by national parkland, feeds into the Potomac. Wareham Lodge is the science center for the study of native river dwellers. While it houses students participating in their overnight program, it is also the point of departure from which each student who visits the marsh or creek gets outfitted with a pair of oversize galoshes for their day trips.

The profile of the students who visit HBF is:

Grades	K-6
Students	~10,000 student visitors per year
Free/Reduced Lunch	41.2% (Prince George's County)
Ethnic status	45% at-risk, urban, minority students from low-income, high-crime areas of Washington, D.C., metro area

Project Implementation

Innovative Educational Design

Students come to HBF for one- or two-day programs to experience firsthand a 350-acre working farmstead with rolling hills, two miles of Potomac River shoreline, cropland, protected forest, swamp, marsh, and creek. The students can explore the barnyard, feed the animals, help with the chores, take a hayride through the croplands along the Potomac, or just walk the grounds and watch cows graze in the pastures, beavers build dams in the marsh, and hardwood trees rise above the swamp. The many species of waterfowl and fish on the grounds and waters of this ecologically rich farm make it an ideal place to educate students about the environment.

Reflective Use of Technology

A sizable portion of the HBF staff was opposed to using technology of any kind. They did not want the students' immediate, direct contact with nature to be mediated by an electronic interface during their visits. Because of the staff's opposition, the project leadership considered how to use technology to augment the students' firsthand experience. As part of their process of reflection about the use of technology, the staff established the following guidelines for their website:

- It must be user-friendly.
- Students should learn but also have fun.
- The design activities should encourage students to come back and explore repeatedly.
- It should provide teachers with lessons and activities that expand new or repeated materials.
- It should enhance the farm's on-site program.
- Methods of assessment should incorporated within the website.
- It should have a range of activities that take differing amounts of time to complete so that teachers have scheduling options.
- It should have both group and individual activities that can be used in a classroom or computer lab setting.

The project directors believe that they have significantly enhanced the onsite program via the interactive technology of the Internet. Specifically, they cite the following improvements:

Preparation – Students who use the website in their classroom before visiting HBF appear to be better prepared and to learn more during the actual visit than students who have not previously used the website. (During a field visit, one nature instructor was surprised to hear one student warn another that gray-back dragonfly nymphs bite. The instructor attributed this to the student's reading about the insect on the HBF website in preparation for the actual visit.)

Repetition – The pre- and post-field trip interactions with the Farm via the website reinforce the learning experiences of the actual Farm visit. For example, after the field trip, classes can compare their ability to reduce garbage with other classes so as to reinforce the idea that less garbage is better.

Expanded outreach – The website is as an innovative and cost-effective way to reach students who cannot visit the farm in real life. For example, "Let's Take a Dip" and "Nature Recycles" closely parallel activities that occur during an actual visit to HBF. At the farm, students dip their nets into the creek mud and record the kind and number of creatures they pull up. During its virtual counterpart, students click on a picture of the creek, and the computer serves up a randomized selection of pictures of creatures typically found during dip netting. "Nature Recycles" asks students to figure out ways to reduce

the amount of garbage produced from their lunch and then shows them the amounts of actual total class garbage.

Leadership and Vision

The project directors were exceptionally thoughtful in the development and implementation of the HBF website. Throughout the project, they kept two clear overall goals in mind: a) to design the site to enhance the students' real-life experience while visiting; and b) to field-test the site with real students and teachers so that it would not be a high-tech gimmick, but genuinely useful.

They conducted an extensive pilot-test by observing teachers and students actually using the website at schools served by HBF. This direct "hot" observation allowed them to see what needed to be fixed or adjusted. For example, they discovered what level of technology (plug-ins, HTML version, Javascript) is really compatible for use with the broadest range of computers, operating systems, and browsers that are currently used by schools so that their website could be viewed by as many schools as possible.

By developing prototypes and analyzing how children used them, they determined which ideas could realistically be developed and translated into interactive web activity. They would also rework an activity if the original design led kids to race through it instead of seeing what HBF wanted to convey.

The project leaders were also constantly aware that the organization of the school day imposes limits on website activities. Whereas a real-life experience at the farm might immerse kids for hours, the classroom schedule might allow only thirty minutes for its virtual counterpart, and at some schools it takes half that time simply to log onto the site. In addition, the project leaders wanted to maintain a constructive balance between fun and learning.

The staff at Hard Bargain Farm has always enjoyed good relationships with classroom teachers. Teachers were pleased to cooperate in the pilot-test phase, and the project is working with the Coordinator of the Charles County Public Schools Technology Office in planning an in-service training to help teachers incorporate the HBF website into their curriculum.

The project directors are also working to ameliorate the following impediments to fuller outreach:

- Many schools have outdated technology or computer labs inadequate for group use. These schools either cannot access the Internet or can only access it at such slow speeds as to be unable to use the HBF website effectively.
- Significant numbers of teachers and students are so unfamiliar with computers and the Internet that they must be shown the basics before they can even get to the HBF website. HBF is working with the Maryland state board of education to develop introductory in-service technology programs.

Pre-existing Programs, Other Initiatives.

Before the AOL grant, HBF's primary focus was to provide students with firsthand experience in the outdoors. Furthermore, while HBF reaches 10,000 students a year, the project leaders wanted to improve two areas.

(1) The quality of each class's visit varied tremendously according to the degree to which the teacher had prepared the class beforehand. While the staff always preceded each visit with an introduction about what could be expected, students found it difficult to retain material based on a single discussion. In addition, no organized activity reinforced what the

students learned during their visit (although they do take home an HBF visit book in which to record their discoveries). The website greatly alleviated the unevenness of student preparation.

(2) Demand for the Farm's program has always far exceeded supply. The staff hope the technology of the Internet will reinforce the short experience of the visit as well as to reach out to those who can't physically visit HBF.

Teacher Training – The State of Maryland has identified environmental education and technology as critical issues, and the Governor has committed $30,000 to Hard Bargain Farm for FY 1998 and 1999 to support these areas in the education of its children. The state also began wiring schools throughout the state for Internet access. Many teachers, however, are inadequately trained in utilizing technology in education (a Maryland State Department of Education survey found that 49% of the classroom teachers were "novice users" who could not access the Internet or use email on their own). Thus, a critical area for both the state and HBF has been providing technology training for teachers.

Technology Infrastructure

Before the AOL IEI project, computer technology played no role at all in the HBF program activities. However, HBF began the AOL project with good in-house technology (Internet access, HBF staff familiar posting webpages, good computers, a digital camera, and a competent professional website designer) in place. This made development and constant improvement of the site possible.

The Hard Bargain Farm URL is www.hardbargainfarm.org. The website is extremely well designed and well worth a visit.

Richard Henry Dana Elementary School

Project *Pacific Currents*
Location *Dana Point, California*
Category *Exemplary Site*

Project Summary

By motivating all the students to want to learn more about the life and times of an ancient whale that sits in their courtyard, patiently bearing all the ministrations of the children who scratch the packed earth away from its bones, the Pacific Currents project is leading all the children at R.H. Dana Elementary to learn more about the history of the sea and what used to live in it.

Project Description and Goals

Pacific Currents is a hands-on whale fossil restoration program designed to teach life and earth sciences while also building students' skills in language, technology, and communication. This project capitalized on the discovery of a fossilized skeleton of a four-to-nine-million-year-old baleen whale that had been accidentally uncovered at a local construction site. The excavated whale fossil was eventually moved to the Dana Elementary School campus with the help of a city councilman. The fossil is embedded in a mass of compressed of dirt and stone, and restoration is expected to take years.

Carrie Millat, the Technology Resource Teacher, and the R.H. Dana staff wrote a Title VII grant which provided for excavation materials, field trip experiences, Internet wiring of the school, print resources, a project director and a paleontology assistant to coordinate the restoration, conduct lessons, and write curriculum. Students at every level (K-6) would be involved in restoring and reassembling the whale skeleton.

The AOL IEI grant was designed to provide teacher release time, digital cameras, scanners, and webpage-building software. The team teachers were to be released for two full-day planning sessions. Students would use the digital cameras to document their fieldwork, and then use the scanners on their own artwork, photographs, and handwritten data/graphs for use in reporting to their peers and the scientific community. Their final presentations would appear on a student-created webpage.

The original goals of the Pacific Currents project, as stated by the project directors, were that:

- Students will be directly involved in restoring the whale fossil and conducting original research in related field studies.
- Students will use technology as a tool for distance learning and conduct research from online services.
- Students will publish their research findings on the school website in order to relate their progress on the whale fossil restoration and their experiences on field trips.
- Students will have increased access to powerful technology, conducive to acquiring content area knowledge and supporting student research and collaboration.
- Students will expand and enhance their language skills by communicating orally and in writing in the context of ongoing, hands-on, scientific study.

Setting and Demographics

The Richard Dana Elementary School, located on Dana Point bluff, overlooks the Pacific coast in an affluent seaside resort. However, almost 46% of their students have Limited English Proficiency, and 87% are entitled to reduced or free lunch as they are, in large part, children of the immigrant population that services the hotels and the resorts of Dana Point. The high percentage of free/ reduced lunch students made Dana Elementary eligible for schoolwide Title VII entitlement funds to wire its network infrastructure.

The school plant is somewhat crowded and uses many temporary pods for additional classrooms. The hallways and classrooms are clean, well organized, and brimming with student work. The air is suffused with the smell of the ocean, and the whale fossil, dubbed "Splash!" by the students, sits on a concrete floor surrounded by a tall, new iron fence in the middle of the school's playing fields.

The profile of the Richard Dana Elementary School student body is:

Grades	K-6
Students	743
Free/Reduced Lunch	87%
Ethnic status	
African-American	3%
American Indian or Alaskan Native	1%
Asian or Pacific Islander	1%
Hispanic	70%
White	25%

Implementation

Innovative Educational Design

Pacific Currents was designed so that students would not simply learn passively from online sources. Instead, they would actively contribute to the existing body of knowledge of marine biology and paleontology by adding to the scientific community's understanding of the prehistoric whale population of their local area, the history of whales, and the relationships between whale species. During the restoration and study of the whale skeleton, it was hoped that the students would be able to determine the species of the whale, its gender, and its cause of death.

Reflective Use of Technology

In Pacific Currents, technology clearly served the central goal of the project – student learning via fossil restoration. (As the project director stated, "Students are motivated to learn when they are given purpose and meaning in their education.") Toward this end, interactive technology was deployed in various ways to amplify and enhance the students' direct experience. Teachers were able to email scientists in order to deepen their understanding of how to restore the whale fossil. Students processed their fieldwork for use on the webpages by grappling with the appropriate words and pictures to represent the field trips. The Internet enabled teachers to reach out to an international community of bilingual scientists to find potential role models for the Spanish-speaking students. The Web further provided students access to a storehouse of knowledge about whales as well as a public forum in which to publicize their findings.

Leadership and Vision

The project leaders brought extraordinary vision, creativity, flexibility, and energy to Pacific

Currents. When faced with obstacles, they modified the project's goals, made creative use of resources, and negotiated the often-difficult political environments of the district and State.

Inspired by the gift of the fossil, Carrie Millat, originally a classroom teacher, envisioned a comprehensive learning project with multiple benefits for the students as well as the scientific community. Undaunted by the school's lack of technological equipment and experience, she began by enrolling in a grantwriting class offered by the District and won a $300,000 Title VII grant from the Federal government to network the entire school. She then taught herself networking technology, oversaw the wiring of Dana Elementary, and installed and administered the Apple A-Net network software.

Millat and the other project directors brought the same kind of energy, creativity, and flexibility to bear throughout the IEI grant period. For example, Pacific Currents had arranged to hire paleontology assistant, a Ph.D. in whale fossil restoration, from Mexico, but the Immigration and Naturalization Service (INS) refused him a work permit because the position was only part-time. In response, Robin Davis, another project leader, consulted a Natural History Museum of Los Angles curator who was a leading expert on whale fossil restoration and also took classes in fossil restoration at Saddleback, a local community college.

The museum curator counseled that the fossil not be touched until an expert had identified its species. The INS decision thus meant a delay in beginning the restoration. Not wanting the new technology to stand idle, the Pacific Currents leaders offered it to non-project teachers for use in their existing classroom curricula and helped them learn how to use its various components. A third-grade teacher was able to have students exchange email with Korean students in the school instead of from her home computer. A fifth-grade class whose curriculum was based on surveys was able to make more systematic use of databases and to print out charts automatically. Two fifth-grade teachers used the scanners, digital cameras, and software to create montages of Revolutionary War pictures. As a result of this unplanned use of technology in the existing curricula of classes outside the project, the integration of technology into the teaching practices of the school became more thorough than if it had been initiated through the project alone.

Eventually, the construction company that owned the fossil decided to allow the students to begin work despite the lack of identification. Every class in the school became involved in the project, working on restoration two times a month, and the first, third, fourth, and fifth grades using Pacific Currents activities to create webpages.

Once work actually began, the project team found themselves caught between conflicting directives from the State of California and the federal government. California's Proposition 227 prohibits teachers from using any language but English when teaching. The Title VII grant, however, requires a bilingual approach with children who do not speak English. Trying to explain the complex ideas and concepts of whale restoration in English to students who spoke only Spanish proved impossible. The project leaders read Proposition 227 thoroughly and discovered an exception to the English-only rule. Under what is called "Sheltered English," although teachers may not teach in Spanish, they are allowed to respond in Spanish if students ask questions in Spanish. Thus, the Dana Point teachers were able to explain difficult concepts in Spanish when their students spoke to them in Spanish. Proposition 227 also prevented the creation of webpages in Spanish during school hours, so the teachers and students worked on the webpages after school.

The project leaders wanted to inform the parents about Pacific Currents. Most families had no access to the Internet from home, and many who spoke Spanish could not read it. The project staff

therefore decided to use parent meetings as the principal means to demonstrate their children's work and keep families up to date about the project.

The Dana Point project leaders, through persistence, energy, and creativity, consistently found ways to overcome a series of unexpected hurdles on the way to restoring their whale fossil. Their vision was always guided by the desired outcome of more deeply engaged student learning. They remained undeterred by setbacks and developed alternative routes to their ultimate goals.

Pre-existing Programs, Other Initiatives

A strong science and technology program had been the goal of Richard Dana for the preceding four years. The teachers were open to innovation and had established a student-centered, personalized learning environment in their classrooms. Teachers acted as coaches and facilitators, giving students wide latitude in controlling their own projects. The teachers expressed the desire to create classrooms that invite students to explore and stretch themselves.

Technology Infrastructure

The installation of a new network, a computer lab of 16 computers, and a single computer in each classroom, led to dramatic change for the school. Having their own file server meant that the students could log onto the network from anywhere in school and get to their work. The network server software, Apple A-Net, enabled the teacher to see what was on any student's screen as well as to display any interesting work on the monitors of all the students in the lab. While most staff were open to technology, the students entered school "pre-packaged" with more computer skills than the staff (e.g., sixth-graders had done multimedia presentations). R.H. Dana is one of the top five schools (out of thirty) in its district in technology.

The Title VII grant enabled the technology coordinator to install a Windows NT server, four drops in every classroom, and telephones. The school paid two-thirds of the installation costs, the district paid one-third. It cost $72,000 to wire the school and $30,000 to purchase the computers and necessary software.

Burtonsville and Pine Crest Elementary Schools

Project *Stream Teams On-line: Improving Our World with Technology*
Location *Silver Spring, Maryland*
Category *Promising Site*

Project Summary

Stream Teams On-line is a promising, innovative project in which students are engaged in inquiry based science. Students collect data in the field, utilize local resources and technology for research and data management and collaborate with students and teachers from other schools in the district. This site was unable to implement their project fully in the '98-'99 school year, but structures are in place for a successful implementation in the upcoming year.

Project Description and Goals

Pine Crest and Burtonsville Elementary Schools have been collaborating for the last two years on state-mandated environmental projects that focus on the local Potomac watershed. Students from these schools are on "stream teams" that investigate local streams and waterways. Each "stream team" collects and submits data to a central website to allow other students from the county to analyze and review their data. Students then communicate with each other via email to discuss data collection efforts as well as to compare procedures and conclusions. The schools have also begun videoconferencing with one another using CUSeeMe.

Setting and Demographics

Pine Crest Elementary and Burtonsville Elementary are both in Montgomery County, Maryland. Pine Crest is located in a small urban area outside Washington, D.C., and is one of two magnet schools in the county. Pine Crest is a technology magnet school with a diverse student body. It describes technology as a "tool to gain and communicate information and support the learning objectives of its students."

The profile of the Pine Crest student body is:

Grades	Elementary
Students	450
Free/Reduced Lunch	57%
Ethnic status	
African-American	42%
Asian American	14%
Hispanic American	19%
White	25%

Burtonsville Elementary is located in a suburb of Washington, D.C. It also has a diverse student population, but less than one-quarter are eligible for free or reduced-price lunch.

The profile of the Burtonsville student body is:

Grades	Elementary
Students	747
Free/Reduced Lunch	17%
Ethnic status	
African-American	23%
Asian American	*22%*
Hispanic American	5%
White	50%

Project Implementation

Innovative Educational Design

The project coordinator at Burtonsville described the two elementary schools as "very progressive with highly supportive leadership." Because the state has mandated environmental education as part of the required curriculum, many opportunities for hands-on innovative science projects have arisen. The administration at both schools are highly supportive of collaboration between the teachers and have allowed time for planning.

Reflective Use of Technology

The AOL IEI grant was used to support an innovative science curriculum and alleviate the limited technology access in both schools. The project directors at Pine Crest and Burtonsville wanted to enhance the videoconferencing capabilities at both sites to improve the collaborative communication between students. Additionally, they wanted students to have access to local scientists working at the Department of Environmental Protection and the Environmental Protection Agency. The project bought two Powerbook 1400s so its students would be able to enter data into the computer while in the field. Data entry and videoconferencing in the field were very ambitious uses of technology.

Students at both schools were able to collect data and input them on the website; they also successfully communicated with each other about their field sites using CUSeeMe on the desktop computers in their classrooms and computer lab. Both teams compared data and created reports at the end of the year.

Leadership and Vision

The project directors are aware of why they were unable to achieve full implementation this year. For example, they found that they had overestimated the capabilities of several of the project's technology aspects. Students were unable to videoconference with scientists while in the field for two reasons. First, they couldn't operate CUSeeMe on the Powerbook 1400s, and also, cellular connection to the Internet is not yet fully reliable.

Other impediments to full implementation had more to do with human limitations. Although the Burtonsville project director felt supported by her administration, the school technology coordinator had too many other responsibilities to give sufficient attention to Stream Teams. In addition, one project director wished she had coordinated more videoconferences with local scientists, but no one had anticipated how much effort would be needed to coordinate communication between students and scientists. She plans to make the scheduling of videoconferences a priority in the upcoming school year.

The project coordinators intend to implement their project in the next year. Although they had difficulty with the technology, they were able to use what was available so that students could continue their research and collaboration. Both project coordinators are committed to

connecting the classroom to the local community and supporting innovative science curriculum.

Pre-existing Programs, Other Initiatives

The science curriculum, "Stream Teams" had been an established science curriculum in both schools for two years before the AOL IEI project began. It provided the students with opportunities to research and contribute data analysis to ongoing environmental projects being conducted by the DEP and the EPA. The project coordinators have already integrated technology into the project and will continue to make use of it once they have more time for planning and implementation.

Technology Infrastructure

Because Pine Crest is a technology magnet school, they had a fairly robust technology infrastructure. They had several computer labs, including a Jostens ILS, a writing lab, and a Macintosh lab. Classrooms were also equipped with a Macintosh computer, a television, and a videocassette recorder. Burtonsville Elementary had a Macintosh Multimedia lab, a television studio, and a Macintosh multimedia computer in every classroom. Both schools were connected to the Internet through a 56 KB line.

Both project coordinators (both fourth-grade teachers) were experienced at integrating technology into their curriculum. For the Stream Teams project, their students used the Internet for research, posting data, email, and classroom-to-classroom communication using CUSeeMe.

The major obstacle that these "stream teams" faced has been access to equipment in the school labs and insufficient computers in the classroom.

Gallaudet University

Project *The Friday Science Circle Project*
Location *Washington, D.C.*
Category *Promising Site*

Project Summary

The heart of this project is TeamWave, collaborative visual software that allows people – sometimes complete strangers – to work together at a distance. This possibility is especially potent for deaf students and staff who communicate entirely by signing.

Project Description and Goals

The project directors of the Friday Science Circle Project (FSC) envisioned an electronic network for high school science teachers and deaf student to share classroom and math activities via Internet and videoconferencing technologies. They designed the network to challenge teachers and students, ages 12 to 9, to integrate and use telecommunications technology as a visual, collaborative, and interactive tool in communicating with other deaf students and teachers around the country. The project director and her cohort of senior students would coordinate the FSC project from their classroom, and planned to meet once a month on Fridays to discuss their science coursework and to collaborate on science/math activities with other classrooms around the country.

The goals of the project, as stated by the project directors, were:

- To connect (electronically) deaf, hard-of-hearing and hearing students across the nation, to increase the sharing and exchange of math and science information for these students, and to reduce the isolation of deaf students from their hearing peers due, in part, to communication barriers.
- To strengthen deaf students' literacy, particularly through science and math, through presentation preparation, culminating in exchanges of text and visual information to describe student science and math experiences to an authentic audience.
- To foster a network of science and mathematics teachers, both deaf and hearing, providing supportive interactions in the Teacher Learning Space (TeamWave software) and sharing of classroom activities and ideas.
- To gain information on strategies for conducting videoconferencing and web based conferencing between deaf students.

The AOL IEI grant funds were used to purchase and mail cameras, connection boxes, and software for teachers, as well as the TeamWave collaboration server and client licenses. The grant also supported a student aide who provided critical assistance this spring and provided support for development during the summers of 1998–99.

Setting and Demographics

Gallaudet University, the world's only university designed for deaf and hard-of-hearing students, carries out its national role of academically preparing deaf and hard of hearing students through its Pre-College National Mission Programs (PCNMP). The PCNMP is mandated by Congress to develop, evaluate, and disseminate innovative curricular models, teaching methods, and training to more than 700 schools and programs serving deaf and hard-of-hearing pre-college students around the country. Gallaudet serves 270 deaf and

hard-of-hearing students at its Model Secondary School for the Deaf (MSSD), located on the campus of Gallaudet. The students and staff at Gallaudet communicate by signing to each other. In the lunchroom, even the hearing people sign to each other as well as to deaf people out of respect to the deaf community.

Although the campus is new, with beautiful outdoor and visually rich indoor spaces, it is located in the Northwest section of Washington, D.C., in the middle of an impoverished area. It is a good 45-minute walk through abandoned buildings and empty lots to the heart of commerce and government activity in downtown Washington.

The profile of the Gallaudet University student body is:

Grades	Secondary School
Students	270 deaf and hard-of-hearing students
Ethnic status	
Additional disabilities	47%
Minorities	*51%*
Non-English-speaking families	9%
Rural communities	8%

Implementation

Innovative Educational Vision and Pre-existing Programs

MSSD students and teachers regularly engage in ISDN-based Nortel videoconferencing with a few other schools for the deaf on a limited basis. They have also participated in international CUSeeMe-based videoconferences with other schools on specific science topics. The use of visual communication and technology as teaching/learning tools are especially conducive to deaf students' visual learning as their primary means of communication.

Reflective Use of Technology

Because providing technology to other sites is difficult at best, the project directors decided to go with easy-to-install products (cameras and software) which they hoped could be used on a variety of computer platforms. They tested them out at MSSD and wrote out clear directions, but some of the teachers they are trying to collaborate with still have technical difficulties.

Leadership and Vision

The project is on its way toward implementation. FSC has selected and purchased equipment, made teacher contacts, mailed equipment, and the program leaders were excited to see teachers participating on line and beginning to use the TeamWave collaboration software.

The presence of appropriate and available personnel helped move the project forward. The school computer applications specialist provided invaluable assistance and support for making equipment choices, software installation, and other technical issues. The grant's provision of a stipend for a student aide was also extremely helpful.

The major lesson learned by the project leaders has been that with technology, every step takes longer than expected. Time has been a very big issue in many areas. The project leaders envisioned a project that would be decentralized and self-maintaining after the initial setup, and this may still be realized. However, the setup phase required much more time and effort than they anticipated, and they are beginning to recognize that more time will possibly be required to keep the project going than they planned for. Although it appears that the

teachers who signed onto TeamWave thus far are ready to take the initiative to start their own interactions, some overall structure of topics and a schedule is necessary to keep things rolling. The project leaders are considering an email newsletter to let participants know what is going on and stimulate them to log on to TeamWave.

Certain bureaucratic requirements have also contributed to delay. Teachers could not be granted release time, budgeted for in the AOL IEI grant, to work on the project because no substitutes were available. (A new Federal policy requires that all employees obtain a $100 background check before working with students; the rate of pay for substitutes at MSSD is $65 per day.) Federal law also mandates that an Individual Educational Profile be created and maintained for each disabled student; compliance is extremely time-consuming. The project leaders also dealt with unexpected logistical difficulties (e.g., figuring out how to FedEx packages to particular teachers; and thoroughly evaluating the products selected for purchase, such as cameras and TV/monitor connector boxes).

The project leaders have been flexible in their thinking about the project. They have already made use of teacher feedback to think about slightly different ways to setup the Teacher Learning Space as well as different ways to let students be involved.

On the technical side, they have revised their expectations about CUSeeMe cameras and software. Originally they hoped to use CUSeeMe to support whole-class interactions, but because of its slow transmission rate, they are now recommending exchanges of only two or three students. (The CUSeeMe equipment allows only 1-10 frames per second [fps] transmissions, which is much too slow for signing.) This change was an important turning point in the project. Improving the CUSeeMe transmission rate would require a resource person dedicated to this application alone. In addition, the project encountered instability in the TeamWave server PowerMac G3 computer they selected. They are discussing possible solutions with Gallaudet University's Computer Services.

Technology Infrastructure

Gallaudet wired MSSD with a T1 line to support Internet communications and technology. Direct interactions are possible through ISDN videoconferencing (15-20 fps) with which deaf students can see each other clearly and sign to each other.

Andrew Robinson Elementary School

Project *Across the C's: Collaboration, Communication and Construction*
Location *Jacksonville, Florida*
Category *Struggling Site*

Project Summary

Across the C's wanted to use videoconferencing to link fourth- and fifth-grade students with students in New Zealand as they planned, designed, and built bridges and an animal habitat.

Project Description and Goals

Across the C's: Collaboration, Communication, and Construction took place in Debbie Miller's Tech Ed Lab in Andrew Robinson Elementary School. The Tech Ed Lab has four computers and a large open space for students to build and design structures with K'nex building blocks. The room was specifically designed so that students would be able to construct large structures using these materials and interface them with computer technology. The Lab integrates math, science, and design concepts that "are often applied to real-life situations within the context of an integrated unit." In the past, for example, teams of students built bridges using K'nex blocks that were assigned a particular monetary value. Students designed their bridges with a budget in mind and built their bridges accordingly.

Across the C's proposed to have fourth- and fifth-grade students use the K'nex building blocks to design two structures over the year: a bridge (strong enough to support the weight of three textbooks) and an animal habitat. Teachers planned to link students with peers in New Zealand via videoconferencing to collaborate, share their design ideas, and solve potential problems. The lead teacher saw New Zealand as offering a different cultural perspective, while being an English-speaking country, an important factor in collaboration. Business partners and mentors from the local state university were to serve as consultants as students applied math and science concepts to their assigned problem.

Setting and Demographics

Andrew Robinson Elementary is a science, math, and pre-engineering magnet school that gets a good deal of attention from outsiders. The school is located in a brightly colored new structure in a blighted area of Jacksonville, Florida. According to school materials, the facility is a showcase for the district and was built as a result of a desegregation agreement with the NAACP. Several wings in the buildings are interconnected with courtyards, and students are accustomed to walking outdoors on their way to classes. The warm, wood-paneled library/media center houses a large collection of books and periodicals as well as a state-of-the-art cataloging system.

Andrew Robinson Elementary is beautifully maintained and there is an enthusiastic spirit among teachers and administrators. It is welcoming to children and visitors alike.

The school is located in a high-poverty area with several multi-family rental homes and boarded-up buildings. Over three-quarters of the children at Andrew Robinson Elementary live below the poverty line. Teachers report that many children do not want to go home at 5pm; they also find children waiting to get into the school at 7am.

The profile of the Andrew Robinson Elementary School student body is:

Grades	Pre-K- 5
Students	~1120
Free/Reduced Lunch	84%
Ethnic status	
Ethnic Minority	80%

Implementation

Innovative Educational Design and Reflective Use of Technology

Andrew Robinson Elementary had all the right components in place to make the school an exemplary project. The Across the C's project had an innovative educational design in terms of integrating technology with the building and designing of structures. The project had the potential to promote hands-on, cooperative learning, and allow students to combine math and science investigations using interesting tools.

Leadership and Vision

Robinson Elementary had the leadership and vision necessary to achieve its goals. At least eight resource teachers worked on different technology activities with students, and the school administration allowed time in teachers' schedules to plan and organize computer activities – time essential for teachers to reflect about the use of technology and to use technology to enhance goals for instruction.

The project team was unable to implement the proposed project, however, due to poor coordination and technical factors.

The videoconferencing with New Zealand classes was unsuccessful. The difference between time zones in New Zealand and Jacksonville made scheduling their classes at the same time extremely difficult. The New Zealand professor who was the original contact had been certain he could find other teachers to collaborate on a project with American teachers. However, when he posted the project to other New Zealanders, no one responded. Discouraged and overextended, Debbie Miller never followed up with the New Zealand contact or made other arrangements, locally, to implement the project.

A number of technical issues proved to be obstacles. Andrew Robinson had a sophisticated infrastructure, but the teachers were faced with delays in connection and systems that were incompatible with one another. For example, they found that the CUSeeMe technology did not work with school's proxy server. The school was to have a T1 line as well as cable modem for the new Tech Ed Lab, but these were installed in November instead of August, thus delaying Internet access.

Pre-existing Programs, Other Initiatives

The AOL project was one of many. Robinson Elementary is a well-funded public school with multiple projects going on simultaneously. The teachers and administrators are successful proposal writers, and funds are being used to upgrade and maintain the school's technical infrastructure. The project team and teaching staff, while quite capable, were overextended with projects that took precedence over the AOL IEI project.

Technology Infrastructure

Andrew Robinson Elementary school has an impressive technical infrastructure. Its recent construction allowed planners to lay the lines for a robust computer network throughout the school. There are over 250 computers in the building, which includes two computer labs (a Macintosh Lab and a Windows Lab), a library/media center (with six station card catalogues), a full television production studio with computer editing system, as well as a Tech Ed Lab used for hand-on instruction with K'nex building blocks and other computer operated robotic toys.

In addition, each classroom has three to five networked computers with a T1 connection to the Internet. Researchers observed teachers and students with hand-held personal digital assistants (PDAs, or Palm Pilot–like devices) in at least one classroom. The school's infrastructure was far ahead of the Jacksonville school district's technology plan.

On the day of our visit teachers and technology coordinators were asking for assistance in trying to join the school's sophisticated wide-area network (WAN) with the district's slower, less-refined WAN.

Southside Area Health Education Center

Project *High School Wellnet Project*
Location *Farmville, Virginia*
Category *Struggling Site*

Project Summary

Wellnet intended to use the Internet to give students confidential information about health and risk-taking behaviors. This project was unable to execute its plan due to opposition from the school board.

Project Description and Goals

The High School Wellnet Project was a joint collaboration between the Southside Area Health Education Center (SAHEC) and Randolph Henry High School. Its goal was to use the online medium to decrease teen pregnancy, decrease smoking and alcohol use, decrease violence, and encourage interest in pursuing careers in health care.

The majority of the AOL IEI grant went to the Wellnet Project Coordinator, who was to conduct student online research and training within the classrooms/computer lab in collaboration with discipline-driven curricula.

The collaboration was intended to serve as a pilot project which would later be expanded into other schools in the SAHEC service region.

Setting and Demographics

The SAHEC is an independent, nonprofit, non-government organization located in rural Prince Edward County, Virginia. It serves thirteen counties that encompass 5,884 square miles; some towns are as far as 250 miles apart from each other, and they include some of the poorest, most isolated communities in Virginia. SAHEC's mission is to develop health awareness and health career recruitment programs for Virginia's students and to support the community-based training of primary care professionals.

The High School Wellnet Project was piloted with Randolph Henry High School, the only high school in Charlotte County. Charlotte County has a population of 11,539: 47.9% are over the age of 25 and did not graduate from high school. Per capita income is $9,008. Charlotte County is designated as a Virginia Medically Underserved Area, a Federally Designated Health Professional Shortage Area, and a Federally Designated Medically Underserved Area.

The SAHEC office is on the campus of Longwood College in the town of Farmville. Farmville consists of an economically gutted Main Street where the largest stores have gone out of business and only small specialty stores or services remain. While Farmville is the county seat for Charlotte County, it is a small town (population 6,046). There are only two doctor's offices in Farmville, and all the doctors and nurses live in Charlotte County.

Privacy is therefore a major issue. Students are reluctant to be seen going into these offices for fear that someone might tell their parents. Similarly, students are reluctant to visit the local health community service center for mental health information because it is directly opposite the high school and they fear being stigmatized by their classmates for going there.

The profile of the Randolph Henry High School student body is:

Grades	9-12
Students	600-700
Free/Reduced Lunch	80%
Ethnic status	
African-American	35%
White	65%

Implementations

Innovative Educational Design

SAHEC originally planned to reach students at Randolph Henry High School through three means:

- To infuse health and risk-reduction information throughout the existing high school curricula (English, science, Spanish, etc.).
- To provide online responses to student inquiries about health issues and to disseminate random health bulletins to the students.
- To help students do online research about careers in health care to inspire and increase interest in health professions.

Reflective Use of Technology

SAHEC created a website designed to be an electronic message board where Randolph Henry students could post health questions anonymously and get professional guidance (not treatment advice) from two nurse-practitioners. This would preserve the students' privacy.

SAHEC also mounted the Virginia Health Care Foundation's manual, *VA Health Careers 2000* on this website. It would like to list related Website links about risk behavior.

Leadership and Vision/Struggles

SAHEC's idea of providing information directly to students who need it was challenged by other institutions charged with responsibility for students' well-being. The Randolph Henry school board, for example, objected to the anonymous bulletin board, fearing that a troubled student might not get proper help (e.g., a student asking about suicide) if no one knew who he was.

SAHEC was unable to list links to other sites on the Web with information about at-risk behavior. The school's access (derived from the central school board) has a teen-oriented filter. In addition, the State of Virginia requires that any link on a school page be guaranteed free of objectionable material to at least four links beyond the original link – a condition impossible to meet.

SAHEC plans to write biographies of and photograph local health care professionals in Charlotte County in order to encourage students to look into health care careers. Since they have access to scanners and digital cameras from the college, this should not be a problem.

Pre-existing Programs, Other Initiatives

Implementation has been further hampered by the realignment of the state-mandated Standards of Learning (SOLs) to concentrate on four core curriculum areas and exclude art, music, and health, subjects previously included. Because student (and teacher) performance in these areas will be determined by state-mandated tests, Randolph Henry teachers now have no time to integrate health and risk-reduction themes into the regular core curricula.

The SAHEC addressed these issues with the teachers in June 1999.

Technology Infrastructure

The Randolph Henry High School has over 200 computers, but only 18 are wired via a T1 to the Internet (via the Virginia educational network). There is no local ISP in the area. Students come to the library to check email, do research, etc. Teachers must sign up to use the computers in the library. There are three technology aides (one full-time, two part-time) who assist teachers and students with computer-use training. The school also employs an "each-one-teach-one" process in which teachers who receive additional training in computer use teach other teachers. A technology committee, made up of the technology aides and teachers from different disciplines, is responsible for developing and implementing technology programs.

The Charlotte County School Board received a 75% E-rate grant, so all the computers at the high school will have Internet access by the fall of 1999.

The SAHEC derives its Internet access and other technology resources from Longwood College. The Wellnet website may be found at www.lwc.edu; Index - S; SAHEC; Health Careers.

Conclusion

It is apparent from the survey, telephone interviews, and sites visits conducted, that AOL's Interactive Education Initiative is making a unique and significant contribution to seeding grassroots technology efforts at the practitioner level. Over the last several years, much of the research and development money for technology innovations in education has been distributed by federal funding agencies. The National Science Foundation, the Department of Education, and the Department of Commerce have been central players in the national agenda of making technologies more accessible to schools and informal learning organizations. Their initiatives have tended to support top-down, large-scale collaborations that involve multiple partners, including schools, corporations, software development firms, as well as policy and community organizations.

Because the AOL IEI program provided relatively small amounts of money to each site, in many cases the grant bypassed central offices and went directly to classrooms, thereby avoiding internal politics and allowing individual educators to fulfill their vision of technology integration without either diminishing the financial support by sharing it among too many recipients or having to fit the project into someone else's educational agenda. In some cases, however, these AOL projects had a major impact on their schools and organizations as well as on technology efforts at the district level.

The Center for Children and Technology found that there was no consistency between the demographic or technological factors to account for the success of the projects. Rather a variety of characteristics, such as *leadership and vision, innovative educational designs,* and *reflective use of technology,* were some of the factors found most often in exemplary sites. Thus, for example, a small experimental project with little hope of impacting large numbers of students, but which used technology in a reflective manner to support an innovative curriculum idea, was considered more successful by researchers than a larger project involving many more students and teachers, but which used the technology in a less thoughtful manner to support a more traditional curriculum effort.

Recommendations

- *Make small grants to individuals within a school*.
  We found that rather than a large single grant to an institution, small grants to an individual within a school are a very powerful vehicle when it comes to classroom implementation. These grants should be directed to individuals and institutions that are prepared to make maximum use of support. Small grants that go directly to the practitioner are extremely effective, probably more effective in terms of dollar and impact, than the large, highly visible grant made to an institution.

- *Target teachers with technological competence and experience.*
  Grants should be directed to teachers with some technological competence and experience with curriculum innovation. In the process of technology integration, a critical moment when support has great impact is when a practitioner reaches the "If only I had . . . " stage and has specific wishes and goals grounded in experience. The novice teacher requires more support than a small grant.

- *Use AOL grants as a vehicle to change teachers' circumstances.*
  AOL IEI grants should be used not only for technology itself but also to improve the daily circumstance of teaching. The award made a difference when the grantee could pay for a teacher's release time (i.e., hire substitute teachers) or gave them flexibility to attend

conferences. Freeing teachers to reflect, study, and design new curricula is as effective and necessary as providing them with technology.

- *Develop clear criteria for "innovative" projects.*
  AOL should develop clear definitions and criteria about what it considers innovative. Furthermore, it should make it clear to grantees that the Foundation prizes teacher flexibility and creativity because it understands the complex reality of schools, which often interferes with well-considered plans.

- *Create a different model of dissemination.*
  Most educational technology dissemination is done by website. The most effective way to encourage reform and innovation in more sites, however, is through face-to-face or interactive sharing of information. AOL should leverage the success of exemplary sites by arranging for teachers from those sites to meet with other AOL grantees and discuss what they've learned during implementation of their own projects. This could take the shape of regional conferences, school-to-school collaborative projects, or establishing an IEI teacher-to-teacher mentoring program.

Appendix A: Survey Findings

The majority of IEI grants were based in schools (28 out of 41). The remaining sites included community-based organizations, vocational training centers, or "other" kinds of learning organizations, such as the Lekotek Center, which specializes in play therapy for special needs children and their families (see Figure 1). A third of the IEI efforts were housed in small schools or organization serving fewer than 250 students; another third were in medium-size schools (500-1000 students); and a third in large schools (1000+) (see Figure 2).

The grantee organizations tended to be located in large urban and suburban areas; 32% (11) of the respondents reported that their sites were in small towns and rural areas (see Figure 3).

Figure 1 – Type of Organization (n=41)

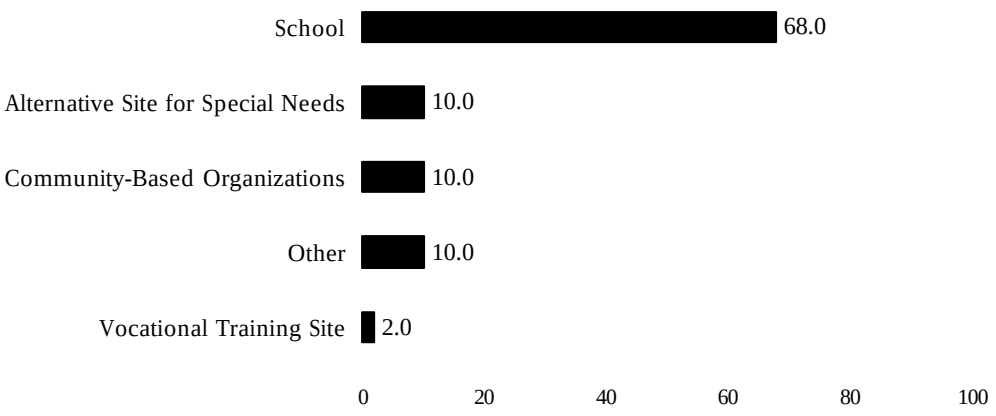


Figure 2 - School or Organization Size (n=40)

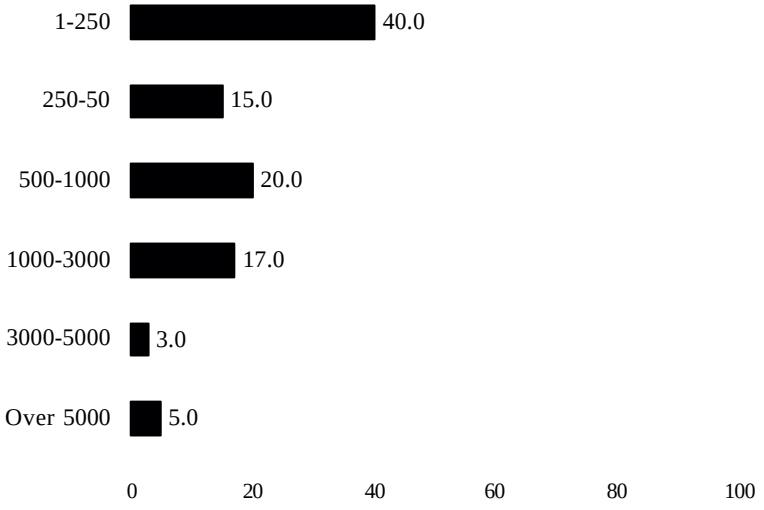
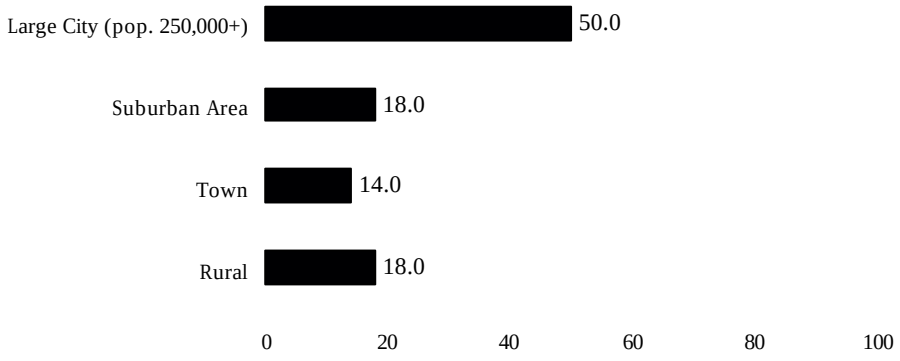


Figure 3 – Type of Community (n=34)



One of the AOL Foundation's primary goals was to address the needs of diverse and socioeconomically disadvantaged students, and these were important criteria in identifying sites to receive IEI awards. It is therefore not surprising that 80% (34) of respondents reported that over 50% of their student populations were eligible for free or reduced-price lunch (see Figure 4). Over half of the IEI sites were serving students from ethnically diverse backgrounds, including African American, Hispanic, Asian American, and Native American populations (see Figure 5).

Figure 4 – Students Receiving Free/Reduced Price Lunch (n=41)

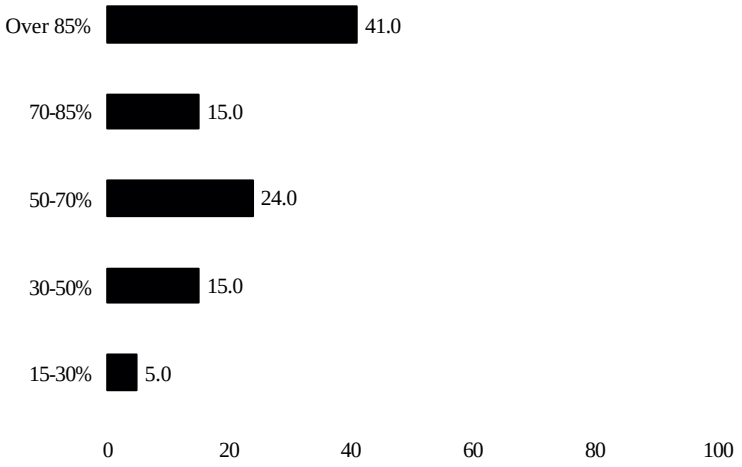
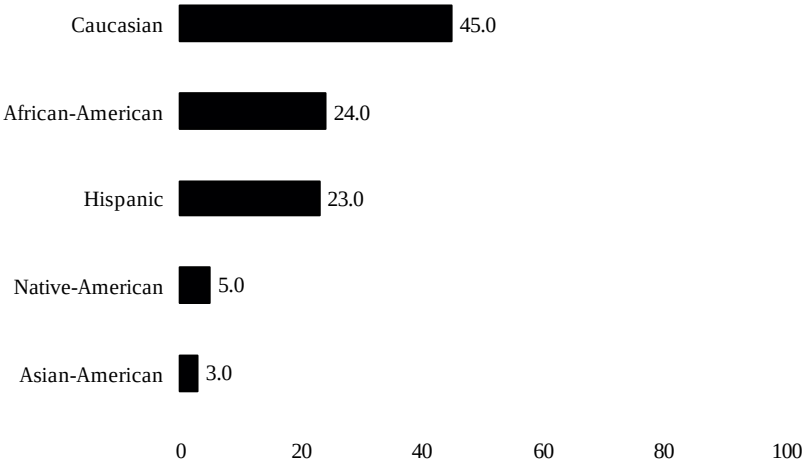


Figure 5 - Students' Ethnicity (n=54,092)



Project Coordinator Background

AOL IEI coordinators are experienced educators. Over one-third of the grantees have been working in education for over 16 years, while 22% (9) of respondents reported working as educators between 6 and 10 years. Twenty percent (8) of the educators have been teaching between 6 months and 5 years. (See figure 6)

Just under half (49%, or 39 respondents) reported working with K-8 students. Just over a quarter (28%, or 11 respondents) work with high school students (grades 9 through 12), and 18% (7) work with the full span of grades, from K through 12. Five percent (2) of respondents chose the category "ungraded" (see Figure 7). Fifty-one percent (21) are teachers of general curriculum (either in self-contained classrooms or in specialized subject areas), 10% (4) work with students with special needs, 12% (5) are school computer coordinators, and 8% (3) are district computer coordinators (see Figure 8).

Figure 6 – Years Working as an Educator (n=40)

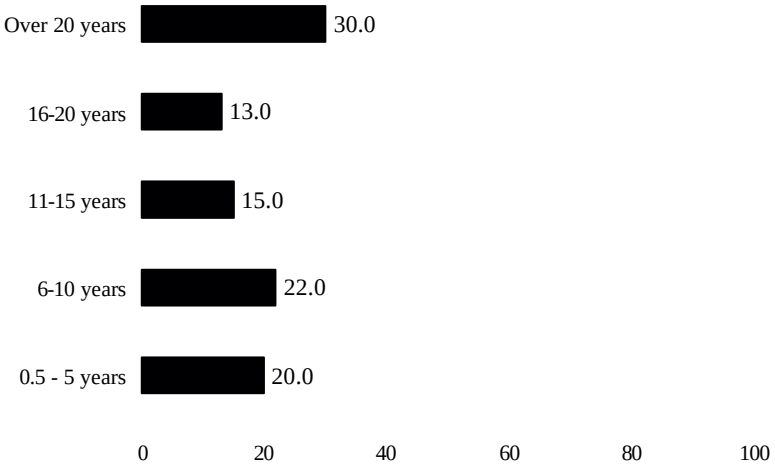


Figure 7 – Grades with which Teachers Work (n=41)

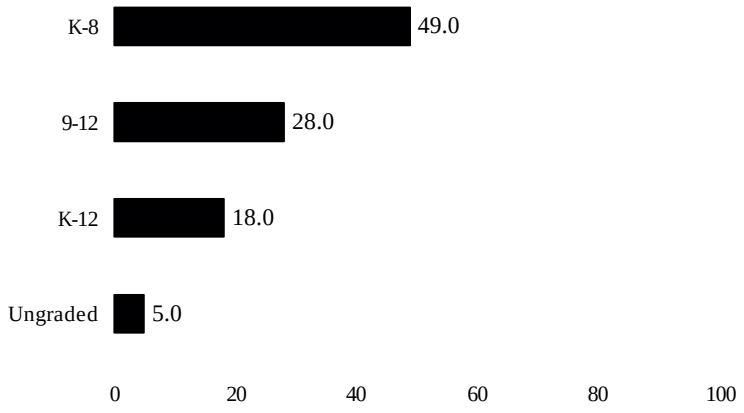
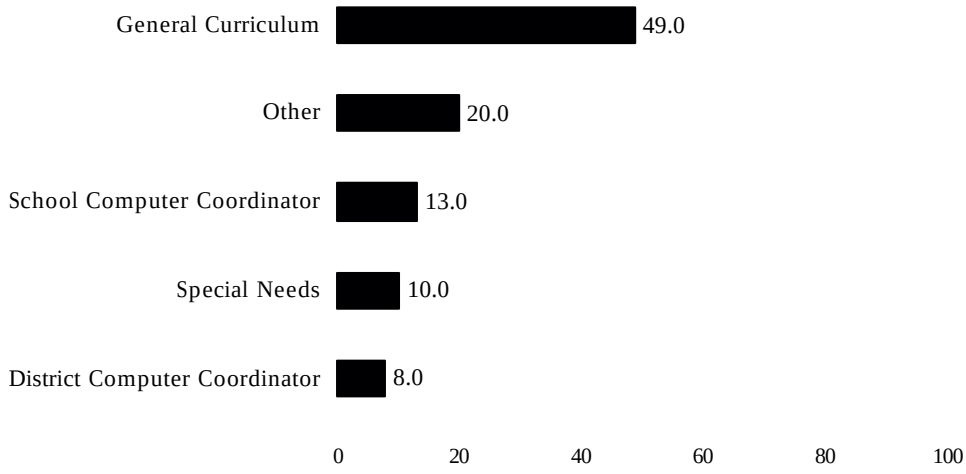


Figure 8 - Education Position (n=41)



Technology Use

AOL IEI project coordinators are experienced computer users. The majority have been using computers daily for both personal and professional use for the last 6 to 10 years (see Figure 10). Although respondents have somewhat less experience using computers with their students, 37% (15) have been using computers with their students weekly for the last 6 to 10 years, while 32% (13) of respondents have been using computers with students between 3 to 5 years (see Figure 11).

IEI grantees are also experienced telecommunications users for both personal and professional purposes. Eighty percent (32) have been using telecommunications for the last 3 to 10 years. Fifteen percent (6) of respondents were new users and have been using telecommunications for the last 1 to 2 years, and 5% (2) have used telecommunications for less than one year (see Figure 12). Respondents had less experience using telecommunications with students. Only 16% (6) of respondents had used telecommunications with students for the last 6 to 10 years. Many AOL IEI

coordinators have only recently begun to use telecommunications tools with their students. Thirty percent (12) of respondents have been using this technology with students for the last 1 to 2 years, 16% (6) for less than 1 year, and 10% (4) who have no experience using this technology with their students.

Figure 9 – Years Using Computers Every Week (n=40)

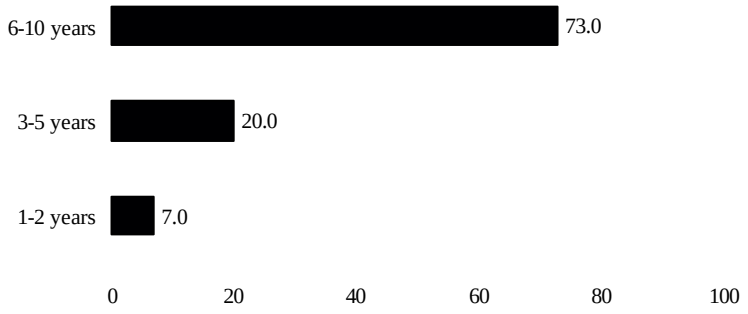


Figure 10 – Years Using Computers with Students Every Week (n=40)

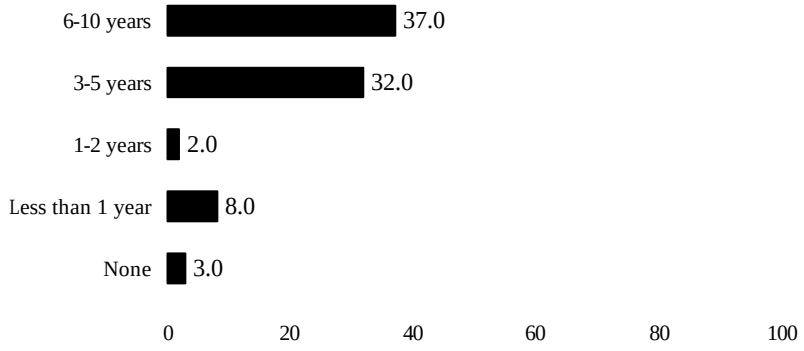


Figure 11 – Years Using Telecommunications for Professional or Recreational Purposes (n=40)

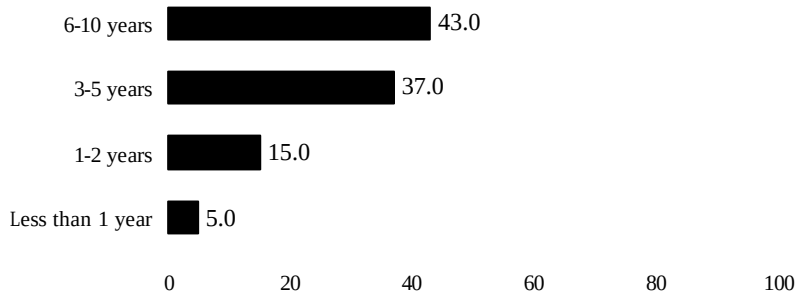
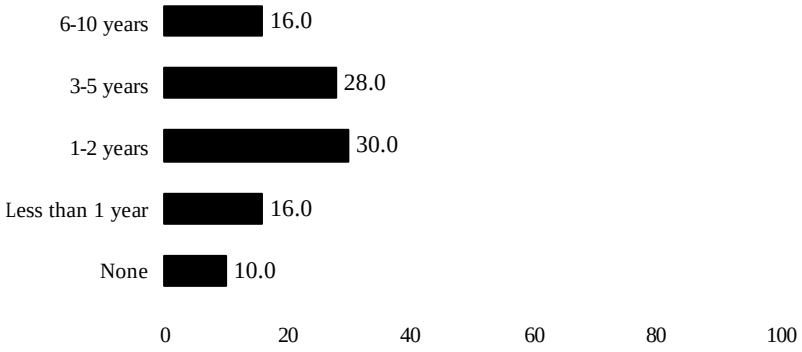


Figure 12 – Years Using Telecommunications with Students (n=39)



Technology Infrastructure

All of the grantees reported having access to the Internet (see Figure 14). In fact, 55% percent (22) of the respondents reported that their schools or community centers were accessing the Internet via a T1, T3, DS1, or DS3 connection (see Figure 15). Seventy-eight percent (31) of respondents reported that administrators and teachers have access to email at their site, and 49% (20) reported student access to email. Two percent (1) of respondents reported no email access (see Figure 16). When asked about access to the World Wide Web, 83% (34) reported that administrators have access to the Web, and 71% (29) reported that both students and teachers have access (see figure 16).

Figure 13 – Internet Access (n=41)

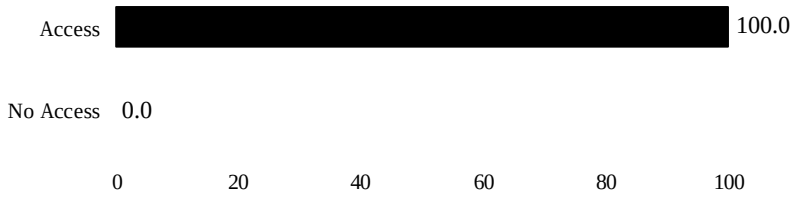


Figure 14 – Connection to the Internet (n=40)

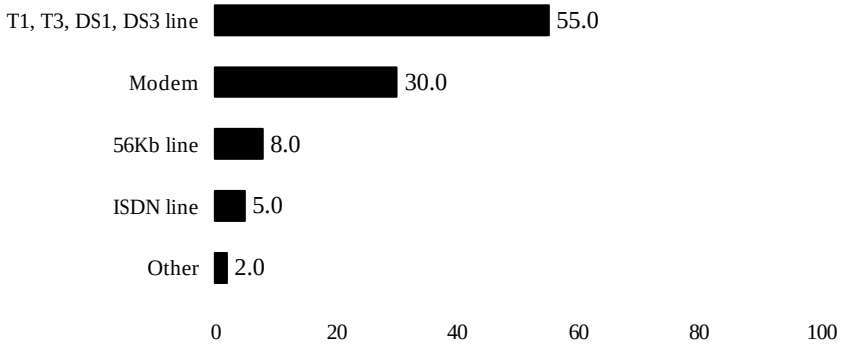


Figure 15 – Access to Email (n=41)

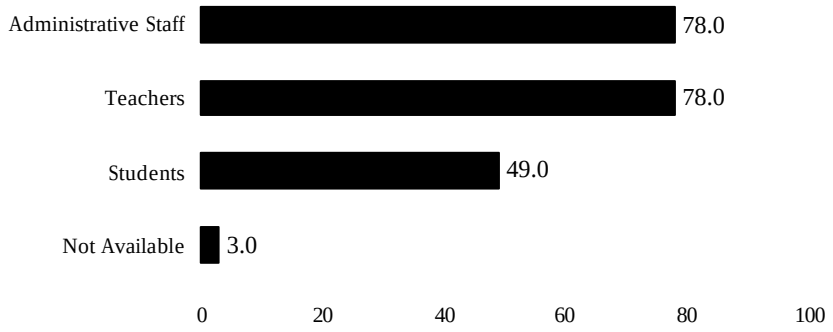
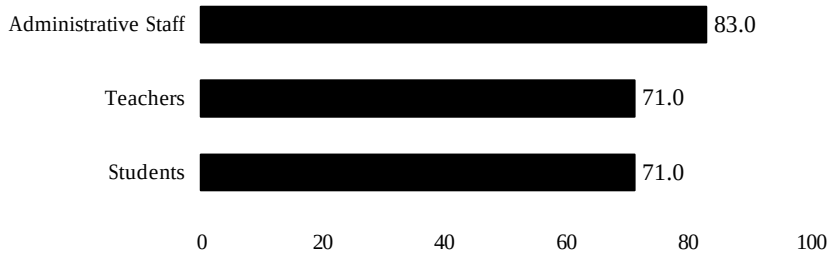


Figure 16 – Access to the World Wide Web (n=41)



Appendix B:

Site Ratings

Exemplary

State	City	Organization	Type of org	Age	Class	Geography
ILL	Evanston	Lekotek	National Outreach Plan	K-6 and Parents	95% below Poverty Line	Urban
KA	Atchison	Atchison M. S.	3 Organizations: Special ed classroom, girl scouts, and senior citizens, however not an institutional partnership.	multi-age	47% eligible for free/reduced lunch	Rural
MD	Accokek	Hard Bargain Farm	Foundation Farm	Middle School	Varies	Suburban - urban
PA	Philadelphia	Bok Technical H.S.	Vocational high school	Grades 9-12	1	Urban
CA	Cardiff	District	Two elementary schools	k-6	40% Free or reduced lunch total pop; 100% of Hispanic students	Suburban
CA	Dana Point	Richard Dana E.S.	Elementary School	k-6	85% free or reduced lunch	Suburban
FLA	Jacksonville	Raines H.S.	High School	Grades 9-12	0.7	Urban
IA	Iowa City	Weber E.S.	Elementary School	K-6	18% free/reduced	Non-surburban town
PA	Pittsburgh	Craig House	k-12/mental hospital	k-12	100% free or reduced lunch	Urban
OR	Eugene	Eugene School District 4J	High School	Grades 9-12	20% of District elig. For free or reduc. Lun; but target is 100% eligible	Small city
VT	Chester	Ctr. for Book	National centers affiliate with Lib of Congress	MS	Low Moderate income	Rural
CA	Seaside	CSUMB	University	K-6	86% free or reduced lunch	suburban
NY	Flushing	Mary's Nativity School	pre-k-8	MS students/ Seniors	33% eligible for free or reduced lunch	Urban
TN	Memphis	Univ. of Memphis	multi-age	Children in area	99% eligible	Urban
CA	Fontana	Citrus H.S.	HS	9th-12	23% eligible	Small city

	MA	Lynn	Marshall Pre-Voc. M.S.	MS	Middle School	100% free or reduced lunch	
Promising	WA FLA	Lynwood Jacksonville	College Place E. S.	Elementary School High School	6th grade Grades 9-12	60% free or reduced lunch	Small city
	DC	Washington	Gallaudet	Model secondary school that is connected to a university for the deaf.		?	Urban
	MD	Silver Spring	Pine Crest E.S.	2 elementary schools	4th grade	One school has 57% eligibility, one school, 18%	Surburban/ Urban
	NY	New York	NYU	University and two high schools	Grades 9-12	?	Urban
	OR	Hillsboro	J.B. Thomas M.S.	MS	MS students	50% eligible free/reduced	Surburban
	CA	San Francisco	Harvey Milk Civil Rights Academy	Elementary School	Upper grades	80% eligible for free or reduced lunch	Urban
	CA	San Francisco	Mission H.S.	HS	9th grade	65% eligible for free or reduced lunch	Urban
	MI	Ann-Arbor	Ann Arbor Public Schools	HS	Grades 9-12	85% eligible for free or reduced lunch	Urban
	NY	Westbury	W. Tresper Clarke M.S.	MS	6th grade	8% eligible	Surburban
	PA	Philadelphia	Stanton	K-5	3rd-5th	100% eligible	Urban
	PA	Philadelphia	Daroff	K-5	3rd-5th	100% eligible	Urban
	LA	New Orleans	Loyola University	HS/University	9th-12th	93% eligible	Urban
	MA	Dorchester	Jeremiah Burke H.S.	HS	10th-11th	100%eligible	Urban
	MI	Ypsilanti	Clemente Student Dev. Ctr.	Alternative High School	Grades 8 -12	90% free or reduced lunch	Urban
	VA	Victoria	Lunenberg County Public School	High schools in district	High school grades	65% free or reduced lunch	Rural
Struggling	MA	Boston	Mary Lyon School		K-6 teachers	59% free or reduced lunch	Urban
	CA	Ontario	Creekview E.S.	Elementary School	4th grade	25% free or reduced Lunch	Suburban

TX	Amarillo	Maverick Boys & Girls Club	National CBO	K-12	65% eligible for free lunch	Small city
UT	Ogden	Lynn Elementary	Elementary School	5th Grade	77 % Free or reduced Lunch	Small city
UT	Salt Lake City	District	School District	k-12	63% Free or reduced lunch	City
VA	Farmville	S. Health	NGO	High School	0.8	Rural
AZ	Tucson	District	3-5 School	grade 3-5	99% eligible Free/reduced lunch	Rural
DC	Washington	Children's Studio	Pre-K-2	Pre-K-2	68 % free or reduced lunch	Urban
NY	Uniondale	N Parkway E.S.	Elementary School	K-6	33% free or reduced lunch	Suburban
VA	Fairfax	County Public Library	Foundation	multi-age	?	Small city
CA	LA	Little Tokoyo C.C.	CBO	Middle School	1	Large city
PA	Philadelphia	Spruance	K-8	6th-8th	60% eligible	Urban
FLA	Titusville	Riverview Magnet School	ES	3rd-6th	73% eligible	Surburban
GA	Fort Valley	Fort Valley M.S.	MS	6th-8th	76% eligible	Rural
FLA	Jacksonville	A. Robinson H.S.	Elementary School	pre-k to 5	0.8	Suburban

Appendix C:
Survey

Be assured that all information you provide is kept private and confidential. At the same time, your participation in this research is voluntary, and you may choose not to return the survey without prejudice.

AOL Foundation Interactive Education Initiative

Grant Recipient Survey November 1999

Study conducted by:

The Education Development Center's Center for Children and Technology, in cooperation with the AOL Foundation

I. YOUR BACKGROUND AS AN EDUCATOR

Please tell us about your experience as an educator.

1. Which of the following describes your position? Check ALL that apply.

a. Teacher of general curriculum
b. Teacher of special needs students
c. Teacher of gifted and talented students
d. Teacher of specialized subject matter
e. School level computer coordinator/ specialist
f. District level computer coordinator/ specialist
g. Library media specialist
h. School level media specialist
i. District level media specialist
j. Other (please specify):

2. Including the current school year, for how many years have you been working as an educator? _____ years

3. With which grade levels do you work? Check ALL that apply.

a. Prekindergarten
b. Kindergarten
c. 1st
d. 2nd

e. 3rd
f. 4th
g. 5th
h. 6th
i. 7th
j. 8th
k. 9th
l. 10th
m. 11th
n. 12th
Ungraded

4. What is your current primary teaching assignment, that is, the field in which you teach or instruct the most classes? Check one.

a. Self- contained (elementary school)

Special Areas

b. Art
c. Basic Skills and remedial education
d. Bilingual education
e. Business education
f. Computers (general)
g. Computer science
h. English/ language arts
i. ESL
j. Foreign language
k. Health, physical education
l. History
m. Home economics
n. Industrial arts)
o. Mathematics
p. Music
q. Reading
r. Social studies/ social sciences

Science

s. Biology
t. Chemistry
u. Earth science/ geology
v. Physics
w. General and all other science

Special Education

x. Developmentally disabled
y. Emotionally disturbed
z. Learning disabled
aa. Speech and hearing impaired
bb. Other special education
cc. Vocational education
dd. Other (please specify

II. TECHNOLOGY BACKGROUND AND TRAINING

In this section we ask you about your experiences using technology. We use the word "Internet" to include such things as e-mail, the World Wide Web, listservs, and live events and chats.

5. For how many years have you had the following experiences?

	None	Less than 1 year	1-2 years	3-5 years	6-10 years
a. Years using computers yourself almost every day	1	2	3	4	5
b. Years having students use computers every week	1	2	3	4	5
c. Years using telecommunications (e. g., modem or Internet) for professional or recreational purposes	1	2	3	4	5
d. Years using telecommunications with students	1	2	3	4	5

6. During a typical week, roughly how many hours are you in front of a computer at school/ work or at home or elsewhere? How many of those hours are you using the Internet? Answer in both columns. If it is hard to answer for a "typical" week, answer for last week.

	Total Computer Use (Hours/ Week)	Of that--Internet/ Network Use Only (Hours/ Week)
a. At school/ work:	_____	_____
b. At home or elsewhere outside of school/ work:	_____	_____

III. TELL US ABOUT YOUR STUDENTS

The information in this section will enable us to understand how your students relate to national trends.

7. How many students (in head counts) were enrolled in your school or Community Based Organization (CBO) on or about October 1, 1998?

Number of students: _____

8. Please write in the approximate percentage of students in your school or CBO who are (entries should add up to 100%):

a. American Indian or Alaskan Native _____%
b. Asian or Pacific Islander (Japanese, Chinese, Filipino, Korean,
c. Asian Indian, Vietnamese, Hawaiian, Guamanian, Samoan, other Asian) _____%
d. Hispanic, regardless of race (Mexican, Puerto Rican, Cuban, Central or South American, or other culture or origin) _____%
e. African American (not of Hispanic origin) _____%
f. White (not of Hispanic origin) _____%

9. What percentage of the students in your school receive free or reduced price lunches?

_____% of students

IV. TELL US ABOUT YOU AND YOUR SCHOOL OR COMMUNITY BASED ORGANIZATION

The information in this section will enable us to understand how your school relates to national trends.

10. Which of the following best describes your school or CBO? Check ONE.

a. Elementary, middle, or secondary
b. Special education (serves primarily handicapped students)
c. Vocational/ technical (serves primarily students being trained for occupations
d. Alternative (Offers a curriculum designed to address the needs of students which typically cannot be met in
a regular school; provides non- traditional education; may be an adjunct to a regular school. Does not specifically fall into regular, special education or vocational education school categories.) Please specify: _____
e. Community Based Organization
f. Other (please specify): _____

11. How would you describe the area in which your school or CBO is located?

a. A small city (100,000 to 250,000)
b. A suburban town
c. A non- suburban town
d. A rural area

12. Does your school have access to the Internet?

Yes No

13. How does your school connect to the Internet? Check ONE.

a. Modem
b. SLIP/ PPP connection
c. 56Kb line
d. T1, T3, DS1, DS3 line
e. ISDN line
f. Wireless connection
g. Coaxial cable
h. Other (please specify):

14. Who is your Internet service provider? _____

15. Which of the following Internet resources does your school have and who in your school or CBO has access to each? Circle ALL that apply.

Resource/ Capability	Not available	Available for admin. staff	Available for teachers	Available for students
a. E- mail	1	2	3	4
b. News groups	1	2	3	4
c. Resource location services (e. g., Gopher, Fetch, etc)	1	2	3	4
d. World Wide Web access	1	2	3	4
e. Other (please specify):	1	2	3	4

16. How was getting your school or CBO connected to the Internet funded? Check ALL that apply.

a. Community bond initiative
b. Foundation, corporate or government grant
c. Raising local taxes
d. Net Day
e. Parent and/ or PTA initiative
f. Phone company initiative
g. Teachers' initiative
h. AOL Foundation Interactive Education Initiative
i. Other (please specify):
j. None of the above

17. Does your school, district, or CBO have a technology plan?

Yes No

18. Does your school, district, or CBO have a technology committee?

Yes (If yes, are you on it? Yes No)
No

19. Project Title: _____

20. Address: _____

_____

21. Your Name: _____

22. Project Partners (where applicable): _____

23. Please use the rest of this page to expand on any of your answers to the questions inside the survey, or to suggest other issues about the use of computer networking in schools which you believe we should consider.

EDC Center for Children & Technology
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New York, New York 10014

Appendix D:
AOL Formative Evaluation Guide

Project Name:
Date:
Your name
Site:
City, State:
Check one: Teacher School Admin.
District Personnel
Technology Specialist
Other (specify)

1. What are the goals of your project?

_____
_____
_____
_____

2. How is movement toward your projects' goals being assessed?

_____
_____
_____
_____

3. How much progress toward your projects' goals has been made? Has there been a need to adjust goals? If so, how?

_____
_____
_____
_____
_____

4. What factors are helping you make progress toward these goals?

_____
_____
_____
_____
_____

5. What are the barriers or challenges to attaining these goals?

_____
_____
_____
_____
_____
_____

6. What special added value does interactive technology bring to your project?

_____
_____
_____

_____
_____

7. How have the resources afforded by AOL's IEI grant aided your progress toward these goals?

_____
_____
_____
_____
_____

8. Has your IEI grant project been able to mesh with existing initiatives at the school or CBO?

_____
_____
_____
_____
_____

9. What unusual or distinctive factors in your school/CBO contribute toward the success of your IEI project?

_____
_____
_____
_____
_____

Please use this form as a guideline to completing your formative evaluation and return it to Han-hua Chang by May 28, 1999. Preferred method of return is e-mail, but you may fax or snail-mail your response so long as we receive it by the requested date. Thank you!

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Appendix E:
AOL Site Interview Protocol

Project #:
Date:
Interviewer:
Interviewee:

Project Name:
Site:
City, State:
Check one: Teacher
School Admin.
District Personnel
Technology Specialist
Student

1. Interviewee's general impressions of school:

2. What are the goals of the project?

3. What do you think the role of technology is in education?

4. How is movement toward the project's goals being assessed?

5. How much progress toward these goals has been made? Has there been a need to adjust the goals? If so, how?

6. What factors are helping make progress toward these goals?

7. What are the barriers or challenges to attaining these goals?

_____

8. How have the resources afforded by AOL's IEI grant aided progress toward these goals?
_____
_____
_____

9. Has the IEI grant project been able to mesh with existing intiatives at the school or CBO?
_____
_____
_____
_____

10. Are there efforts underway to raise money from other sources to support the project?
_____
_____
_____
_____

11. What unusual or distinctive factors in your school/CBO contribute toward the success of the IEI program/
_____
_____
_____
_____

12. How can CCT help the project with assessment procedures?
_____
_____
_____
_____

Evaluation Checklist:

This project falls under the following stage:
___ 1. Entry Stage
___ 2. Adoption Stage
___ 3. Adaptation Stage
___ 4. Invention Stage

Project's goals:
Definition:
___ Cleary defined
___ Somewhat unclear
___ Very clear

Formative Assessment Procedures are:
___ Doable
___ Hard to do.
___ Undoable

___ In place and operating.
___ Have been used to adjust goals/
___ Not in place
___ Are not utilized.