Chapter 1

Introduction

For the past decade, a group of college professors and their students have been gathering several days a week with elementary school children at various after-school centers to take part in an unusual educational experience. They play games and puzzle over homework problems. They write to each other and to whimsical characters that live in the Internet, and they chat about what it is like at college and what they think about the latest Harry Potter movie. The official reason the college professors are engaged in these pursuits is to provide undergraduates with a rich practicum course related to their course of study and to conduct research on developing successful after-school programs for school-age children. The college students are on hand to learn how to apply the lessons from their lecture courses to the lives of real children whose well-being during these sessions is in their hands. The children are there to have fun.

This program has been implemented by universities in a variety of communities not only across the United States but also in other countries. We call the activity carried out in the community the Fifth Dimension, and the overall system of university-community collaboration to create after-school activities for children the UC Links Project. It is our belief that the Fifth Dimension–UC Links Project is now a proven success in reaching its most basic goal: to provide a workable model of after-school activities that advance the academic achievement—and particularly the literacy abilities—of elementary school children while providing college students with sorely needed practicum experiences to supplement their lecture classes. We also believe that our strategy for implementing, evaluating, and sustaining this project contains important lessons for educators, researchers, and policymakers interested in the development of after-school activities for children. And perhaps our experience with this program will be generally helpful to all those concerned with promoting the education and welfare of children as they face the challenges of a newly "globalized" economy.

We believe that our work has implications for realizing the potential (but by no means automatic) efficacy of new information technologies in pro-

moting children's learning and development. The use of such technologies in university-community collaborations may also contribute, we believe, to improving higher education. Finally, our research addresses the difficult problem of finding ways to sustain successful educational innovations.

AFTER-SCHOOL PROGRAMMING FOR CHILDREN—AN OLD IDEA

In the 1980s, when the current line of research was initiated, only a small proportion of school-age children attended institutionalized after-school programs; national attention was focused on the absence of supervision for "latchkey" children who were left alone at home or in the care of a sibling under the age of thirteen while parents were at work. Although there was little actual research on the consequences for children of spending time alone at home after school, the general sentiment in magazine and newspaper articles was that such an arrangement put children at risk. Subsequent research has suggested that children left alone or with older siblings are not necessarily harmed by the experience in any measurable way (Padilla and Landreth 1989). Nevertheless, the popular press still casts a skeptical eye on the practice of leaving children at home after school, even as parents continue to do so. Today about one-third of all school-age children, an estimated five million between ages five and thirteen, are latchkey children. What has changed is the importance attached to after-school programs.

THE NEW CLIMATE FOR AFTER-SCHOOL EDUCATION

As Robert Halpern (2003) makes clear in his comprehensive review of after-school programs dating from the late nineteenth century, implementers have drawn on a wide variety of social concerns and ideological commitments to justify their advocacy of adults and children participating in organized after-school settings. The earliest beginnings of the after-school care movement are nicely captured by one of the many origin stories to be found on the Web pages of various boys and girls club organizations, of which the following is representative:

> The origins of Boys and Girls Clubs are traced back to 1860 in Hartford, Connecticut. Three compassionate ladies invited a group of street boys into their home for tea or coffee and cake. The positive behavior and obvious appreciation of the boys completely surprised the ladies, so they extended their hospitality several more times with the same supportive response from the

boys. Along with several other supporters, the ladies resolved to find an available facility where the boys could come regularly throughout the day. They called this the Dashaway Club, the first Boys Club.

In 1878 the Boys Club of New York was established in much the same way as the Dashaway Club. One day a woman worker at the Wilson Mission in Manhattan's Tompkins Square invited some of the boys in for coffee and cake. An immediate rapport was established. The boys returned the next day, asking if they could come in and play some more. After a short while, an empty storefront was found, and the Boys Club of New York was established. This was the first organization with the actual words "boys club" in its name. The movement then began to spread westward.

As can easily be seen, this organizational history presents the initial impulse for creating after-school organizations devoted to children as the benevolent concern of middle-class women about the fate of children left to the streets. This impulse was institutionalized primarily through church-based organizations, but over time it became secularized as it spread into a variety of institutions. Boys were not the only focus of these kinds of concerns; a variety of out-of-school programs sprang up during the late nineteenth century whose special focus was the welfare of girls (Murolo 1997). Unspoken, but carefully documented by Halpern (2003), is the close connection between the development of after-school institutions and restrictions on child labor, attempts to keep children in school for more years, and the social disruption caused by children who either did not attend compulsory schools or were unsupervised during the hours between school dismissal and the return of their parents from work in an era when the eight-hour workday was still only a gleam in the eye of labor leaders.

In recent years, national interest in expanding after-school programs has increased dramatically, and concern about social order and children's safety remains a major motivation behind these efforts, as nicely captured by the title of one such organization—Fight Crime: Invest in Kids California. This organization, with ties to like-minded groups, has recently issued reports with titles such as *America's Child Care Crisis: A Crime Prevention Tragedy* (Newman, Brazelton, et al. 2000) and *America's After-School Choice: The Prime Time for Juvenile Crime or Youth Enrichment and Achievement* (Newman, Fox, et al. 2000). These and similar reports feature evidence that children are most likely to be the victims or perpetrators of crime between 3:00 and 4:00 in the afternoon and that children attending after-school programs are more likely do well in school (see, for example, Lauer et al. 2004).

The titles of these reports reveal two other factors that are motivating the push for after-school care for children. First, these programs provide a

supervisorial bridge between the end of the school day and the parents' return from work. (In two-thirds of married-couple families with children between ages six and seventeen, both parents work outside the home, a figure that increases to 78 percent for female-headed households; U.S. Bureau of Labor Statistics 2003.) Second, after-school programs offer cultural enrichment, including opportunities to develop various talents and increase educational achievement (Belle 1999; Eccles and Gootman 2002; Granger and Kane 2004; Heath 1994).

The latter motive has been the more significant driving force behind recent efforts to expand after-school care. For example, Robert Granger and Thomas Kane (2004, 72) note that, "over the last half-decade, after-school programs have moved from the periphery to the center of the national education policy debate. It happened very quickly. Between 1998 and 2002, federal funding for the 21st Century Community Learning Centers program grew from $40 million to $1 billion."

A multitude of programs, financed not only by federal, state, and local governments but also by several large philanthropic foundations, have been put in place.[1] In addition, prestigious institutions of higher learning, such as Harvard University and Wellesley College, which displayed no particular interest two decades ago in the after-school hours in their programs related to child development and education, have set up programs devoted to the promotion of widely available and high-quality after-school educational programs.

With this increased interest and investment has come closer scrutiny of the quality of after-school programming, the means for evaluating that quality, and the measures to be taken if quality is found to be lacking. Evaluators have found themselves working somewhere along a continuum between two analytic poles. At one end are compelling examples of individual programs that, according to the local organization or an outside evaluator, appear to work (see, for example, Halpern 2003, ch. 5). At the other end are studies of uniformly implemented, large-scale evaluation efforts based on randomized assignment of children to treatments. At present, there appears to be a consensus that evaluations should balance compelling accounts of individual local programs with discussion of generalizable principles in order to provide information that others can use for program design and policymaking.

Evidence that this balancing act is not easy comes from a report prepared for the National Research Council by Jacquelynne Eccles and Jennifer Gootman (2002). Focusing on studies in which evaluators placed a premium on random assignment of large numbers of children, with clear experimental designs and quantifiable outcome measures, these researchers "learned that many programs can effectively promote healthy development," although, they added, "we learned much less about why"

(Eccles and Gootman 2002, 189). Their conclusion is worth quoting at length, not only because it reflects the current "state of the art" of evaluation, but because it provides a yardstick against which to evaluate our own efforts, begun two decades earlier.

> Through consideration of our review of various programs, the basic science of evaluations, and a set of experimental evaluations, quasi-experimental evaluations, and non-experimental studies of community programs for youth, the committee agreed that no specific evaluation method is well suited to address every important question. Rather, comprehensive evaluation requires asking and answering many questions using a number of different evaluation models. What is most important to agree to, and rely on, is a set of standards that help determine the conditions under which different evaluation methods should be employed and to evaluate programs using the greatest rigor possible given the circumstances of the program being evaluated. (Eccles and Gootman 2002, 204)

BASIC GOALS: A PRELIMINARY SUMMARY

A decade and a half ago, when the issues associated with designing after-school programs to be effective supplements to schools and families as contexts for social and intellectual development were becoming visible on the social horizon but were not yet being studied as systemic problems, we began to develop, investigate, and evaluate the Fifth Dimension, a program with several goals:

1. To meet the need for enhanced educational achievement by providing a rich setting for school-age children in the after-school hours based on appropriate theorizing about the design of age-appropriate, development-enhancing environments for children.
2. To use the emerging computer technologies to invite the inclusion of girls and minorities in the program, so as to address the underrepresentation of these constituencies in positions of authority in society at large and in technological professions in particular.
3. To create a structure for ongoing interaction that capitalizes on diversity and brings together children and adults of various ages and from various cultural, economic, religious, and racial groups, as well as special needs children.
4. To create settings where the staff implementing the program and the participating university faculty and students stand to benefit as much

as the children as they learn ways to improve their own intellectual development and professional practices related to promoting children's intellectual, social, and academic development.

5. To develop programs that can be incorporated into the ongoing operations of local community organizations and their university partners and sustained over time.

We identified two needs that were critical to accomplishing these goals: a prototype activity system to serve as a common source of reference for researchers, and a research team no less diverse—in departmental affiliation, ethnicity, and research interests—than the sites and populations we studied.

THE PROTOTYPE SYSTEM

The prototype we used to pursue these goals was a model system of activity conducted during the after-school hours in a community institution concerned with children (a Fifth Dimension) combined with a college or university with an interest in having students learn about conducting research in such settings; together the activity model and the academic connection constituted a UC (University-Community) Link. We understood that if we were to accomplish our goals, an essential feature of each Fifth Dimension and UC Link would be adaptability to local conditions: the ideas and design features provided by the original Fifth Dimension–UC Links Project (LCHC 1982) would need to be changed and modified each time they were implemented in a new socio-ecological context. This need for local modifiability would be just as important as adherence to a basic set of design principles.

It is useful to begin with a description of the original prototype Fifth Dimension activity system and UC Links Project as a framework for understanding this educational intervention and as a benchmark against which to interpret local modifications. What follows is a description of an "ideal type" that serves that purpose.

The Fifth Dimension is an educational activity system that offers school-age children a specially designed environment in which to explore a variety of off-the-shelf computer games and gamelike educational activities during the after-school hours. The computer games are part of a make-believe play world that includes noncomputer games like origami, chess, and Boggle and a variety of other artifacts designed to enhance the quality of children's social interactions and the development of their intellectual skills. For example, project staff members design "task cards" or "adventure guides" to help participants (both children and undergradu-

ate students) orient to the game, form goals, and chart their progress toward becoming an expert. In addition to accomplishing the tasks written into the software or game activity, the children are also asked to externalize their thought processes by reflecting on and criticizing information, writing to someone, looking up information in an encyclopedia, and teaching someone else what they have learned.

To keep the children distributed among the various games and activities, the Fifth Dimension staff typically display a chart in the form of a maze consisting of some twenty rooms. Sometimes this chart is displayed on a wall, and sometimes it is a physical maze made of cardboard or plywood. Each room provides access to two or more games, so the children choose which game to play as they enter a room.

The Fifth Dimension also includes an electronic figurehead—variously referred to as "the Wizard," "the Wizardess," "Maga," "Proteo," or "Golem"—who is said to live in the Internet and who writes to (and sometimes chats with) the children and undergraduates via the Internet. In the mythology of the Fifth Dimension, this figure acts as the participants' patron, the provider of games, and the mediator of disputes—as well as the sometimes irritating source of computer glitches and other misfortunes.

The Fifth Dimension is implemented as a partnership between a local institution of higher education and a local community institution. The involvement of university students is a major feature of the project. Enrolled in a course focused on fieldwork in a community setting, they serve not only as a draw for the children but as much-needed personpower for conducting the activities. The University of California at San Diego, the first UC Link where the first Fifth Dimensions were created, is an institution that emphasizes research, so the participating undergraduate students take an intensive, six-unit class that focuses on deep understanding of basic developmental principles, the use of new information technologies for organizing learning, and the mastery of field research methods. The students write papers on such topics as the development of individual children, the educative value of different games, differences in how boys and girls participate in the play world, variations in language use and site culture, and other topics that bring together conceptually oriented coursework and field observations. Participating faculty make the Fifth Dimension and the development of their local UC Link a focus of their research.

Because the Fifth Dimension activities are located in a community institution, a local site coordinator must be present to greet the participants as they arrive and to supervise the flow of activity. The site coordinator is trained to recognize and support the pedagogical ideals and curricular practices that mark the Fifth Dimension as "different"—a different way for kids to use computers, a different way of thinking about intellectual

challenges, a different way of playing with other children, and a different way for adults and children to interact.

A key design feature that serves several functions is the ready access of all Fifth Dimension participants to each other within and across sites. Thus, depending on the interests of participants at any level of the system, they can communicate with and involve others in their after-school experience. Experience shows that some sites cultivate relationships with one another, while other sites focus on intrasite activity and communication with participants or other institutions in their community.

THEORETICAL ROOTS OF THE FIFTH DIMENSION

A set of common theoretical ideas has guided the design of local implementations of the Fifth Dimension; like the program itself, these ideas share key features but differ and are developed according to local needs and preferences. At the broadest level, we admire theoretical orientations that place culture and social interaction at the center of attempts to understand human learning and development. These theoretical ideas are discussed in more detail in later chapters, but a brief orientation here is appropriate.

The work of Lev Vygotsky (1978) has inspired new ways of thinking about the role of culture in learning and development; in the chapters to come, the reader will encounter some of his seminal ideas, such as "mediation" and "zones of proximal development," and be reminded of the importance he places on various tools ("mediational means") and forms of activity, such as play, as resources for learning and development. All of us in the field have also been influenced by theorists who argue that if an environment is to be conducive to development, social participation in activities that are meaningful to the participants must play a role. Within this broad orientation, which can be traced back to John Dewey, analysts have taken approaches with somewhat different core concepts and orientations, such as sociocultural studies (Wertsch 1991), cultural-historical activity theory (Cole and Engeström 1997), communities of learners (Brown and Campione 1998; Rogoff 2003), and communities of practice (Lave 1988; Lave and Wenger 1991). Whatever our particular theoretical emphases, our common roots lead us to think simultaneously about the social organization of activity, the various tools used to carry out the various tasks (computers, pencils, paper, task cards, wizard, modems), social roles, modes of participation, and the relation of the activity to its context. These common theoretical roots also influence our strategies for evaluating the effectiveness of the systems we design and implement.

PARTICIPATING RESEARCH GROUPS

The second major part of our strategy was to build diversity directly into the social organization of the research group that undertook the study. In the preface, we identified the heads of the nine research sites that participated in the larger group project, which we called the Distributed Literacy Consortium. We describe the individual sites and histories in chapter 3.

Initially we paired sites according to the research interests of the implementers, such as a desire to focus on writing or an interest in promoting bilingual/biculturalism. We discovered rather quickly, however, that these pairings restricted rather than expanded collaboration. What the full complement of participants in the Distributed Literacy Consortium manifestly did achieve was very wide representation of the kinds of institutions, subject populations, research foci, and institutional collaborations we sought to develop and understand (see table 1.1).

THE ROLE OF UNIVERSITY COURSES

As noted earlier, a basic design feature of the programs in each locale was collaboration between an institution of higher learning and a community institution. The college and university courses presented in conjunction with the programs were centrally important to the design strategy, and we present here a brief overview of what they entailed (for a more detailed examination of these courses, see chapter 7).

The common element in all of the college courses was that they linked students taking courses rich in theory to a community setting where those theories could be tested in practice. A great variety of academic departments offered courses for student participants in local Fifth Dimensions, including psychology, education, communication, human development, and linguistics. Common to them all was a theoretical portion conducted on campus (the usual book-reading and report-writing activities) and an inquiry-based laboratory portion conducted at the Fifth Dimension site. There the undergraduates were encouraged to link theory with practice, to explore concepts from their readings, to create their own knowledge, and to confront, analyze, and reflect on their conceptions of teaching, learning, and development as scientific and professional activities. In all their courses, students wrote detailed clinical field notes describing their experiences at the Fifth Dimension research site. Through these field notes students not only linked academic concepts to community-based practice but learned methods of ethnographic documentation. For several members of the research team, the field notes provided a crucial source of data about the workings of the system.

Table 1.1 Fifth Dimension Sites of Implementation

College or University	Site	Location	Community Center Type	Years Hosting Fifth Dimension	Age of Child Participants	Dominant Language	Culture or Ethnicity	SES
University of California at San Diego (UCSD)	Solana Boys and Girls Club	Solana Beach, Calif.	Boys and Girls Club of America	1986 to present	Five to eleven	English	Anglo	Middle- and working-class
UCSD	La Clase Mágica	La Colonia, Solana Beach, Calif.	Catholic mission	1989 to present	All ages, adults	Spanish, bilingual	Mexicano	Working-class
California State University at San Marcos (CSUSM)	Escondido Boys and Girls Club (Baker branch)	Escondido, Calif.	Boys and Girls Club of America	Seven	Six to twelve	English	Anglo, Latino	Lower-middle- and working-class
Michigan State University (MSU)	Cristo Rey Community Center	North Lansing, Mich.	Catholic Charities Community Center	Four	Six to twelve	Spanish, bilingual	Latino	Working-class
Erikson Institute	Le Claire Community Center	Chicago, Ill.	State-funded school-age day care	Five	Five to six	African American English	African American	Working-class

University of New Orleans (UNO)	Claiborne Elementary School	New Orleans, La.	Elementary school after-school program	Four	Six to eleven	Black English dialect, English	African American	Middle- and working-class
Appalachian State University (ASU)	ASU and several elementary schools	Boone, N.C.	Elementary school after-school program	1991 to present	Seven to twelve	English	Anglo	Middle- and working-class
Whittier College	Boys and Girls Club of Whittier	Whittier, Calif.	Boys and Girls Club of America	1993 to present	Six to twelve	English, Spanish	Chicano, Mexicano	Working-class
University of California at Santa Barbara (UCSB)	Boys and Girls Club	Goleta, Calif.	Boys and Girls Club of America	1994 to present	Five to twelve	Spanish, English	Mexicano, Anglo, African American Asian origin	Working-class

Source: Author's compilation.

In our initial work and reports on the Fifth Dimension, we tended to take the UC Links structure for granted and to focus on issues of pedagogy and sustainability connected with the community half of the system (LCHC 1982; Nicolopoulou and Cole 1993; Vásquez 1994). Over time, however, we began to recognize that both the nature of the interactions at the site and the nature of education at the university depended a great deal on the particular institution of higher learning involved, the department supplying the students, and the ways in which course instructors related to the use of community sites as laboratories for their students' learning. This point was driven home for us in many ways, but none more dramatically than in the failure of some of the initial participating institutions of higher learning to provide a steady flow of students; the subsequent lack of students was a major cause of the demise of some otherwise successful systems.

The sites we focus on in this volume are connected to a variety of university departments and thus differ in how they incorporate questions of learning, development, teaching, technology, and institution building. Another source of variation can be found in the individual courses, which naturally vary in focus as a function of their institutional setting. In chapter 9, where we consider the overall lessons learned, we discuss what we learned about the importance of these varying features.

TRYING NOT TO REINVENT THE WHEEL: OUR EMPHASIS ON SUSTAINABILITY

Central to our undertaking of creating a network of after-school programs using the resources of both universities and neighboring community sites for the mutual benefit of both was the goal of learning what it would take to sustain this new innovation, and then doing so. When we began the current project, we were especially mindful that because putatively successful educational innovations routinely fail (Sarason 1988, 1991), generations of well-meaning educators have repeated, often unknowingly, the efforts of their predecessors. Consequently, the problem of sustaining successful educational innovations has received too little attention from social scientists. The same lack of attention to sustainability is a characteristic of current discussions of successful after-school programs. Thus, even as we review specific questions concerning the implementation and evaluation of the various programs we created, we do so with an eye on the issues associated with the routine disappearance of even valued educational activities.

In our implementation of Fifth Dimensions, we decided to address the question directly, using the program as our candidate for "successful innovation." Our plan was quite simple: we would initiate Fifth Dimensions

in a variety of institutions to study the dynamics of their change—and possible demise—beginning with the period of their initiation and continuing at least to the end of their initial funding. We would rely on neither single anecdotes nor single cases. Instead, we would create a relatively large number of programs, and we would design both quantitative measures to monitor the relative success of the innovation in terms of the children's development and qualitative measures to index the dynamics of change. We would pay special attention to the periods of transition—particularly the period of implementation and then the dreaded day when regular funding came to an end—while remaining alert to the crises that could develop at any stage of the process.

With these goals in mind, we undertook an initial round of prototype design and research that preceded the research discussed here and helped to shape the organization of the current research (LCHC 1982; Cole 1996). During a year of planning begun in the fall of 1986, four community institutions (a school, a day care center, a boys and girls club [BGC], and a library) were exposed to a variety of potential after-school activities. All chose to initiate Fifth Dimensions. Three years later, when funding was greatly reduced and these four institutions had to take over greater responsibility for the activities, two of the four had already closed, a third was unwilling to take on the extra responsibilities and withdrew, and the fourth not only continued but expanded its activities. After a researcher who initiated a new version of the Fifth Dimension was hired as a faculty member at UCSD in 1991 (Vásquez 2003), arrangements were made for two departments to offer the required university practicum course for three quarters each year. In conjunction with an entirely different project, new Fifth Dimensions had also sprung up in Chicago, New Orleans, and Moscow, and a Fifth Dimension that served as a computer literacy class for a school was opened in a San Diego suburb in 1988 (for a review of these events, see Cole 1994).

At this point, the focus of interest had shifted and the current project began. We knew that Fifth Dimensions could attract children and that adults in charge of the activities found them useful. But we had too few cases to be able to make educated guesses about the range of community institutions that could put such activities together, the kinds of institutions of higher learning that would find them attractive for their students, and the combination of such factors that might lead to sustainable programs in some cases but not in others. We also had failed to solve to our satisfaction the problem of evaluating the consequences of participation for individual children. These became the critical issues that would engage us for the ensuing decade, at the end of which broader understandings emerged from the expanded collective of scholars who have contributed to this book.

OVERVIEW OF THE BOOK

The chapters that follow present the intellectual foundations and organizational work that have gone into our research on building, evaluating, and sustaining a system of effective after-school activities. Chapter 2 provides an overview of the general theoretical principles that guided our work. Brief descriptions follow in chapter 3 of each of the university-community partnerships, their joint experimental after-school activities, and their history over the life of the project and slightly beyond. Chapter 4 discusses the methodological challenges that confronted us, as they would any group of researchers who seek to design, evaluate, and sustain developmentally rich after-school activities.

Chapter 5 provides one set of responses to the challenges of evaluation. We summarize a series of experimental and quasi-experimental studies of changes in children's intellectual performance on a variety of specially designed and standardized tests conducted at a number of the consortium sites where such evaluations were possible. Chapter 6 focuses on the changes that occurred in interactions within a number of the local systems; these changes provide a close-up look at the proximal dynamics of change that can be plausibly linked to "cognitive outcomes," as measured by the psychological tests described in chapter 5.

Chapter 7 presents our studies of the Fifth Dimension as a form of educational activity for undergraduates in which theory and practice are wedded in a single course. This chapter provides, from a different perspective, usable methods for describing the changes that occur on the university side of the university-community system.

UC Links has spread well beyond the initiating group, and chapter 8 documents this transformation of the original idea into a worldwide effort that is no longer restricted to the after-school hours but has moved "back into school" in many locales. In this discussion, we review the status of the initial systems, providing a longer-term view of the factors that permit sustainability well beyond the expiration of external funding from project sponsors.

Chapter 9 returns to first questions. What began as an almost eccentric interest in after-school activities and their sustainability has now become a major issue at the national, state, and local levels. Our hope is that our experience of more than a decade of research, combined with the unusual diversity of the individual settings we created, can help to inform both the decisions of local communities that believe their children might benefit from after-school activities and policy debates about whether and when such efforts make a difference in the lives of children.