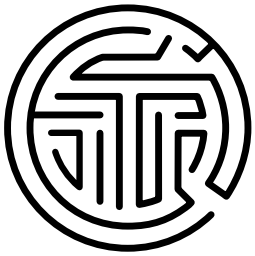
YEAR 1 REPORT

EVALUATION OF THE INTEL® COMPUTER CLUBHOUSE NETWORK

CENTER FOR CHILDREN & TECHNOLOGY



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EVALUATION OF THE INTEL® COMPUTER CLUBHOUSE NETWORK

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EXECUTIVE SUMMARY

This report reviews findings from the first year of evaluation of the Intel Computer Clubhouse Network. This program is intended to respond to two of the key goals of Intel's Innovation in Education initiative: to provide underserved youth with increased access to technology, and to encourage female and minority youth to enter technical careers. More specifically, the Computer Clubhouse Network seeks to provide young people with the opportunity to work in a collaborative, supportive community to use technological tools to express and explore their own ideas and perspectives. Intel is funding the creation of 100 Computer Clubhouses over the next three years, both in the U.S. and around the world. This evaluation was focused on exploring the obstacles and opportunities faced by these newly established Clubhouses and the developmental trajectory they follow as they build local capacity and create a working community of youth engaged with technological tools.

The creation of the Computer Clubhouse Network is an important opportunity to investigate one way community-based organizations are responding to increasing pressure to provide greater accountability for their after-school technology-related programming. Creating effective technology programs with clear, attainable goals is challenging, requiring these organizations to hire, retain, and develop staff proficient in the use of technology and able to articulate what constitutes effective use of these tools, and to understand what resources are compelling for populations characterized by poverty and limited educational resources.

The Computer Clubhouse model approaches technology development for traditionally underserved young people through the principles of design-based learning, a process that emphasizes creative exploration of materials and media to support the expression of young people's ideas and perspectives. In Computer Clubhouses, adults mentor and support young people pursuing their own interests while also encouraging a spirit of community-building. Focusing on the expressive and creative uses of technology distinguishes this model from traditional afterschool technology programs that emphasize either developing technical skills or reinforcing school learning through homework help and remediation.

The Center for Children and Technology (CCT), part of the Education Development Center, Inc., is conducting a three-year independent evaluation of the Intel Computer Clubhouse Network, based at the Boston Museum of Science. This evaluation is an important opportunity to investigate the impact of an innovative technology development program for young people that addresses a set of goals distinctly different from directly addressing school-related tasks through interventions such as homework help or remediation. What benefits might such a program have for both the youth it serves and its host organizations?

As part of our Year 1 evaluation, CCT conducted a range of qualitative research, including site visits to eight Computer Clubhouses between December 2000 and April 2001. This report is the result of our findings from the first year of formative research about the Intel Computer Clubhouse Network. We define the Computer Clubhouse model, illustrate its implementation at various sites,

and discuss factors that contribute to successful implementation as well as some obstacles sites are facing. The final section makes recommendations for furthering the growth and development of the Computer Clubhouse Network.

We discovered among program participants a deep commitment to the Clubhouse vision and a strong shared vision of the spirit and intent of this project. Our analysis shows that the considerable variation in progress among different sites in enacting the four principles of the Clubhouse model is related more to the range of local challenges faced by the sites than to conflicting agendas for the Clubhouse. We observed that a number of factors affect program development, in particular:

- The prior area and degree of expertise of Clubhouse coordinators, including the ability to assess the needs, skills, and interests of members entering a Clubhouse and support members in their engagement in design activities.
- The local resources available, including reliable volunteer mentors with technical expertise and experience with youth.
- The level and consistency of institutional support of the Clubhouse from the host organization, including how Clubhouse time is scheduled in relation to other programs and the match between other technology initiatives and the Computer Clubhouse.

The greatest variation we observed in Clubhouse programs is the level of knowledge that different coordinators bring to the process of creating and maintaining a social environment that effectively privileges and supports sustained design-based activity by members. This report outlines the challenges associated with creating this type of environment and identifies a number of most-promising practices for doing so successfully.

We suggest that sites are moving along a developmental progression and are at widely varying stages of program maturity. The pace of this progression is influenced by a number of factors related to the host organization, the coordinator's prior expertise and experience, and the needs and priorities of the local community.

As the Network continues to grow and as existing sites continue to develop their programs, it is becoming increasingly urgent to establish more, and more varied, forms of sustained support and guidance for Clubhouse coordinators. It is most important to develop resources for coordinators, who need further opportunities to learn about effective practices for guiding and encouraging design-based activity in their Clubhouses.

Intel and the Network have invested heavily in providing intensive support to sites during the startup process, and there is enormous enthusiasm across the Network about the work that is under way. As the diversity and strength of the Clubhouse community grow, our research can provide guidance to inform program development in ways that meet local priorities but also maintain the spirit of the Clubhouse model.

ACKNOWLEDGEMENT

The Center for Children and Technology would like to thank all of the Clubhouse Coordinators, Clubhouse members and staff of the host organizations who gave so generously of their time in making this work possible.

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Section I. INTRODUCTION

The Computer Clubhouse, first established in 1993,[1] is a project of the Boston Museum of Science in collaboration with the MIT Media Lab. The Computer Clubhouse model emphasizes young people's ability to build comfort and competence with a range of technology tools through expressive and creative uses of technology and provides an innovative approach to technology development in underserved communities. In Computer Clubhouses, the acquisition of technical skills or content knowledge, which is often seen as the primary goal in afterschool technology programs, is embedded in a design-based process that engages youth in creative play and self-expression. The key principles that guide the philosophy and practices of Computer Clubhouses are 1) learning through design, 2) building on youth interests, 3) cultivating emergent community, and 4) creating an environment of respect and trust.

Intel is disseminating the Computer Clubhouse model by developing a network of 100 Clubhouses in the U.S. and abroad. The Intel Computer Clubhouse Network is part of Intel's Innovation in Education initiative, a suite of education programs designed to address the following goals:

- Improving math, science, technology, and engineering education worldwide.
- Improving science and math education in K-12 education.
- Improving the effective use of technology in the classroom.
- Increasing access to technology.
- Encouraging women and minorities to enter technical careers.

The Intel Computer Clubhouse Network is a unique partnership that brings together corporate, research, community-based, and museum interests in an effort to increase youth access to technology and to contribute to the quality of technology programs for diverse communities nationally and abroad. This Network is based at the Boston Museum of Science, which assists in the selection and installation of Clubhouses in addition to providing ongoing staff support and training for the program. With support from the MIT Media Lab, the Boston Museum of Science Computer Clubhouse also develops new projects to share across the Network.

Intel Computer Clubhouse Site Selection Criteria

Intel's Year 1 request for proposals was aimed at establishing up to 20 Computer Clubhouses, predominantly in Arizona, California, New Mexico, Oregon, and the District of Columbia. Consideration was given to organizations with "a respected track record for achieving results through community-based initiatives, which have demonstrated financial stability, embrace new

[1] The original Computer Clubhouse was begun at the Computer Museum in Boston and is now part of the Boston Museum of Science.

technologies, and can sustain the Clubhouse over time." In addition to a commitment to the Computer Clubhouse philosophy, organizations also agreed to provide a dedicated space between 1,000 and 1,500 square feet in which to house the Clubhouse and to hire and support a full-time Clubhouse Coordinator.[2]

All selected sites receive an equipment award valued in fiscal year 2000 at $42,000 and made possible by a donation from Intel and Hewlett-Packard.[3] An additional award of $60,000 is also made for program costs to be used for staff salaries, staff development, program materials, supplies and activities, and training-related travel. All coordinators attend a one-week training program held at the Boston Museum of Science

The Center for Children and Technology, part of the Education Development Center, Inc., is conducting an independent evaluation of the Intel Computer Clubhouse Network and its development in the United States. This work is supported by a grant from the Intel Foundation. Over the course of this three-year evaluation effort, we intend to addresses two sets of research questions. The first relates to understanding how this model develops in varying community-based organizations and the second involves understanding the model's impact on participating youth. Both sets of questions seek to address the challenge of taking a model born out of close partnership between a research institution (MIT) and a museum (Museum of Science) and disseminating it to a range of community-based organizations nationwide.

During the first year of our evaluation, we sought to answer three main questions:

- How do the community-based organizations implement the Computer Clubhouse model?
- What is the evidence of their ability to sustain the program successfully?
- What are the key obstacles to successful implementation?

To answer these questions, we developed a formative evaluation framework enlisting a range of research methods, including interviews with key program staff at host sites and at the Network; site visits and Clubhouse observations; and attendance at training sessions sponsored by the Network staff.

This report presents findings from this year of formative research. The Year 1 research has already contributed to program-wide conversations about the progress of the program's development. It has also helped clarify the essential components of program success. This has enabled us to establish appropriate frameworks for collecting evidence of youth impact, the focus of our evaluation in Year 2.

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2 See Appendix for sample Request for Proposal and Program Requirements.
3 Hewlett-Packard provides equipment donations for all U.S. sites. Intel provides equipment awards for international sites.

About the Center for Children and Technology

Since its founding in 1981, the Center for Children and Technology has been at the forefront of educational technology research and development. We seek to create and understand new ways to foster learning and improve teaching through the development and thoughtful implementation of new technologies in a wide range of educational settings. CCT's work is centered in three areas: research, including basic, formative, and program evaluation; design and development of innovative technology prototypes and products; and the implementation and operation of large-scale technology integration efforts.

Much of our work is done in collaboration with schools, libraries, universities, community-based organizations, museums and arts organizations, publishers, professional education associations, and corporate, private, and federal philanthropies. Across all of our work, CCT seeks to understand and address the roles that diversity (e.g., gender, culture, and socioeconomic need) plays in shaping people's uses of technology.

CCT was founded at Bank Street College of Education in 1981. In 1993, CCT became a division of Education Development Center, Inc. (EDC), a national nonprofit organization committed to quality education for all learners and headquartered in Newton, Massachusetts.

Section II. RESEARCH APPROACH

The framework guiding our Year 1 evaluation was derived from a series of conversations with key program staff at Intel, the Boston Museum of Science, and the MIT Media Lab. We also conducted a literature review of materials written about the Computer Clubhouse and about the current state of research on afterschool and informal education programs focused on technology access for underserved youth. The data generated from this review informed the development of our observation and interview protocols.

Community-based organizations are increasingly being pressured to provide greater accountability for their programming and are confronted with many challenges, including:

- The need to hire, retain, and develop the capacity of staff who are proficient in the use of technology and who can articulate what constitutes effective use of these tools.
- The need to understand what resources are compelling for populations facing poverty (for example, the desire to improve literacy skills, or to gain access to linguistically and culturally diverse resources).
- The pressure to address student achievement and academic success during out-of-school time (through, for example, homework help or content remediation).

We have used an evaluation framework that is closely attuned to the distinctive qualities of the Computer Clubhouse model, and consequently have not sought to add to the body of research showing that involvement in afterschool programs in general leads to a range of positive outcomes, including improved school performance, lowering of high-risk behaviors, and increased positive and prosocial behaviors.[4] Instead, our evaluation considers the program's progress toward achieving those goals most tightly associated with the practices that are particular to the Clubhouse model and the activities of Clubhouse members. The focus of our first year of research has been on understanding the conditions in which those practices and experiences take place. Future research will allow us to describe how young people acquire, elaborate, and express a set of social and cognitive skills within the Clubhouse setting. This research will be based on the premise that through the kinds of practices it promotes, the Clubhouse model can help youth to explicitly articulate their accomplishments and to reflect on them—through, for example, conversation, peer mentoring, and the exhibition of work.

The core task of the Year 1 research has been to identify how host organizations understand, adapt, implement, and support the development of this model and the successes and challenges they face in doing so. Our primary sources of data for this work were site visits to seven new Clubhouses. We also included the Museum of Science Computer Clubhouse in our sample because it allowed us to observe the range and types of activities and interactions that predominate in a

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4 The April 2000 issue of *Educational Leadership, "Beyond School Time,"* provides a comprehensive collection of this research.

"mature" Clubhouse.[5] The priorities and perspectives of the Museum of Science Computer Clubhouse informed our perspective on the implementation process throughout the Network, the institutional impact of the program on participating CBOs, and the impact of the program on youth served by the participating CBOs.

Goals and Methodology

Besides the mature Museum of Science site, we selected seven additional sites for on-site study as part of the Year 1 formative evaluation effort (see table below).

Table 1: Snapshot of Intel Computer Clubhouses visited[6]

Site	Average number of members present	Average number of mentors present
Blue Ridge	24	5
Crest	33	3
Hillside	22	5
Lansing	23	1
Morningside	16	1
Riverhead	9	2
Woodhole	25	3

CCT selected sites to represent the range of community-based organizations hosting new Clubhouses, including large, well-established afterschool programs serving large numbers of youth from multiple schools and smaller community-based organizations. Consideration was also given to the sites' installation timetable, that is, we visited sites that had been open at least three months and had established a regular flow of participants. Site visits were made between December 2000 and April 2001 and lasted two days. While on-site, the evaluation team interviewed key program administrators at the host organization, including the program director, technology coordinator and/or volunteer director, as well as Clubhouse mentors and support staff, and conducted structured observations of activity in the Clubhouse.

We also conducted periodic phone interviews with thirteen coordinators during Year 1, including those we visited on-site; attended three of the five training sessions conducted by the Network staff at the Museum of Science between August 2000 and June 2001; interviewed all Network staff, either during our on-site observation at the Museum of Science Computer Clubhouse or by

5 "Mature" is a word regularly used in Network discussions to describe Clubhouses that have been up and running for significant periods. Later in this report we discuss our observations of the qualities of a mature Clubhouse, define the term based on our research, and identify the factors that need to be in place for sites to "mature" from new to more established Clubhouses.

6 All names used to refer to Clubhouses are pseudonyms, except for the Museum of Science. Average numbers of members and mentors are for only the two observation days conducted by the research team.

phone; participated in monthly coordinator conference calls; and tracked online discussions among coordinators and network staff. Findings described in this report draw on all of these data sources, but are grounded most heavily in our systematic analysis of field notes from site visits.

Reporting

As part of our formative research, we have worked with Intel and the Network staff at the Museum of Science to develop mechanisms for timely feedback. These have included:

- Quarterly presentations, including written reports, to key Intel stakeholders;
- Monthly written memoranda to Intel and Network staff on evaluation progress and initial impressions;
- Participation in program meetings with Intel program teams;
- A final written report of our first-year evaluation.

References:

Educational Leadership 58(7): *Beyond Class Time* (2001, April).

David and Lucile Packard Foundation (1999, Fall). *The Future of Children* 9(2): *When School Is Out*.

Resnick, Rusk, & Cooke (1998). The Computer Clubhouse: Technological fluency in the inner city. In D. Schon, B. Sanyal, & W. Mitchell (Eds.), *High Technology and Low-Income Communities.* Cambridge, MA: MIT Press.

Section III. THE COMPUTER CLUBHOUSE MODEL

When a Clubhouse is mature, people come there because they have an idea of what they want to do and they're given space to do that…The Computer Clubhouse is about… creative freedom and [youth] continually working on things that interest them…

— An Intel Computer Clubhouse Network Coordinator

The Computer Clubhouse model provides an opportunity for young people to develop their "technological fluency" through creative play and self-expression (Resnick, Rusk, & Cooke, 1998). It is a model guided by principles of design-based learning, which position adults as mentors who support young people in pursuing their own interests while also encouraging a spirit of community-building. The focus on young people's expressive and creative uses of technology sets this model apart from traditional after-school technology programs, which emphasize either developing technical skills or reinforcing school learning through homework help and remediation.

The model is guided by four principles: 1) learning through design, 2) building on youth interests, 3) cultivating emergent community, and 4) creating an environment of respect of trust. Together these principles shape the cultural, pedagogical, and social dimensions that distinguish Computer Clubhouses from other afterschool technology-related programming for underserved youth. This model requires a careful balance between free, open-ended exploration by youth and skilled guidance toward a set of privileged practices (i.e., design activities), which makes it a difficult and complex model to enact. Differences across sites in professional expertise, information resources, membership, and institutional buy-in significantly inform the character and pace of program development.

Computer Clubhouses can be an important community anchor where young people can find powerful tools for self-expression and exploration, engage with adults in ways they may not otherwise, and learn to value the importance of community-building through respect and trust. Essential to the model's successful implementation, however, is a clear and strong understanding among coordinators and mentors of the principles that define it. A key finding of this evaluation is that when coordinators, staff of the host organization, and mentors have a well-articulated understanding of the guiding principles of the Clubhouse model and its goals, Clubhouses move much more quickly toward engaging youth in substantial design activities than they do without this clear, shared understanding. We discovered that while a broad consensus exists among program participants about a general vision of "what a Clubhouse is like," understanding of the more specific principles and goals that constitute that vision varies widely. An understanding of these specific goals and principles is crucial to program development because they provide the roadmap Clubhouse coordinators and other staff need as they make choices about resources, relationships, and activities that contribute to the development of their Clubhouse community. Our evaluation research makes clear that a cyclical process underlies successful program development in Clubhouses: familiarity

with the program principles guides the development of resources and activities that become increasingly focused on design-based learning; in turn, as the culture of design-based learning increases within the Clubhouse, that culture makes it possible for coordinators, mentors, and other staff to increase their expertise and make more discerning choices about how to develop their program to meet both local needs and the goals of the Clubhouse model. However, this is a process that unfolds over time, and the sites in this evaluation are at the early stages of development. Further, awareness of the principles underlying the program varied widely. As a result, we observed sites in which members spent a great deal of time on activities that were not focused on design per se, such as playing computer or board games, or in which youth intermittently engaged in design activities during their Clubhouse time.

Two Key Challenges to Establishing a Mature, Design-focused Clubhouse

Providing adequate scaffolding for design activities is one of the central challenges facing a developing Clubhouse. By "scaffolding" we mean layers of support that facilitate a process of exploration by providing feedback and structure while allowing for self-guided investigation. The central role good scaffolding plays in design work for youth is suggested by a finding from our observations. Our research makes clear that when early-stage Clubhouses cannot yet offer young people adequate guidance to pursue sustained design activities, Clubhouse members will actually seek out this type of guidance, and are extremely skilled at finding it embedded in various Clubhouse resources. For example, we observed a high level of engagement among members in several Clubhouses with well-scaffolded, interactive games and manipulatives such as The Sims™ and SimCity™ by Maxis™, and Lego™ kits. These games are structured to allow players to engage with complex systems with minimal frustration, and provide them with ongoing and immediate feedback on their choices, two key qualities of inviting environments for design work. We often observed youth playing these games—designing communities in SimCity, building families in The Sims, or creating mechanical objects with Legos—in pairs or small groups, observing and commenting on each other's work, for extended periods of time. At sites where this activity predominated, members would often begin a session by using a graphics or design program (such as KidPix or Printshop), and then move on to playing Sims or looking at a website for a more extended period of time.

Members were also much more likely to sustain activity in design-oriented programs when interacting with someone who could react to and assist with their design activity, such as an older or more experienced member, a mentor, or coordinator. When peers, mentors, or coordinators provided conversation, questioning, interest, or problem solving assistance around design activities, young people were more likely to sustain that activity. In instances where there was little or no support for design activities, youth were less likely to engage in them. This suggests that scaffolded interaction and evaluative feedback are important for maintaining members' interest and motivation. This is particularly the case for younger members (e.g., middle school and elementary grade-levels) and those with less expertise and familiarity with design tools.

The age of members and their familiarity with design tools pose a second challenge, one related to the Clubhouse principle of building on youth interests. Our observations took place in recently opened Clubhouses, where members were getting to know the range of tools available to them for the first time. Many coordinators and mentors were also still becoming familiar with these resources. For young members in particular, orienting themselves in this rich environment and making non-arbitrary choices about what tools might match up well with their interests were significant tasks that required support from adults. We frequently observed coordinators or mentors providing this support by linking young people's personal preferences and current interests—such as a recent experience or a favorite singer—to suggestions for a specific activity, such as making a card for a relative or friend or rotating an image in an image-editing program. However, coordinators and mentors found it much more challenging to converse with young people about how they might build on "interests" more broadly defined—how these tools might be used to express perspectives on a public issue, to explore possible answers to a question, or to construct a message that would be important to the young person and useful to others.

In some instances, we observed coordinators and mentors who offered members only a few specific choices when deciding on an activity. Though this could appear to be overly directive, it seemed to keep members from being lost in a sea of possibilities that they could not fully navigate. This was a particular approach of the coordinator of the Hillside Computer Clubhouse which appeared to be quite successful, and which we speak about more specifically in the next section.

These two elements combined—adults' abilities to tap into members' interests that could inform an idea for an activity, and having an adequate familiarity with the range of design tools—had an impact on the variety and level of design activities in Clubhouses. In general, we found that the greater the expertise and experience coordinators and mentors had with youth development and using technology, the greater their ability to make clear decisions about the kinds of design activities they wanted youth to engage in. This expertise also informed their ability to support these activities.

Other factors mitigated a coordinator's ability to encourage and support design activities. These often included having a large population of youth with very few mentors present in the Clubhouse during key Clubhouse hours. For example, although Clubhouses often have the most members present between 2:30 and 5:30, many mentors arrive at Clubhouses after 5:30. Also, in a number of Clubhouses, members are allowed in on relatively rigid schedules. Rotation schedules or scheduled days for group attendance can significantly affect a member's ability to engage in sustained activity over a period of time, because a member isn't always sure when he or she can return to complete a project or activity.

In this section we provide further definition of the four key principles that underlie the design and practices of Computer Clubhouses. We use the Hillside Computer Clubhouse as a case to illustrate how a newly developed Clubhouse is giving life to these principles in a way that informs strong local implementation. Our portrait of Hillside is based on observations and interviews in one Computer Clubhouse that was particularly well-supported by local resources and pre-existing

expertise, and consequently was well on its way to enacting the four principles of the Clubhouse model in its day-to-day activities.

In Section IV, we discuss particular factors that support design activities in Clubhouses and discuss their relative presence or absence in a range of Clubhouse contexts. We do this to point to both success and challenges in implementation and to articulate the factors we have identified that contribute to the ability of each Clubhouse to move toward mature implementation.

An Important Caveat

"Design" is a very diffuse term that refers to processes and practices of engagement in Clubhouses, as well as products. Part of what is understood as the design process in a Clubhouse is the exploration of materials and/or questions and the expression of ideas and perspectives through a variety of media and tools. Youth create knowledge and understanding by making things that are interesting and important to them. In this way, Computer Clubhouses do not intend to develop young people's skills in graphic design, for instance, nor with any other content specific knowledge. Instead, Computer Clubhouses aim to encourage young people to be comfortable with design as a general activity that allows for personal expression and exploration of tools and the ideas they bring to them.

The Computer Clubhouse Principles: Hillside Computer Clubhouse

In this section, we illustrate the Clubhouse principles by discussing examples of activities observed in several Clubhouses. We focus most extensively on Hillside, a newly-developed Clubhouse that has been able to gain comfort with the model in a locally relevant way. Our research suggests that Hillside is having significant success in getting youth engaged in a range of design activities in a way that closely mirrors the spirit of the Computer Clubhouse model. There are a number of reasons for Hillside's success, but most important is a particular set of resources that the host organization brings to the partnership. Hillside is not a blueprint for other sites, or as a standard by which other sites should be measured. It is simply further along in its program development than some other sites. Each of the sites included in this study is developing its program, and each has particular strengths that are contributing to their unique expression of the spirit of the Clubhouse model.

Table 2: Snapshot of Hillside demographics

Number of members over two day observation		22
Average age of members		12
	Oldest member:	17
	Youngest member:	7
Gender	Girls:	11
	Boys:	11
	Average age girls:	12
	Average age boys:	13
Ethnicity	African American:	95%
Average number of mentors over two day observation	Adult:	3
	Youth:	2

Learning through design

In a design-oriented environment like a Computer Clubhouse, "learning" means gaining an understanding of the range of possibility for expressing ideas, thoughts and feelings with various media. It does not refer to mastering computer programs or gaining technical skills. Acquiring those kinds of knowledge is treated as an underlying process, subsidiary to the goal of learning something else. This "something else" is described differently by various program participants and developers. But "design" remains at the core of the learning process, and refers to engagement in the process of creating original work. When learning through design, then, young people discover—through engagement in the process of creating original work—what tools and media for expression are available, how they work, and how they can carry a message. The original work may take many forms but often includes graphic arts, videos, audio project, or engineered objects. This principle is a significant attribute of the model from which all other activities flow.

At Hillside Computer Clubhouse, all members engage in sustained design activity during a major portion of their time in the Clubhouse and use a wide range of tools available to all Clubhouses, including image editing, Web design, 3-D, music and sound programs. A significant proportion of teenaged members (based on our observations, 40% of members are 13 and older, 27% fourteen and older) and mentors and members who are knowledgeable and proficient with some of the programs used interact in a way that encourages sustained, purposive activities at Hillside. This engagement can be seen whether members are working on a particular project or exploring a program and its possibilities. Although members spend time looking at web sites or playing computer games, they generally do so to take a break from something they are working on and return fairly quickly to using design tools. They generally do this without being directed to do so by the Coordinator or mentors. There is, in other words, a sense that the Clubhouse is a place to design things, and members want to spend their time doing just that.

Members in this Clubhouse are consistently engaged in sustained development of ideas and projects over time and are producing completed projects. Members have produced mini music videos

by using image-editing software. Others have used digital cameras to record scenes and create mini documentaries. Members have created music and recorded it on CD. They have created and powered fairly complicated robots using Lego™ and have logged a number of hours on the Clubhouse web site. Virtually all of the Clubhouse members are capable of building a simple web site with music, and, according to one of the members, new members are frequently directed toward creating their own computer game, using special software for the purpose, as one of their first Clubhouse activities.

In other sites, there is much less involvement in design activities by youth. At Lansing, for example, many of the members who are using design tools are doing so with a "just playing" sort of approach. They often have no purpose or product goal in mind, but rather are "messing around" with an image in a program like Supergoo, or taking pictures of whatever they come across with the digital camera. When these activities do produce a product, that product is frequently an incidental outcome of play, rather than something the member envisioned and then sought to create. Of course, "just messing" can be a powerful way for youth to begin to explore the possibilities of the tools they use, particularly if they begin asking conscious questions about the production process and start making choices. The factor that determines whether this transition into sustained design activity happens is the kind of support received by the youth who is "just playing" or "messing about."

Members' ability to engage in sustained design activities is also influenced by the Clubhouse schedule. At Crest, for instance, members are on a strict rotation schedule. They come for a half-day on the day allotted to their school, and that is the only time they can use the Clubhouse. We saw other similar schedules in Clubhouses that were based on age or other groupings. We also observed instances of members being told they could not enter the Clubhouse, because it "wasn't their day." Such rigid schedules and associated time limitations can make it difficult for members to explore possibilities or become deeply involved in a project over time.

Building on youth interests

Coordinators and mentors are encouraged to engage with young people by beginning with the content or technical issues that a young person indicates are engaging to him or her. From this starting point, an adult or youth mentor can invite the young person into relatively more challenging or complex design experiences. More "challenging" and "complex" refer, potentially, to both the technical skill required in a project, the scope and depth of the project goals, and the nature of a project's content.

All the members observed at Hillside engaged in design activity during some if not most of the Clubhouse's hours for the days we visited. When members enter the Hillside Clubhouse, they either start directly on a design activity (e.g. in the music room, or with Lego™, image editing, Web design, or 3-D programs) or continue work on a project from a previous session. For instance, a number of Clubhouse members were working on websites or videos and had been doing so for a number of days. Members also came in with specific goals in mind and got started on their project

right away, like for example, one member who was working on a video to be shown at the Clubhouse's official launch, scheduled for later that month. Some members began their sessions by going to favorite websites or games, but members typically transitioned rapidly to a design activity on their own, without being redirected by the Coordinator or a mentor.

We observed members at Hillside being encouraged to work on design activities in a number of ways. The Coordinator would often encourage a member without a clear objective to buddy up or partner with a group working on a particular activity. Adult mentors often asked questions and assisted when they observed members who were "stuck," or when asked direct questions by members. Youth mentors also asked their peers if they needed help when they noticed inactivity. Coordinators and mentors knew about the projects members were working on and were attuned to their activities and progress.

Generally, the few members who needed to be prompted by others to engage in design activity were newer members who did not necessarily know how to start using a particular piece of software, or did not have clear ideas for projects. Once these new members had begun a design activity with the help of another member, the coordinator or a mentor, they typically remained engaged in that activity, even after being left to continue on their own. Redirection of member activity was usually aimed at newer members and was met with little resistance. Members' sustained engagement in design activities at this Clubhouse can be attributed to at least two factors: the high value and social reward attributed to these activities (which makes them seem inherently interesting enough for members to do), and the support given to members through social interaction and scaffolding.

In sites with a smaller knowledge base of expertise, redirection was less common and less successful. An example of this is Woodhole, a Clubhouse where most sustained activity by youth was with games, including both traditional board games and computer games. Members at Woodhole sometimes began their sessions by using design programs, and a smaller group of boys have developed a sustained interest in moviemaking. There are also a number of contests that many of the younger, middle-school-aged members engage in, for which they either make a Lego design, or a picture with image editing software. These activities were usually suggested by the Coordinator and were not sustained over a significant period of time. Woodhole averaged 25 members per day and averaged three mentors per day on the days we visited. There was a 2:1 ratio of middle-school to teenage members, and most of the teens spent the majority of their time hanging out in the music room, listening to music. As with many of the sites we visited, Coordinators were awaiting mentors who had knowledge of the software in their music studios.

Games at Woodhole provided the greatest opportunity for ongoing social interaction and were favored activities, so much so that mentors often interacted with members around them and had extended conversation about rules, possible choices and related consequences associated with them. This also occurred around those design activities that did take place, like the contests and movie-making. Members often showed enough interest in design programs to engage in them for

some time, either by working on their own or participating in a contest. But they most often sustained activity with those programs when their was an immediate product involved (such as making labels or flyers) or a clear audience (such as with the contests).

At Woodhole mentors did not specifically encourage design activities. They did not redirect members to design activities, members received little support with design activities they were engaged in unless they asked for help, and mentors often did not elicit or discuss members' interests in relation to their activities. In one instance, when asked, a teenaged girl working in a 3-D program said she had "no idea" what she was doing, that she was "just playing." The Coordinator explained to her that she could do anything she wanted to do, and showed her how to change the background color and rotate her image. The Coordinator did not help her formulate a goal for her exploration. In another case, the Coordinator printed a tutorial for a teenaged boy working in the same 3-D program, and explained that he could learn the program by either following the tutorial or by "playing around" with it.

One reason why this Coordinator might not have been able to spend more time supporting design activities was the significant time spent addressing members' behavior in the Clubhouse by mediating disputes. These were often disputes between boys who argued and "jousted" over access to computers and games, over the rules that dictate access to computers and other topics, including unacceptable language. Repeatedly, the Coordinator or a mentor needed to step in or was called in to mediate these disputes.

In another Clubhouse, we encountered a very different kind of adult supervision, a kind of hands-on support from adults that appeared almost overbearing. At Crest, the Coordinator and mentors are not necessarily directive about the kinds of activities members engage in. They do often step in to make suggestions or demonstrate a "better" or "easier" way to do something, but leave little room for members to figure out solutions on their own. We noted very few instances of members asking for help, in part because mentors were always at hand, offering assistance almost before it was needed. Mentors at Crest clearly wanted to help members, but were be doing so in a way that prevented members from developing competence and decision-making abilities on their own.

In addition to Woodhole and Crest, we observed other sites where coordinators and mentors had difficulty sustaining design activities for similar reasons: lack of familiarity with particular programs on the part of Coordinators, mentors, and or youth; inability to provide clear opportunities for sustained engagement in design activities; challenges with behavior among members; and institutional challenges, such as schedules or rotations that bring large numbers of members into the Clubhouse at one time.

Cultivating emergent community

In order for young people to become "technologically fluent" they need to engage with a community of people who know how to explore the technology that is available to them in Clubhouses and how to use these tools to express themselves and their ideas Mentors are an important com-

ponent of such a community because they can provide assistance to young people in figuring out their projects, or can model ways to explore design issues by working on their own projects. Through conversation, cooperation, negotiation and the general give and take associated with project-based work, young people can be part of creating or cultivating a community that values questioning and discovery around design issues.

At Hillside, the entire Clubhouse appears to function as a cooperative enterprise. Members elect a board, which makes decisions about Clubhouse rules and tasks. Members also cooperate in taking care of the Clubhouse, by helping the Coordinator set up and clean up for snack time, maintaining computers and by orienting new Clubhouse members and visitors. The Coordinator encourages this kind of activity by delegating tasks. There is also an instituted time where members assemble at the green table for snacks in the evening and talk together– including going around in a circle and saying something positive for the day.

We saw similarly high levels of member engagement at other Clubhouses that were building on some pre-existing community, such as sibling groups and members who know each other from school or the neighborhood (this was the case at Blue Ridge and Woodhole). We observed a lot of co-play and mutual activity among members at these sites, including members working together, sharing computers and sharing space.

Hillside members engaged with each other frequently, beginning when they first entered the Clubhouse and began talking about what they were working on or the features of a particular program. Members often exchanged information, worked side by side, and offered each other advice and help. In many cases, a less experienced member got help from a more experienced member or youth mentor, or an adult mentor offered options or advice while observing an activity. Members asked for help from each other and always received assistance when they asked for it. The Coordinator and mentors, in turn, often asked members about their work out of their own curiosity, and often appeared to appreciate a tip or reminder they received from members.

Creating environment of respect and trust.

Creating an environment of respect and trust in Clubhouses means ensuring respect and trust in and of the people, ideas, equipment and materials in a Clubhouse. Coordinators, mentors and youth are all responsible for setting a tone that ensures room for youth to share ideas and experiment with them.

We observed very little conflict between members at Hillside. Though there were a few instances of members disagreeing, it was generally focused on work, for example who did what for a particular project (e.g., a video or Website). It was apparent that Hillside members really wanted to be involved in, and take credit for, design activity and products. Design activity is clearly status-linked at Hillside, so ownership over design work is consequential for status. There were no observed instances of conflict over materials or space and there was never an instance in which the Coordinator or mentors had to intervene. Members would often remind each other of the

Clubhouse rules, discussing them and reiterating them to new or less experienced members.

Conflict between members and adults was also minimal at Hillside. Even when the Coordinator or an adult or youth mentor directed a young person to an activity at Hillside, there was little or no resistance. In fact, the need to "redirect" members' activities away from general game playing, instant messaging, or "horsing around" was rare because the Coordinator made sure to engage members in design projects at the outset and was able to identify and provide the support each member needed to sustain their work.

Section IV. SUPPORTING DESIGN ACTIVITIES: FACTORS FOR SUCCESS

Sometimes [a member] will come up to me and say, 'Look! I've done this [image]!' and I'll say, 'Good. That'll look good on your Website.' So then they learn how to do a Website.

—Hillside Computer Clubhouse Coordinator

What specific practices are in place in Clubhouses that are developing a strong focus on sustained design activities among their members? The following section identifies some of the concrete conditions and practices that our research has shown to be effective for developing a strong emphasis on design activities in early-stage, developing Clubhouses.

Pedagogical Strategies That Support Design Activities

The Computer Clubhouse model is complicated to enact, particularly on the scale of the Intel Network. One of the most important factors necessary for successfully implementing the model is that coordinators and mentors have available a working model of how young people learn. Only when some model of that process is in hand can an adult in a Clubhouse usefully assess where a member is in a design process and make decisions about how and when to provide guidance, support, or other kinds of intervention.

For highly experienced adults who have significant knowledge about and expertise in supporting young people in informal learning contexts, this learning model may be largely implicit and even difficult to articulate. But many others, even those with extensive youth development experience in other contexts, are likely to be less familiar with working with youth in a context like the Computer Clubhouse. They are more likely to be familiar with either completely open-ended free play situations with no particular principles or expectations guiding the activities taking place there (such as a game room), or with traditionally structured learning environments with clearly prescribed parameters for acceptable activities. Clubhouse coordinators must be familiar with a working model of the learning process that is appropriate to the complex balance between freedom and structure that are characteristic of design-oriented environments like the Computer Clubhouse. The ability to diagnose and support the needs of individual young people at different age ranges and with differing abilities and interests is crucial to engaging them in design activities.

Across sites, we observed that the level of engagement among coordinators, mentors and members was consistent with the range of experience the adults brought to working with youth in a context like this. In some settings we observed frequent, extended engagement by adults with members' projects, and lots of discussion that placed design questions at the center of a shared conception of the activity. In other Clubhouses where coordinators and mentors had less expertise in providing this kind of carefully balanced support, members were less likely to engage in sustained design activity or to create products.

Those members who were most likely to stay involved in design activities were those who received support from coordinators and mentors that:

1) extended over some time (i.e., through ongoing interactions);

2) included assistance in formulating a project goal; and

3) provided help with using design programs by making connections to the young person's larger goals for the activity at hand.

When adults offered effective forms of support, members were not only shown options ("Look, you can do this, isn't that cool? You try it.") but were engaged in a discussion of how or why they might choose certain options. Effective interventions explicitly identified and made connections with a young person's original goals (or helped the young person set goals) rather than "taking over " the activity or steering them in a new direction.

When coordinators and mentors were not equipped to make interventions with these qualities, three things tended to happen. First, young people's initial engagement with design-oriented tools (such as PhotoShop) became unfocused and terminated without the young person beginning the process of formulating questions or expectations that might shape or extend their work. At most, a specific contained activity might be completed, such as drawing a picture. Second, youth become heavily invested in playing with software or concrete objects (such as Lego sets with directions) that provide extensive embedded guidance and feedback. Finally, in these settings, some youth consistently spent significant time engaged with non-design-oriented activities, including surfing the Web, playing computer games, and playing board games.

While prior experience in leading informal, guided learning experiences was the most important factor influencing how Coordinators and mentors worked with youth, there were other important factors that influenced the likelihood of members receiving sustained support:

Number of mentors: A number of sites have very low mentor/member ratios—there were not enough mentors to provide sustained help for all members on a regular basis. Sites with high mentor/member ratios are at an advantage to provide sustained youth activities.

Knowledge of programs: Mentors are best able to offer sustained help that responds to what members are doing, or what they want to be doing, when they know the design program in question. When they do not have adequate knowledge, their tendency is to "take over" the program as they intervene, because they are not confident they can explain it well, or to answer a member's question and move on without attempting to facilitate the member's broader activity.

Willingness to engage members: Mentors have to be willing to take the initiative with members and guide interaction. They need to be willing to approach members, ask them questions about what they are doing and want to do, and make suggestions. Mentors who wait to be approached and only provide the information members ask for are not very useful in promoting sustained design activity.

Social Interaction and Feedback Around Design Activities

Across all the sites, members are most likely to be engaged in and sustain involvement in activities that provide them with interaction or feedback. Likewise, members are most likely to sustain design activity when they can engage in interaction around it, either with other members (e.g., movie-making) or with mentors (e.g., discussing what to do and how to do it with a mentor.) Being part of the ongoing interaction requires engaging in design activities. Design activity is in this way linked to social activity and social status.

Explicit Connection of Design Programs to Products

Explicitly connecting design programs to products, rather than treating the design programs as ends in themselves also promotes engagement in design activity. There are a few factors that help create this connection:

Mentor discussion of program in context: Some coordinators and mentors tell members about the features of a program in terms of what the features allow one to create, or in relation to a member's project. Others explain programs only in terms of their features, isolated from what one might want to make using those features. Discussion of programs in the context of projects is more characteristic of Clubhouses with more products and more sustained design activity. Discussion of programs in the abstract is more characteristic of Clubhouses with little sustained activity and fewer products.

Making products a matter of public viewing, discussion, negotiation: Members are more likely to work on projects purposively—that is, to make a specific product—when products are viewed and talked about with others in the Clubhouse. Coordinators can make a point of showing others the work that members have accomplished and sharing the computer games that members have designed. They can also encourage members to engage in contests for which members decide on the rules of entry and the winning product, so there is lots of discussion and viewing of products, or in movie making, where members not only interact with each other during the project, but the whole Clubhouse views the results.

"Messing around" and printing: In Clubhouses where the norm is to use a software program to produce a specific product, printing occurs less frequently than at other sites. Frequent printing was associated with frequent "messing around" with programs instead of using them purposively; members would "mess" around, print something, see if they liked it, then "mess" around some more. Being conservative about printing might help to convey the message that design programs are for creating products.

Numbers of Members

Having high numbers of young people in the Clubhouse creates a number of problems that get in the way of sustained, purposive design activity.

Reduction of mentor/youth ratio: Sustained, purposive design activity is most likely to occur when members can engage in sustained social interaction around that activity. The chances of this decrease the more members there are per mentor. Too many members may also create behavior management problems for Coordinators and mentors, further reducing the level of attention they can devote to members' design activities.

Lack of stations and "floating:" High numbers of members also result in increased sharing of computers or not having a computer. This contributes to "floating" around the room, sitting waiting and not engaging in any activity, or finding other, non-design activities to pursue.

Rotations: Rotations used to manage the number of members in a Clubhouse can also disrupt activities. In these situations, members may know that they will be interrupted once they begin a project and so may not be able to work at their own pace or on their own time. They may also worry that their work will not be there when they return, and this can discourage design projects and sustained activity.

Connecting Locally: Gaining a Pool of Resources

Having a connection to local institutions with potential mentors, particularly those with knowledge of different kinds of software, is another essential element of program success. Having enough mentors who both know the design programs well and have an idea of what these programs can be used to make is an important building block for new Clubhouses. These mentors have not only knowledge, but also an orientation to the learning process and the design process that is likely to encourage sustained design activity.

Section V. PROGRAM IMPLEMENTATION— INSTITUTIONAL CHALLENGES

Much of CCT's work has pointed to the need to understand the social context in which technologically-rich activities are conducted. Social context plays a crucial role in shaping young people's experience with technology and mediating the level of impact these tools can have. A key challenge for the Intel Computer Clubhouse Network has been addressing the varied local contexts in which these Clubhouses are being developed. The implementation sites include nationally recognized youth development clubs, as well as local grassroots organizations. They are located in a wide range of institutions, from urban housing developments to youth centers, and each site has a variety of internal and community resources it can draw upon to enhance and sustain its programs.

Essential to our evaluation work has been the understanding that local implementation of the Clubhouse model is a developmental process, unfolding over time and at varying rates. Many factors contribute to organizations' development of their Computer Clubhouses. There is often an initial period of discovering how to translate this program model into a shared local vision. Then, that vision has to be translated into a working program. The look, feel, and programmatic emphasis of Clubhouses is intended to be similar across sites, but the degree to which sites are able to implement all aspects of the model depends on the scope and character of local resources, and the degree of fit between the host organization's mission and the principles of the Clubhouse model. Local needs and priorities play a significant role in setting the pace of program development.

Based on our first year evaluation four key issues have emerged that affect the implementation of the Clubhouse model at host community-based organizations:

Program Vision and Goals

Community-based organizations often promote multiple technology development programs with varying goals and structures. Some are highly structured and focused on enhancing school performance (through homework help, reinforcing skills, etc.) while others are more focused on offering opportunities for more unstructured and self-directed exploration and learning. Each of these contexts implies a very different focus for the use of technology. In the case of Computer Clubhouses, the fit between the Clubhouse principles and both prior and current experiences with technology in the host organization makes a significant difference in the support coordinators can organize for the sustained community-building and orientation to design that are central to the Clubhouse model.

Leadership and Initiative

Community-based organizations often find it challenging to locate and retain high quality staff. This challenge is heightened in the case of Computer Clubhouses, which perform best under the guidance of individuals who are familiar with both design-based learning and with a range of technological tools. But Clubhouse Coordinators also need to be able to work cooperatively with

other staff at the host institution, and be able to find bridges among various programs that will help to integrate the Clubhouse into the overall life of the institution.

Youth Attendance

Many of the youth participants at newly established Clubhouses are middle-school-aged youth and count the Clubhouse as one among a range of programs they participate in, in a given day. Some community-based organizations often block time for particular groups to ensure equitable access to programs. These kinds of factors have an impact on the amount of time that can be spent on sustained, ongoing activities, as well as the development of a distinct Clubhouse community.

On-site Technical Know-how

Host organizations need to hire, retain and develop the technical capacity of Clubhouse staff as well as other technical staff within the organization. Ideally these staff members need to not only have operating knowledge of the relevant technology, but need to hold distinct points of view about what constitutes effective use of these tools, and be able and willing to provide adequate and timely technical support to adult peers and to youth. Finding individuals with this range of technical skills is difficult, but crucial to the smooth functioning of a Clubhouse and its host organization.

In addition to these institutional issues, two other factors also shape the degree to which Clubhouses are able to mature steadily. First, resources that support informed engagement by coordinators and members with the core program components need to be widely disseminated; and second, structures need to be in place at the network level to stimulate and support local innovation. Together, these two factors can provide the essential core of a network that can account for local variability as part of program scale.

A Developmental Model of Clubhouse Maturation

Intel and the Computer Clubhouse Network have invested heavily in providing intensive support to sites during the startup process, and there is a great amount of enthusiasm across the Network about the program. Our analysis has shown that though there is variation across sites in the progress of their program development, this is not related to conflicting agendas for the Clubhouse, but to the range of local challenges sites face and the resources available to them both internally and externally. As a result, sites are at different points along a continuum of development toward embodying the Clubhouse model.

Below is a table that illustrates three main stages of development, from early to middle to mature Clubhouse stages. This table is not an evaluative tool to be used to “rate” Clubhouses or to measure one Clubhouse against another. Every Clubhouse is further along in some areas than in others. In a more detailed form, a table like this can be a useful diagnostic tool to help Clubhouse coordinators reflect on their progress toward creating a fully-formed program that enacts the Clubhouse principles on a daily basis.

	STAGES OF CLUBHOUSE PROGRAM DEVELOPMENT		
Program Feature	**Early**	**Middle**	**Mature**
Design-based activity	Design-based work is sporadic, serendipitous and not supported.	Design-based work is encouraged intermittently and supported unevenly.	Design-based work is central, habitual Clubhouse activity and is supported consistently.
Coordinator & Mentor expertise	Coordinators & Mentors have limited technical expertise and/or youth development experience.	Coordinators & Mentors have varying technical and/or youth development expertise; may be unsure of how to elicit and encourage design activity with youth and/or knowledge of design software.	Coordinators & Mentors share a vision that includes clearly understood approach to supporting design activities with youth. Expertise with design software is established and distributed among all Clubhouse participants (e.g. Mentors, Coordinators & Members).
Institutional support	Clubhouse and host organization missions are superficially compatible, but Clubhouse remains isolated or poorly integrated into larger program.	Clubhouse and host organization missions are seen as compatible, but logistically tensions between host organization and Clubhouse may impede Clubhouse development.	Clubhouse and host organization missions are complementary and mutually reinforcing.
Local resources	Few connections to community resources that can be leveraged in Clubhouse.	Community resources, such as consistent Mentor pool, are leveraged by Coordinator for the Clubhouse.	Coordinators, Mentors & Members have and contribute resources that bear upon Clubhouse development.
Technical support	Local technical support is intermittent and/or difficult to come by.	Local technical support is generally available but may not be prioritized by host organization.	Local technical support is readily available.

Each Clubhouse will have a different rate of overall progress and will move through the different elements of this continuum at different paces. Sometimes sites will get stuck along the way because of logistical challenges, changes in the local and institutional context, or changes in access to resources. For example, a Coordinator can bring a great deal of technical and youth development expertise to a Clubhouse, but without enough mentors, or if there is a conflict with the mission of the host organization, he or she may find it difficult to engage youth in prolonged design activities.

Where a site falls on this continuum depends upon factors including:

- The prior area and degree of expertise of the coordinator, including the ability to assess the level at which members enter a Clubhouse and support members in their design activities;
- The local resources they have available to draw upon; and

- The level and consistency of institutional support of the Clubhouse from the host organization, including how Clubhouse time is scheduled in relation to other programs and the match between other technology initiatives and the Computer Clubhouse.

What is the goal of this developmental process? It does not have one endpoint, because there is not a single ideal image of a Clubhouse. Instead, there is a range of possibilities — many different possible Clubhouses that all share the common core qualities described by the model. Developing a Clubhouse program that embodies the program principles requires a process of accumulating resources and expertise so that the community can develop, mentors and coordinators can learn how to support youth effectively, and youth can orient themselves in this new, innovative environment.

Finally, in a self-directed environment like a Computer Clubhouse, coordinators and mentors are especially challenged because they need to be able to tailor their interventions to the different needs, interests, and developmental levels of the youth they work with. This need adds another layer to the challenge of providing adequate opportunities for coordinators to learn about and practice this approach to working with young people. Now that a strong, but broad, vision of the Clubhouse model is in place in the Network, and a start-up process is in place, it will be important to provide explicit, systematic support and training for coordinators seeking to tackle this aspect of strengthening their Clubhouse programs.

Section VI. CONCLUSIONS AND RECOMMENDATIONS

All of the Coordinators involved in this study had a remarkably deep commitment to the Clubhouse vision, and there is a high level of agreement across the Network about the spirit and values embodied in the image of a Computer Clubhouse. Committed coordinators are the key to ensuring steady programmatic development in each Clubhouse—they set the tone at their sites, each of which, in turn, informs and enriches the culture and spirit of the Network as a whole. In addition, Intel and the Network staff have successfully created a team with a common goal that continues to find instructive ways to manage the challenging, valuable work of disseminating this model and supporting local sites as it takes root.

Achieving the long-term goals of this program requires establishing a network of Clubhouses that are all progressing toward a full expression of the underlying principles of the Clubhouse model. While each of the principles is a crucial part of "what makes a Clubhouse a Clubhouse," the principles of community-building, cultivating respect and trust, and building on youth interest are all preconditions that establish an environment in which the principle of learning through design can become a habitual practice. Our evaluation research this year found that these principles are not always clearly and consistently understood across the Network, although a broader descriptive image of the nature of the Computer Clubhouse model was widely shared. In turn, we have found that when Clubhouses are less clearly oriented to these principles, young people are less likely to engage in the design-oriented activities that the Clubhouse model is intended to privilege.

Supporting design-based learning is challenging and requires several preconditions in order to thrive. First, coordinators and mentors need to have internalized notions of how learning and exploration occur in open-ended environments like the Clubhouse, and how they are best supported through particular interventions and supports. They also need to be able to identify the diverse needs and interests of Clubhouse members as they invite them into this particular kind of learning. This report has reviewed some promising strategies for providing this kind of support. Second, institutional supports need to be in place that facilitate, rather than obstruct, coordinators' efforts to expand and deepen their program. We have reviewed some of the key supports that need to be in place at the institutional level.

The recommendations we present below highlight opportunities for further emphasis that have particular promise for advancing this work.

1) **Engage sites in an ongoing discussion of the program principles and goals.** This includes Clubhouse Coordinators as well as key program staff at host organizations. An emphasis on design activity is what makes Clubhouses unique—the other three principles, while crucial to making "a Clubhouse a Clubhouse," are not unique and are best understood as necessary conditions to support the design-based learning that distinguishes the Clubhouse model. When sites are unclear about the core principles they are less likely to see the importance of emphasizing them over and above all of the other programmatic concerns that face all after-school programs.

Possible opportunities for accomplishing this. We suggest two main areas—using the goals as central language in everyday Clubhouse materials and communication, and engaging with the goals during manager trainings.

1] *Sustaining an emphasis on the program goals.* The program goals need to become part of the everyday language of Clubhouse conversation. In the same way that "building on youth interests" is a common phrase used by everyone involved in this program, phrases encapsulating the other program goals need to be used in meeting agendas, presentations about the program, materials shared with local sites, press materials, etc.

In turn, coordinators need to introduce Clubhouse members and mentors to the priorities reflected in the goals of this program. This can happen in many ways, and explicitly sharing the goal statements themselves is probably not the most effective one. Instead, coordinators can consistently highlight qualities of work products and of Clubhouse dynamics and practices that reflect the Clubhouse goals.

2] *Engaging with program goals during training.* The Clubhouse coordinator trainings are one major opportunity to engage coordinators with the program goals. There are many ways to do this, several of which we suggest here. All of these suggestions emphasize allowing coordinators to look for and discuss the program goals as they are embodied in the work and culture of established Clubhouses. Abstract discussion of these goals is much less important than using them as a structure to guide examination of real Clubhouse activity.

For example, during coordinator trainings, new coordinators might spend a day visiting a Boston-area Clubhouse, and observe activity in the Clubhouse making note of youth interactions, coordinator strategies, etc. They would be provided with a set of written guidelines based on the program goals that would structure their observations. The next day, network staff could facilitate small group discussions about what coordinators saw and questions and ideas that the observations raised for them.

Another possibility would be to build on an existing practice of having coordinators offer workshops to one another highlighting activities and applications in which coordinators have developed expertise. These workshops, some of which have been held at coordinator trainings and meetings already, could be structured with an emphasis on the support strategies used by different coordinators at their Clubhouses, as opposed to those emphasizing technical skill-building. The focus of these workshops would be on when and how to invite Clubhouse members into new activities or working with new media, an experience Clubhouse coordinators would take part in themselves, and could reflect on at the end of the workshop.

Finally, a case-based approach to this issue would involve inviting experienced coordinators to prepare and present a case of a particularly successful or challenging project that young people in their Clubhouse took on. They would present this activity in the context of the program goals, and discuss how the project evolved, how they supported it, and what they learned from the experience.

2] **Expand and systematize resources and mechanisms for sustained support of Clubhouses, and organize these resources around a model of incremental program development.** Programmatic support becomes ever more important after the initial start-up phase, when Clubhouses begin to tackle the substantive issues of supporting high-quality activities for their members. Network staff have been very attuned to the needs of Clubhouses in the early stages of development, but as the network of Clubhouses continues to grow, institutionalizing these types of support becomes increasingly important. Permanent resources that can be revised as needed and help Coordinators clarify and understand the Clubhouse principles are a necessary part of expanding the support available to the growing Network of Clubhouses over time. In particular, priority should be placed on developing resources that help Coordinators with relatively less experience in informal learning environments learn how to support and encourage design activities effectively. These resources also need to showcase examples of how to provide differentiated support to meet a range of youth interests and developmental stages. Resources also need to be in place that help Clubhouses diagnose and reflect upon their own movement through a developmental process of becoming a "mature" Clubhouse. Defining, explaining and modeling this process will provide points of reference and comparison for coordinators who are often frustrated by their physical isolation from other Clubhouses.

Possible opportunities for accomplishing this.

1] *Supporting Clubhouse coordinators to contribute to archives of exemplary work, to be housed at the Village website.* Intel could issue a small RFP to coordinators, offering a stipend to support the creation of web-based documentation of projects they have done with their members that embody some or all of the program goals. Over time, an archive of exemplary Clubhouse projects could be produced. By "exemplary" here we do not mean most technically accomplished, or that the work has gone through a formal evaluation process, but that the work clearly embodies the goals of the program. Archives of exemplary work would need to display the work itself and also provide explanations of how the work embodies particular program goals; how the coordinator supported the members in the project; and the Coordinator's ideas for improving on or altering the project in other Clubhouse contexts.

Network staff could facilitate Coordinators' contributions to such an archive by developing materials for coordinators that could structure a process of reviewing members' work in relation to the program goals. This would also contribute to developing a common set of concepts among coordinators regarding positive qualities in young people's creative work. These materials, which could begin as simple checklists, questions for reflections, or worksheets, could eventually serve as templates for more elaborate presentations, by coordinators, of promising activities.

2] *Develop a strategic plan for producing comprehensive support materials for Clubhouses, keyed to the developmental process outlined in this report, and prioritize the production of these resources by the Network staff.* As the network continues to grow, face-to-face and one-on-

one mentoring and modeling are going to become increasingly problematic forms of support to the Network as a whole. The Clubhouse Village will need to provide a range of levels of documentation to support Coordinators in doing their jobs. These resources will need to cover everything from guidelines for managing technology resources for novice coordinators, to scenarios that illustrate various strategies for guiding members' work for Clubhouse coordinators in the middle of developing their programs, to pointers to other web-based resources for Coordinators supporting members in finding college programs that would build on the expertise they have developed in the Clubhouse. Any number of types of resources are possible, and many of them can be derived from work already being done by Network staff and by coordinators, as well as work that could be done in response to some of the tasks outlined here. The Network needs to engage in a planning process to prioritize the topics, types of resources, and media for distribution that will most effectively support existing Clubhouses in their different stages of development. This is a significant task, and could potentially require new staff or a restructuring of staff responsibilities within the Network.

3] **Increase opportunities for coordinator-to-coordinator discussion and sharing.** Coordinators value any chance they get to learn from each other and share their experiences. The wide range of expertise represented in the group is an enormous resource for supporting further Clubhouse development and has only begun to be tapped. Coordinator's jobs are intense, tiring and challenging, and can often feel isolating. Opportunity to meet and share concrete strategies were extremely important to Coordinators this year, and more such opportunities should be made available. This could include support for coordinators who take the initiative to propose and plan small group activities such as regional visits among sites, online forums on specific topics, or informal meetings at regional or national conferences.

Possible opportunities for accomplishing this.

1] *Establish a fellowship program for Coordinators.* Intel could establish a small fund which Coordinators could apply to for support for short-term projects that would increase their expertise and support them in sharing that new expertise within the network. For example, a Coordinator could apply for support to spend a week collaborating with a coordinator at another Clubhouse, or with another, local after school program, gaining experience in a specific area such as supporting collaborative work among students, supporting graphic design production work, or supporting young people in finding and keeping successful internships. The coordinator would also be expected to propose a plan for sharing their new knowledge with others, through a regional meeting, an online discussion, or the creation of permanent resources for the Clubhouse Village website, and would be provided with some extra support to subsidize this work.

2] *Identify and support Coordinators with specific areas of expertise to act as resources to others in the network.* For example, a Coordinator with extensive experience in video production could be provided with a stipend and could establish a regular presence at the Clubhouse

Village. This person could maintain an archive of basic resources such as written materials (how-tos, guidelines for proposed projects); pointers to online resources; and archives of exemplary work by youth; they could offer a sequence of workshops on their area of expertise at Coordinator conferences and regional workshops; they could maintain a discussion board at the Clubhouse Village for coordinators with questions related to their area of expertise; and they could act as an advisor the Intel and the Network staff, advising on future hardware purchases, opportunities for exhibiting student work, other exemplary programs youth could be involved in (such as internships) and potential partners.

4] **Track attendance data in enough detail to determine whether diverse groups of youth are being served equitably.** Although attendance data is only a rough estimate of equity in youth experiences with this program, it is beyond the scope of this evaluation to address this issue systematically. Therefore, it is important to review attendance data with an eye to any variations in frequency and regularity of attendance, and in attrition, by sex as well as by indirect markers of social and economic diversity such as school (for local comparisons) or zip code (for synthesized, national comparisons). Adequate evidence in this area is very important to understanding the longer-term impact of the Computer Clubhouse program and its eventual success in meeting the Intel Innovation in Education goals. Initial efforts have been made to develop the database capacity of sites so that membership data can be consistently collected. These efforts need to be reinforced and made consistent across the Network.

Possible opportunities for accomplishing this.

1] *A staff person at Intel or at the Network needs to be identified who will track Clubhouse submissions of this data, follow up with sites, and periodically analyze the data received.* Intel and Network staff also need to work together to set some targets against which attendance data can be measured. For instance, what are the program's goals for reaching young women? What balance is the program seeking between growth of membership (more unique sign-ins) and retention and stabilization of membership (regularity of sign-ins) in individual Clubhouses? These kinds of questions need to be discussed in order to inform the interpretation of the collected sign-in data. This task requires significant follow-up contact with sites, as well as an ability to maintain and analyze the data, so this could also potentially require new staff, or a restructuring of responsibilities, at the Network or within the Intel team.

5] **Promote and support partnerships between Clubhouses and local resources that can ensure program sustainability.** Clubhouses need to identify local resources that can provide support beyond recruiting mentors. University researchers and preservice youth professionals, local artists, entrepreneurs and educators, and other local community-based organizations are just a few of the individuals and organizations that can help the Clubhouse to make connections to the community, increase its capacity for supporting youth in their work in the Clubhouse, and identify opportunities for young people to translate their

Clubhouse experiences into work and further study in other contexts. Coordinators need assistance in thinking strategically about resource-building – it will be important to develop resources that can help them to learn from and build on one another's experiences in this area.

Possible opportunities for accomplishing this.

1) *Invite MIT/Media Lab staff to identify and recruit potential partners in various Clubhouse regions.* Mitchel Resnick and his colleagues work with a wide range of university- and museum-based educators who could be valuable resources for local Clubhouses.

2) *Create opportunities for discussion, and print materials, that help coordinator think critically about what forms of support they need and how to get them.* Coordinators are often inclined to accept any support that is offered to them because they are chronically under-resourced. However, coordinators need to move beyond working responsively and become pro-active in setting priorities for their Clubhouses and finding people who can help them meet specific needs. The Network staff needs to work closely with individual coordinators to develop strategic plans for growth and to tailor their recruitment of local resources to support that plan.

Section VII. APPENDICES

Appendix A:
RESEARCH APPROACH AND OBSERVATION PROTOCOL

Research approach

The core task of the Year 1 research has been to identify how host organizations understand, adapt, implement and support the development of the Computer Clubhouse model and the successes and challenges they face in doing so. Our primary sources of data for this work were site visits to seven new Clubhouses and the Museum of Science (MOS) Computer Clubhouse. Including the MOS Clubhouse in our sample provided the research team the opportunity to observe the range and types of activities and interactions predominate in a "mature" Clubhouse. The priorities and perspectives of the Museum of Science Computer Clubhouse informed our perspective on the implementation process throughout the network; the institutional impact of the program on participating CBOs; and the impact of the program on youth the participating CBOs serve.

In addition to the MOS Clubhouse, seven new Clubhouses were selected for on-site study as part of the Year 1 formative evaluation effort. These sites were selected as part of our research study to represent a range of the kinds of community-based organizations hosting new Clubhouses including large, well-established after-school programs serving large numbers of youth from multiple schools and smaller community-based organizations. Consideration was also given to the installation timetable of sites regarding on-site observation. Visits were conducted at sites that had been open at least three months and had established a regular flow of participants. Site visits were conducted between December 2000 and April 2001 and lasted two days. In addition to our observations of Clubhouse activities, the evaluation team conducted interviews with key program administrators at the host organization, including the program director, technology coordinator and/ or volunteer director, as well as Clubhouse mentors and support staff, and conducted structured observations of activity in the Clubhouse.

Methodology

The observation protocol used at all of the sites was designed to capture both overall activity occurring in Clubhouses as well as close observation of social interaction around specific activities as they occurred. Two of the three researchers on the CCT evaluation team conducted visits to seven of the eight sites, and all three researchers conducted one of the site visits together. A consultant assisted the team in its systematic analysis of field notes.

Sample Protocol for Observing Activity in a Computer Clubhouse

Version 2.0
Winter, 2001
CCT/EDC

Overview

Date of observation:
Location of Clubhouse:
Scheduled Clubhouse hours:
Observation start time:
Observation end time:
Who are the participating observers? Who will be playing which role?
Diagram of Clubhouse:

Part One: Capturing overall activity in the Clubhouse

Capture at 20 minute intervals

A) Who is Present

Time	# of Youth Present	# of Males / # of Females	Notes on age distribution, perception of race/ethnicities represented	# of Staff / # of Mentors

B) What activities are underway?

TIME:
• How are present individuals grouped in the room? Who is working with who?
• What media/objects/activities are individuals grouped around?
• What activities (in terms of content) are underway? (you will probably not be able to answer this completely—focus on groups and on mentor/youth pairs when you have to choose who to get information from.) Note which activities are transitory, which are sustained.
NOTES: Use more sheets as necessary.

C) Observing Youth Entering the Clubhouse

One observer should sit within easy view of the main entrance (if there is more than 1 entry point, observers should discuss a strategy for the other entrances to be monitored at specific intervals during the observation period). Observe where members go upon entering the Clubhouse, who they speak to, what they engage with until they settle into an activity or conversation for at least 1-2 minutes.

ENTERS:
time:
note approx. age, observation on race/ethnicity, gender:
Use more sheets as necessary.

Part Two: Social interaction around specific activities

Find two or more people (two youth, mentor and youth, whatever combination) who are engaged around the same objects (lego, computer, etc.). Sit close enough to be able to see and hear what they are doing, and to ask questions if that seems comfortable given the situation. Observe and note what they are doing with as much detail as possible. Try to stay with a group as long as possible. Make sure to pay attention when other youth, Clubhouse managers, or mentors stop by or intervene in what the group is doing. Keep close track of what is said; of what resources are used, and of what actions are taken.

If the group you are beginning to observe dissolves (people wander off, etc.), continue to follow at least two of the young people (or the one if there was only one). Observe and note where they go next, and what they do next. Watch particularly for signs that they either want to come back to the original activity (but can't because they don't know how to do it, etc.), or for signs that they have something else that they want to do and are seeking it out.

Appendix B:
SAMPLE REQUEST FOR PROPOSAL

A Special Initiative: The Intel Computer Clubhouse Network

REQUEST FOR PROPOSAL

Statement of Need:

As technology's role in society becomes more important, an ever-widening gap in technology access, usage, and literacy is fueling inequities based on race, income, education level, age and geography. Intel is committed to identifying and funding programs that offer meaningful and viable solutions to help close this gap. In 1993, the Intel Foundation provided a 3-year seed grant to develop the Computer Clubhouse, now based at Boston's Museum of Science. With a goal to help increase technological fluency in under-served communities, the Computer Clubhouse has deeply touched hundreds of youth and given them the confidence and resources to change their lives. In partnership with the MIT Media Lab, the Computer Clubhouse has flourished and replicated into the additional fifteen sites that are in operation today.

The Computer Clubhouse has a demonstrated record of success, and has gained international recognition as a model of how technological tools can support learning, creative expression, and community development. Winner of the 1997 Peter F. Drucker Award for Non-Profit Innovation, the Clubhouse provides not only access but culturally relevant and challenging learning content for youth, coupled with support from caring adult mentors who serve as role models.

To expand the number of Clubhouses around the world, Intel is establishing the Intel Computer Clubhouse Network. Through the development of this program we hope to fuel a new community of technological learners, as well as the next generation of technical inventors and creators. We feel privileged to be able to reinvest our success in the hopes that future generations will lead more successful and productive lives with the technology we help create. Intel invites community-based organizations that have a fundamental commitment to youth development to apply to become a partner in the Intel Computer Clubhouse Network.

Over the next five years, Intel Corporation, in partnership with the Computer Clubhouse Network, will establish 100 Intel Computer Clubhouses primarily in communities with Intel facilities in Arizona, California, New Mexico, Oregon, Washington, Massachusetts, as well as other selected communities worldwide. This RFP is targeted at establishing one Intel Computer Clubhouse in Pierce County.

The Computer Clubhouse Overview:

A project of Boston's Museum of Science in collaboration with the MIT Media Laboratory, the Computer Clubhouse was opened in the summer of 1993 and has served over 1,500 young people who use powerful computer tools to work on extended projects related to their own interests and experiences. Based on the success of the original Computer Clubhouse, the Computer Clubhouse Network has begun to disseminate its unique learning model into community centers around the world, enabling an ever-increasing number of under-served youth to have access to powerful computer tools and create their own projects. Clubhouses focus initially on youth (ages 8-18) but are encouraged to branch out to serve other community populations such as seniors, parents, and younger children as resources and capacity grow.

The Computer Clubhouse provides a creative and safe after-school learning environment where young people from under-served communities work with adult mentors to explore their own ideas, develop skills, and build confidence through the use of technology. At the Computer Clubhouse, youth develop projects based on their own interests, creating computer-generated art, music, and animations; designing their own science simulations; writing and illustrating interactive poetry and stories; building kinetic sculptures and robotic constructions; and designing their own web pages. In the process, youth become excited about learning and fluent with new technologies, developing skills and experiences to help them succeed in their careers, contribute to their communities, and lead outstanding lives.

The Computer Clubhouse Philosophy:

Activities at the Computer Clubhouse are guided by the current educational research that shows that adolescents learn most effectively when they are engaged in designing and creating projects, rather than memorizing facts or learning isolated skills out of context. The Clubhouse fosters a learner-centered, informal educational approach that encourages participants to discover their interests and apply their own ideas. Given the support and freedom to pursue their own ideas, young people get beyond their disinterest and apathy about learning, and develop the internal motivation to learn and grow.

The Clubhouse is guided by four principles:

- The Clubhouse focuses on activities that encourage young people to work as designers, inventors, and creators.
- The Clubhouse encourages youth to work on projects related to their own interests.

- The Clubhouse aims to create a sense of community, where young people work together with one another with support and inspiration from adult mentors.
- The Clubhouse is dedicated to offering resources and opportunities to those who would not otherwise have access to them.

The Computer Clubhouse gives participants the opportunity to become designers and creators of technology. The Clubhouse provides resources, materials, and tools for young people to develop projects based on their own interests. Rather than playing games with computers, young people learn how to use professional software for design, exploration, and experimentation. In the Clubhouse, young people can learn what it is like to be an architect, engineer, composer, artist, journalist, scientific researcher, computer programmer, and a wide array of other professions in the modern workplace.

The Clubhouse educational approach is based on research that shows the importance of interpersonal relationships and community in the learning process, particularly for adolescents. The people around them, peers as well as adults influence young people a great deal outside of school. In the Clubhouse, young people interact with other youth and adults who are enthusiastic about learning and are interested and invested in their work. Clubhouse members become part of a community that values and respects hard work and the pursuit and sharing of ideas and knowledge.

Grant Overview:

To ensure the success of the Intel Computer Clubhouse Network, Intel is searching for community based organizations with a respected track record for achieving results through community based initiatives, who have demonstrated financial stability, embrace new technologies, and can sustain the Clubhouse over time.

The primary responsibilities of the community-based organization will be:

- Demonstrate a commitment to the Computer Clubhouse learning approach and philosophy.
- Hire, support, and retain a full-time Computer Clubhouse Coordinator.
- Provide an inviting, attractive physical space for the Clubhouse location.
- Ensure access to youth from under-served communities.
- Encourage participation of adult volunteer mentors.
- Have a commitment to participation in the Computer Clubhouse Network (sharing best practices & lessons learned, participation in the evaluation process, etc.)
- Develop financial and community support to help sustain the Computer Clubhouse beyond the grant funding period.

Grant recipients will receive services and donations through the Intel Computer Clubhouse partnership

for program implementation valued at nearly $200,000 for the first year.

- The Intel Foundation will provide a cash award of $60,000 for program costs. Program funding can be used for staff, staff development, and travel to Boston for appropriate training-related purposes. Program funding cannot be used for general overhead expenditures.
- An equipment award including 15 high-end PCs, digital camera, scanner, color laser printer, PC cameras and other accessories will be given to each Clubhouse through a combined donation from Hewlett-Packard and Intel.
- Internet access will be supplied to all grant recipients where geographically available.
- Through donations from Adobe, Macromedia, and Autodesk along with additional funding through the Intel Foundation, a variety of high-quality, professional software tools for creating graphics, 3D animation, images, video, and music will be provided.
- The Intel Foundation will provide funding to ensure that the Clubhouse is designed, furnished, and decorated to provide a warm, inviting physical space that encourages creativity, self-expression, and collaboration. The following suggested features will be provided based on an individual facility assessment:
    - Computers in clusters and "pods"
    - A table in a central location within the Clubhouse as a gathering place for youth
    - Ergonomic chairs
    - Carpeting and color specs (including product and installation)
    - Paint (including product and labor)
    - Studio lighting (including labor to install)
    - Window blinds (if necessary)
    - Bookshelves & reading area
    - Exhibit space for youth work (display boards, shelves)

The award also provides access to the Computer Clubhouse learning model. The Computer Clubhouse Network, based at the Museum of Science, will serve as the center of innovation and technical expertise, and will provide ongoing support, programmatic guidance, and technical assistance for Clubhouses around the world. New projects and activities will be developed in The Museum's Clubhouse with the support of the MIT Media Laboratory and disseminated to all Clubhouses. Best practices and lessons learned will be shared among all the Computer Clubhouse locations; with an eye toward continuously improving the services we offer youth and their communities. A Computer Clubhouse on-line network will enable Clubhouse youth everywhere to meet, interact electronically,

collaborate on design activities, and share computer-based projects.

CBO's will receive one week of orientation and training for new Clubhouse staff at the Museum of Science "flagship" Clubhouse in Boston, as well as written training materials and on-line documentation to assist in start-up and ongoing Clubhouse operations. In addition, Computer Clubhouse start-up sites will receive on-site support from Intel and Computer Clubhouse Network staff for facility design and layout, equipment set-up, software installation, and technical assistance. After initial training, Clubhouse Staff will participate in monthly meetings (over phone and Internet lines) with other Clubhouse Staff, and will participate in two conferences a year (a three-day annual conference for all Computer Clubhouse Staff, and a two-day regional conference at mid-year). CBO's will be required to submit quarterly reports. On an ongoing basis Computer Clubhouse Network staff are available for program evaluation, site visits, program support, and general assistance.

Considerations and Restrictions (PLEASE READ CAREFULLY):

1. This opportunity is available to 501(c) 3 community-based organizations that have a commitment to youth in under-served communities. Intel does not provide funding for private foundations described under IRS Code Section 509(a).

2. Intel's policy is to comply with all applicable laws and to provide equal opportunity for all applicants and employees without regard to non-job-related factors such as race, color, religion, sex, national origin, ancestry, age, disability, veteran status, marital status or sexual orientation. Organizations seeking financial support from Intel are asked to certify that they have an equal opportunity guideline in place that prohibits discrimination as part of the grant approval process. Organizations will be asked to sign the Equal Opportunity Certification form attached to this RFP and provide a copy of their policy. Intel reserves the right to verify adhenrence to such guidelines as a condition for financial support. Organizations that do not have an equal opportunity guideline in place will be denied corporate support, until they have an acceptable guideline implemented.

3. The initial grant will be to operate the program for one year from date of implementation. Successful grant recipients will be eligible for transition funding for up to a maximum of three years based on demonstrated success.

4. The estimated costs of maintaining a Computer Clubhouse are based on a number of assumptions about the Clubhouse, its "host" organization, community location, and geographic setting. Operating expenses reflect the annual costs that the Clubhouse incurs in the course of doing business. These costs include personnel expenses, computer support, and program materials and supplies. The annual operating costs are estimated at $65,000.

5. The minimum space requirement of a Computer Clubhouse is 1,100 square feet (including an inner-office for Clubhouse staff). This grant will NOT cover: construction and/or demolition of walls (and windows) necessary to provide 1,100 square feet of space; any ceiling modifications due to con-

struction, electrical circuitry, wiring or outlets to support the equipment and lighting; additional HVAC that may be required; security and insurance; and any modifications necessary to comply with ADA, general safety or fire safety requirements.

6. The Clubhouse will be open a minimum of 20 hours per week (after school and/or on weekends) throughout the year.

7. The Clubhouse Coordinator will be assigned to this program 100% (40hrs/week) of their time and must have a proven track record in youth services. Job responsibilities include, but are not limited to 1) help Clubhouse members develop projects, 2) recruit, train and support volunteer mentors, 3) provide community outreach in support of the Clubhouse program, 4) provide basic computer maintenance, 5) assist "parent" organization in fundraising and publicity for the Computer Clubhouse, 6) support youth in pursuing academic and job opportunities, and 7) support other programs and activities of the "parent" organization as time permits.

8. All grant recipients will be required to abide by all applicable laws governing youth programs including the Internet Privacy Act and the Rehabilitation Act of 1973, which provides that no handicapped person shall, by reason of handicap, be excluded from participation in any programs or activities.

9. A grant agreement with Intel Corporation and the Boston Museum of Science's Computer Clubhouse Network will be required.

Required Elements of the Proposal:

Proposals will be evaluated and competitively ranked by a review committee. The review committee may choose to conduct a site visit as part of the selection process. The overall comprehensiveness, quality and clarity of the proposal will be reviewed. Please address each requirement below.

Mission & Strategic Direction (1-page maximum)

1. Statement of CBO mission and strategic direction.

2. Describe how the goals of the Intel Computer Clubhouse Network can help achieve your current and future objectives.

Support of Under-Represented Youth (1-page maximum)

1. Describe how your organization reaches and supports young people from under-served communities. Include number of youth served, related demographic data, hours of operation, and schedule of activities.

2. Describe successful intervention with economically disadvantaged and diverse populations.

3. Describe how a Computer Clubhouse would support these populations.
4. Describe leadership opportunities for youth within your organization, as well as the role of youth in planning and implementing programs and activities.

Program Information & Commitment to Learning (1-page maximum)

1. Describe experience with informal learning environments, or willingness to engage your organization in new learning approaches.
2. Describe your experience with using technology as a learning tool for creative self-expression.
3. Give examples of prior experience with program evaluation.

Commitment to Technology (2-page maximum)

1. Give examples of how your organization has embraced technology in your operations or plans to.
2. Describe how your organization integrates technology into programs, or plans to.
3. Include a description of proposed Clubhouse location, staff, technology administration infrastructure, and technology support for sustainability.
4. Describe planned or existing security infrastructure for a Computer Clubhouse.

Community Relations & Sustaining Ability (2-page maximum)

1. Describe your volunteerism program.
2. Describe your organization's support in the community and how you plan to maintain positive visibility of the program.
3. Give examples of your reputation in the community and a demonstrated history of success.
4. Give examples of collaboration with organizations in the community.
5. Describe how you would develop financial and community support to help sustain the Intel Computer Clubhouse beyond the initial funding period.

Organizational Information

1. Include resumes and/or biographies of current key staff that will be working on this project, including the executive director.
2. Include three letters of recommendation that support your collaborative efforts in the community.
3. List of organization's Board of Directors.
4. Proposal should include signatures of authorizing officials and the executive director.

Budget Information

1. Organization operating budget for two years.

2. Most recent financial statement, audited if available.

3. Documentation of current tax-exempt status.

Equal Opportunity Certification

[Insert name of organization] certifies that it has, or will have, an equal opportunity guideline in effect that prohibits discrimination on the grounds of race, color, religion, sex, national origin, ancestry, age, disability, veteran status, marital status or sexual orientation.

[Insert name of organization] also affirms that it will not use Intel funds or Intel Involved volunteers to support other groups that do not have an equal opportunity guideline.

We also understand that Intel has the right to review our operations to verify our adherence to this equal opportunity certification.

Attached is a copy of our equal opportunity guideline. We understand that providing Intel with a copy of our equal opportunity guideline is a condition of receiving any funds or volunteers.

Note: This guideline is not intended to conflict with international local laws that may prohibit an organization from including a particular classification within its equal opportunity guideline.

Organization Name

Address

Signature

Printed Name

Officer's Title

Date

Proposal Deadlines and Administrative Information:

RFP Workshop N/A

Proposal due date Proposal must be in our office no later than 5:00pm on the last day of @ month

Contact

Proposal requirements and information

Proposals must be easy to photocopy:

* Do not bind your proposal
* Do not send binders
* Do not submit an excessive amount of collateral, e.g. videos, brochures or photos
* Submit two copies of your proposal, unstapled
* Any collateral submitted will not be returned

Eligible geographies See Web site for Geographies

Notification date Results will be announced based upon geography availability and upon complete review of proposal

Additional information http://www.intel.com/education
http://www.computerclubhouse.org

The Computer Clubhouse is a project of the Boston's Museum of Science, in collaboration with the MIT Media Laboratory.

Appendix C:
SAMPLE INTEL COMPUTER CLUBHOUSE PROGRAM REQUIREMENTS

A. Program Requirements

1. This grant is to support the Grantee's Intel Computer Clubhouse program as detailed in the Grantee's proposal submitted to the Intel Corporation and the Museum of Science. This grant is made with the understanding that the entire amount of the grant will be expended solely for the purposes of establishing and supporting the Intel Computer Clubhouse. Program funds may be used for Clubhouse staff salaries, Clubhouse staff development, program materials and supplies, program activities, and travel for appropriate training related purposes. Program funding may not be used for general overhead expenditures.

2. All hardware, software, furniture, and other materials and services provided to the Grantee through Intel Corporation and the Museum of Science are designated for exclusive use in the Grantee's Intel Computer Clubhouse. It is the responsibility of the Grantee to ensure the security,. maintenance, and upkeep of all property and services provided to the Grantee's Intel Computer Clubhouse.

3. The Grantee is to inform the Intel Computer Clubhouse Network staff at the Museum of Science of all major Computer Clubhouse events, prior to their occurrence. The Director of the Intel Computer Clubhouse Network should be promptly notified about any proposed change in key personnel of the project, or any proposed change in the space dedicated to the Computer Clubhouse.

4. The Grantee agrees to provide a dedicated space (between 1,000 and 1,500 square feet) that can safely house high-end computer equipment, and to work with Intel and the Intel Computer Clubhouse Network staff to design, furnish, and decorate the Intel Computer Clubhouse in a warm, inviting manner. Any facility renovations, structural improvements, electrical upgrades, and/or power upgrades that are required are the responsibility of the Grantee.

5. The Intel Computer Clubhouse Coordinator position is a full-time position. All fulltime Clubhouse Coordinators must attend a one-week orientation and training program at the "flagship" Computer Clubhouse at the Museum of Science. In the event a new Intel Computer Clubhouse Coordinator is hired by the Grantee, he or she must attend the one-week orientation and training program. Out-of-pocket expenses (for travel, lodging, meals, and incidentals) are the responsibility of the Grantee.

6. Participation in all Intel Computer Clubhouse Network meetings, including the Clubhouse Network's three-day Annual National Conference, two-day mid-year Regional Workshop, and monthly meetings of all Clubhouse Coordinators, is mandatory for the Grantee's Computer Clubhouse Coordinator. Travel and other expenses, as required, are the responsibility of the Grantee.

7. The Grantee agrees to operate the Intel Computer Clubhouse a minimum of 20 hours per week (after school and/or on week-ends) throughout the year, and to ensure that **youth from underserved** communities have access to the program.

8. The Grantee agrees to adopt the learning approach of the Computer Clubhouse by implementing the following basic program standards:

9. The Clubhouse will provide opportunities for open-ended exploration (versus classes with a set curriculum) during the time that the Clubhouse is open.

10. The Clubhouse **will** provide high-end professional software for creative expression and scientific exploration (versus computer games for entertainment only) during the time that the Clubhouse is open.

11. The Computer Clubhouse will encourage the participation of adult mentors.

12. The Computer Clubhouse Coordinator will demonstrate a commitment to participation in the Intel Computer Clubhouse Network, for example by sharing best practices and lessons learned, and by encouraging youth to participate in on line activities for youth around the Network.

13. The Grantee agrees to comply with all national, state, or local privacy laws and regulations, including the U.S. Federal Trade Commission's Children's Online Privacy Protection Regulations (COPR).

14. The Grantee will develop and implement an effective plan to sustain the Computer Clubhouse program supported by this grant beyond the grant period.

B. Reporting/Evaluation Requirements

1. To meet the Intel Computer Clubhouse Network's reporting requirements, the Grantee must provide quarterly reports to the Museum of Science, briefly addressing the following items

   - Program activities that have taken place, including the number and frequency of
   - Clubhouse visits by youth;
   - Program successes;
   - Anticipated or unanticipated events that have had a significant effect on the program
   - Issues and challenges that have arisen and how they are being addressed,
   - Projected future activities; and
   - Accounting of grant funds expended to date.

   Quarterly reports will be submitted within 15 days of the end of the quarterly period to the Museum of Science Contact listed on the front of the grant agreement.

2. At the end of the grant period, the Grantee must provide a final report to The Intel Computer Clubhouse Network. The final report should briefly review the entire grant **project, including a summation of:**

   Program activities that have taken place, including the number and frequency of Clubhouse visits by youth; Program successes; Anticipated or unanticipated events that have had a significant effect on the program Issues and challenges that have arisen and how they are being addressed, Projected future activities.

   The final report should also include:

   - The Grantee's plans for sustainability of the Clubhouse program beyond the grant funding period;
   - A description of efforts undertaken to ensure compliance with applicable children's privacy regulations, and the success of those efforts; and
   - A final accounting of expenditures of grant funds.

   The final report will be submitted within 30 days of the end of the grant period to the Museum of Science Contact listed on the front of the grant agreement.

3. The Grantee agrees to fully cooperate with the Center for Children and Technology's independent evaluation team assigned to this program. This is likely to involve timely participation in interviews, surveys, evaluation team visits, and other data collection activities.

Appendix D:
SAMPLE SOFTWARE LIST FOR INTEL COMPUTER CLUBHOUSES

Software used in the Computer Clubhouse

3D Home Architect
Adobe Acrobat
Adobe After Effects
Adobe GoLive
Adobe Illustrator
Adobe InDesign
Adobe LiveMotion
Adobe Pagemaker
Adobe Photoshop
Adobe Premiere
Asymetrix Digital Video Producer
Autodesk 3D Studio Max
Autodesk Character Studio
Bryce 3D
Cerious Software, Inc. ThumbsPlus
Filemaker Pro
Final Draft
Interactive Dance Studio
Kai's Power Tools
KidPix Studio
LCSI Microworlds Project Builder
Macromedia Director Shockwave Studio
Macromedia Dreamweaver Fireworks Studio
Macromedia Flash Freehand Studio
Macromedia Web Learning Studio
Maxis Sim City 3000
Maxis The Sims
MGI PhotoVista
MGI Software Reality Studio
Microsoft Creative Writer 2
Microsoft Office 2000 Professional
Microsoft Publisher
Microsoft Visio 2000 Technical Edition
Microsoft Visual Studio
Mixman Studio Pro
Network Associates VirusScan
Painter
Poser
Print Shop Deluxe Suite
Super Goo
Ulead Video Studio

Appendix E:
SAMPLE FURNITURE LIST FOR INTEL COMPUTER CLUBHOUSES

Furniture

QTY	DESCRIPTION
1	Sofa
1	Green Table 42"X120"
1	Lego table 42 x 60
2	TABLE, 30x60 (Music Studio)
15	24 x 48 or 30 x 60 Tables (Pc table)
1	TABLE, 30 x 30 (Printer, sign in computer, server)
4	3' -HIGH BOOKCASE - 36"
3	5 '-HI STORAGE 42"
35	ROLLING ERGO CHAIR
1	4-LEG STACKER CHAIR
1	ROUND TABLE 20"
1	DESK 30 x 60 (Office desk)

Peripheral items

QTY	DESCRIPTION
1	4 Drawer VERTICAL FILE
1	GARMENT RACK W Hangers
1	Hangers
1	Freestanding Lamp
1	Table Lamp - Black
4	Slim Jim Waste Container
2	Paper Recycling Top
2	Bottle And Can Recycling Top
20	6 Outlet Power Strip - 15'
20	Tackstrip 60"
1	Plantronics headset
1	Plantronics Modular Adapter
1	Network rack
1	UPS

PCs

QTY	DESCRIPTION
2	HP Kayak XM600 PIII933 MT 9G 128 G400W2K
2	HP Elsa SynergyII AGP Graphic Card
2	HP P920 19" Color Monitor 18.0" V.I.
2	HP 128Mb ECC RDRAM
2	HP standard Headset
2	HP External Amplified Speakers 9.6WRMS
14	HP Vectra VL400 MT P866 128M10G CDLW98
14	HP P700 17" Color Monitor 16.0" V.I.
14	HP standard Headset
14	HP External Amplified Speakers 9.6WRMS
1	HP Vectra VL400 DT C700 64M10G CDLW98
1	HP NetServer E800 PIII-866 Mod 9B
1	HP 9.1GB 7200 Ultra3 Wide SCSI-3 LVD HDD
2	DDS 3 Data Cartridge, 24GB/125m
2	HP 55 15" Color Monitor 13.7" V.I.
1	HP 128MB 133MHz ECC SDRAM DIMM
1	HP LaserJet 5000 N Printer
1	HP Color LaserJet 4500
1	HP ScanJet 4200Cse Scanner
1	HP CD-Writer Drive 8220e External w/SW
1	PhotoSmart 215xi Digital Camera

Music equipment

QTY	HARDWARE
1	High Performance Pentium III based PC with 256MB RAM
1	19" high performance Monitor
1	Roland XP-30 KeyBoard
1	Behringer EuroRack MX 1604A Mixer
1	EVENT PS 6 STUDIO MONITORS - (pair)
1	Sony MDRV900 Stereo Headphones
1	Shure Beta 58A Dynamic Microphone
1	Atlas Stand - DS-7 Mic Stand
1	Extreme 400 Hvy Duty Kybd Stand
1	FATAR VFP25 Sustain Pedal
1	MONSTER STANDARD 100 - 15 FT MICROPHONE Cable
2	Monster 607101 P500MIDI6 Digilink MIDI Cable
6	6 each - Livewire EG10 10ft Instrument Cable -1/4"-1/4"
2	Speaker Cables - 25 ft, 16 ga - _" mono (male)
2	"Y" cable 3.5mm stereo (male) to dual _" mono (female)
1	SoundBlaster LIVE! Platinum 5.1 - PC Sound Card
QTY	**SOFTWARE**
1	Cakewalk's SONAR XL Digital Recording Application
1	Sonic Foundry SFAC2000 ACID 3.0 Looping
1	Sonic Foundry LLES1000 Essential Sounds
1	Sonic Foundry LLFDB1000 Futurist Drum
1	Sonic Foundry LLSB1000 Street Beats

Video equipment

QTY	HARDWARE
1	High Performance Pentium III based PC with 256MB RAM
1	19" high performance Monitor
1	Video & Capture Card - ATI All-In-Wonder PRO 32MB AGP
1	Sony SLVM91
1	Sony TRV67 or current Sony equiv
1	27" Sony KV27V42 or equiv
1	Cambridge SoundWorks - "PC Works" Speakers or equiv
1	Labtech Micorphone
1	Headphones
1	"Y" Cable
QTY	**SOFTWARE**
1	Adobe Premier
1	Unlead VideoStudio 4.0