Afterschool Educational Activity: An Experimental System
(Report to the Spencer Foundation: Year 2)

The goal of this project is to create a community-based afterschool educational program using a strategy of "re-mediation" derived from a cultural theory of learning and development (Cole, 1988; LCHC, 1983). As outlined in our original proposal, we have set up afterschool educational activity systems in three community institutions and linked them through computer-based telecommunications to the University of California, San Diego. This report covers the second year of our project, during which we implemented the activity systems for the first time.

After presenting an overview of how the project stands and the immediate prospects for its development at the community level, I will briefly describe the evidence concerning the cognitive/academic development of the participating children. This aspect of the research is important for figuring out the usefulness of our theories of teaching/learning and the way in which computer-mediated activity may be useful in this process. After all, if the activities we create are not powerful means of promoting children's development, the growth of the overall system at the institutional and community levels will be of little importance.

Finally; I will summarize plans for the coming year, which will either "launch" this enterprise as a new educational innovation with its own motive power or replicate the sad prior history of such innovations. Either way, it will be organized to provide us with the most detailed information possible about the problems of creating educational change using this strategy of interconnecting community and university resources via

computers and telecommunications.

For those reading this report who are not familiar with the project's origins, we begin with a brief summary of the overall strategy and the first year of activity.

Overall Goals and Strategy

As stated above, the overall goal of this research is to apply the principles of cultural psychology to the design of afterschool educational activities in community settings. Cultural approaches to intellectual development focus on teaching/ learning interactions in specially constructed activity settings, paying close attention to the mediational means through which the activity flows and the quality of adult-child interactions.

The overall theory of development from which this work has drawn (LCHC, 1983) emphasizes that in addition to focusing on within-context interactions that promote development, which is the traditional focus of educational-psychological research on learning and development, one must **simultaneously** build upon the developmental implications of links between contexts. Hence, links **between** separate activity systems, including not only the target community, but UCSD as well, are to be studied and developed.

A specific methodological goal of this research is to provide insight into the perennial problem of efforts at educational innovation that involve non-school community institutions. Even when an innovation has proven successful in achieving the goals set for it by the researchers and the relevant educational staff it cannot be counted a successful innovation

unless it is subsequently taken up by the institutions into which it was introduced when external supports are removed. This problem is particularly acute with respect to under-represented populations in technological literacy (Cole & Griffin, 1987).

Mindful of this issue, the community institutions with which we began were told out front at the start that we would provide additional staff support for this work for only three years, after which UCSD would continue to offer courses that involved the community sites, but they would have to take over responsibilities to insure a healthy, ongoing, community educational activity system.

With this background, we can summarize briefly our experience during Year 1, which was designed as a year of system goal formation.

Year 1: Goal Formation

During Year 1 (1986-87) we conducted workshops for the potential first year sites – the local library, Boys & Girls Club, and Child Development Center – as well as for school personnel who offered their cooperation. We sought to help them formulate a clearer conception of what it would mean to have an educational activity centering on computers and communications in their setting. Strategic personnel in the different sites were introduced to a wide range of potential computer-based activities and encouraged to come up with local plans. Hands on experience with various kinds of software, and introduction to the telecommunications system were provided.

In September of 1987 we conducted interviews with those in charge at each of the sites in an attempt to help them to articulate their goals. The

interviews soon made it clear that they greatly preferred the most game-like and freewheeling of the activities that they encountered during the preparatory goal formation year, the 5th Dimension, a specially constructed ensemble of educational activities, many but not all involving computers and educational software (a description of the 5th Dimension will be provided below).

Overall, the site personnel had a good deal of difficulty anticipating just what they had let themselves in for, but generally speaking, they were excited about the idea of getting kids at their sites involved with computers and they were ready to undertake whatever the future brought.

Year 2: Getting Started

We agreed to start up three sites, two days a week, starting two weeks after the opening of UCSD. Three Solana Beach (population approximately 15,000) sites were involved- the Child Development Center (CDC), the Library (LIB),and the Boys and Girls club (B&G). The school system, in the pinch, pulled back, offering only to support the efforts at CDC. The fourth site is UCSD itself, located 10 miles south of Solana Beach.

Figure 1 provides a schematic map of the overall system. It shows the three community institutions with which we began implementing the activities in September, 1987. It shows as well the way in which two of the sites and the university were linked to each other using telecommunications facilities.

The core activity: The Fifth Dimension. As described in our initial proposal, we have developed an educational activity that we somewhat fancifully call "The Fifth Dimension" which is a deliberate blend of

OVERALL MAP OF PROJECT

SOLANA BEACH COMMUNITY

CHILD DEVELOPMENT CENTER
5th Dimension

BOYS & GIRLS CLUB
5th Dimension

LIBRARY
5th Dimension

BULLETIN BOARD

CHILDREN IN FAR AWAY PLACES

UCSD
PRACTICUM CLASSES UNIX SYSTEM LCHC RESEARCH GROUP

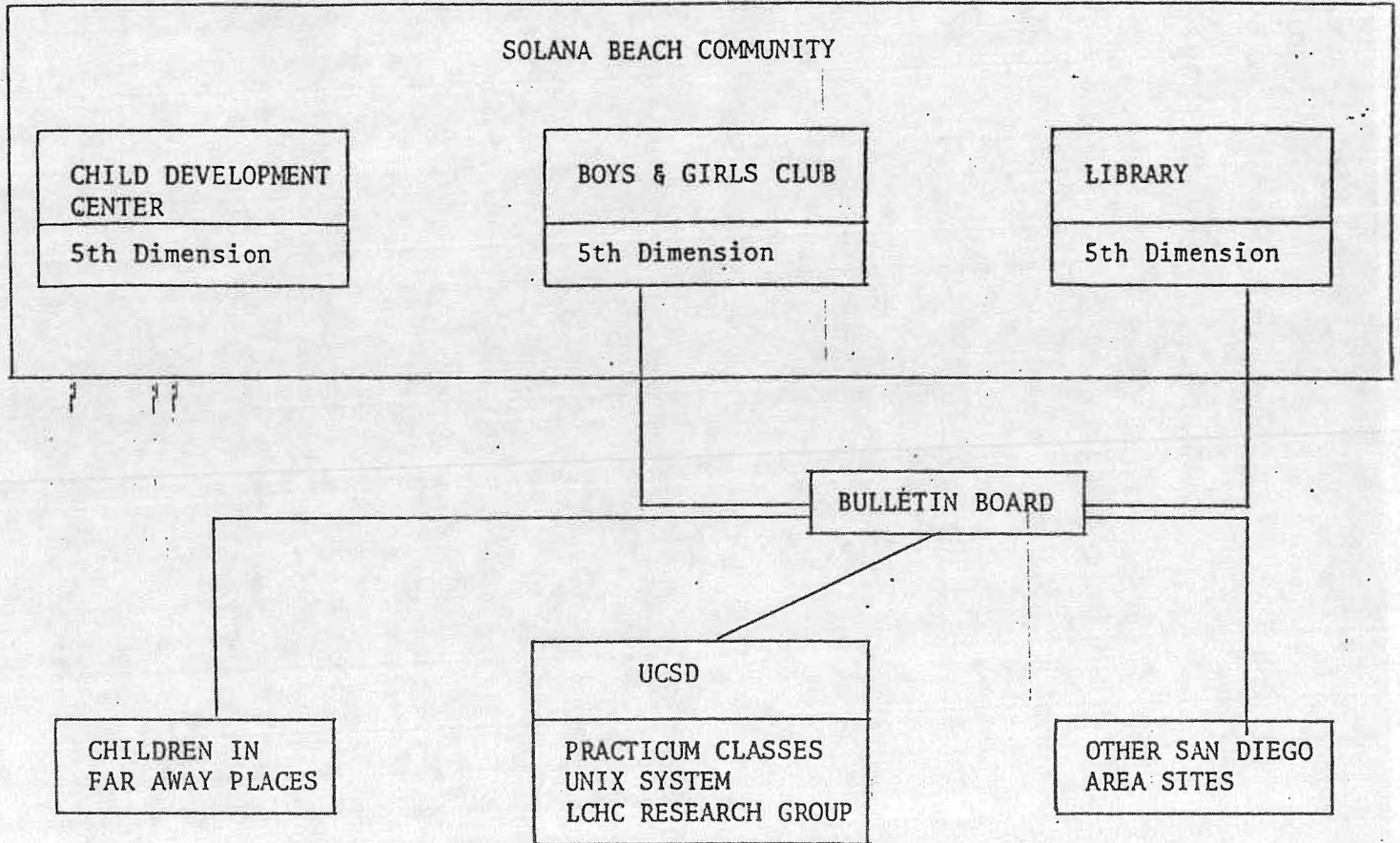| OTHER SAN DIEGO AREA SITES |
|---|

Figure 1: Overall map of project

serious, academically-oriented work and fanciful play of the "adventure game" variety. The actual embodiment of this system varies from one application to another, but at each of our sites it consisted of a maze of "rooms" mounted on poster board with various entrances and exits (see Figure 2), 4-6 inexpensive computers (primarily Apple II+'s and IIe's), a constitution, putatively written by a Wizard who is in charge of the activities in the 5th Dimension, task cards associated with each room which specify the child's choice of activities in that room, and consequence cards, which specify what rooms the child can travel to next, given various levels of performance in the tasks they encounter.

Of the 20 rooms in the 5th Dimension, approximately 15 directly involve working with/through a computer. Precisely which games are included in any instantiation of the 5th Dimension varies from one application to another, but for illustrative purposes, Table 1 contains a list of the software and non-computer games that were in use at the end of the school year. I will use this list to illustrate how the 5th Dimension is used and how it is modified in the course of its use to fit local institutional goals.

Suppose, for the sake of illustration, that the child enters a room which contains two games, "Alpiner," a video game with no apparent educational value, and "Island Survivors" which was designed as a part of the Bank Street's "Voyage of the Mimi" educational television series/computer involvement package.

If the child chooses to play "Alpiner" s/he begins by looking up the task card, finding out what kind of a computer it runs on, getting the disk or cartridge, booting up the game, and fulfilling the task specified on the
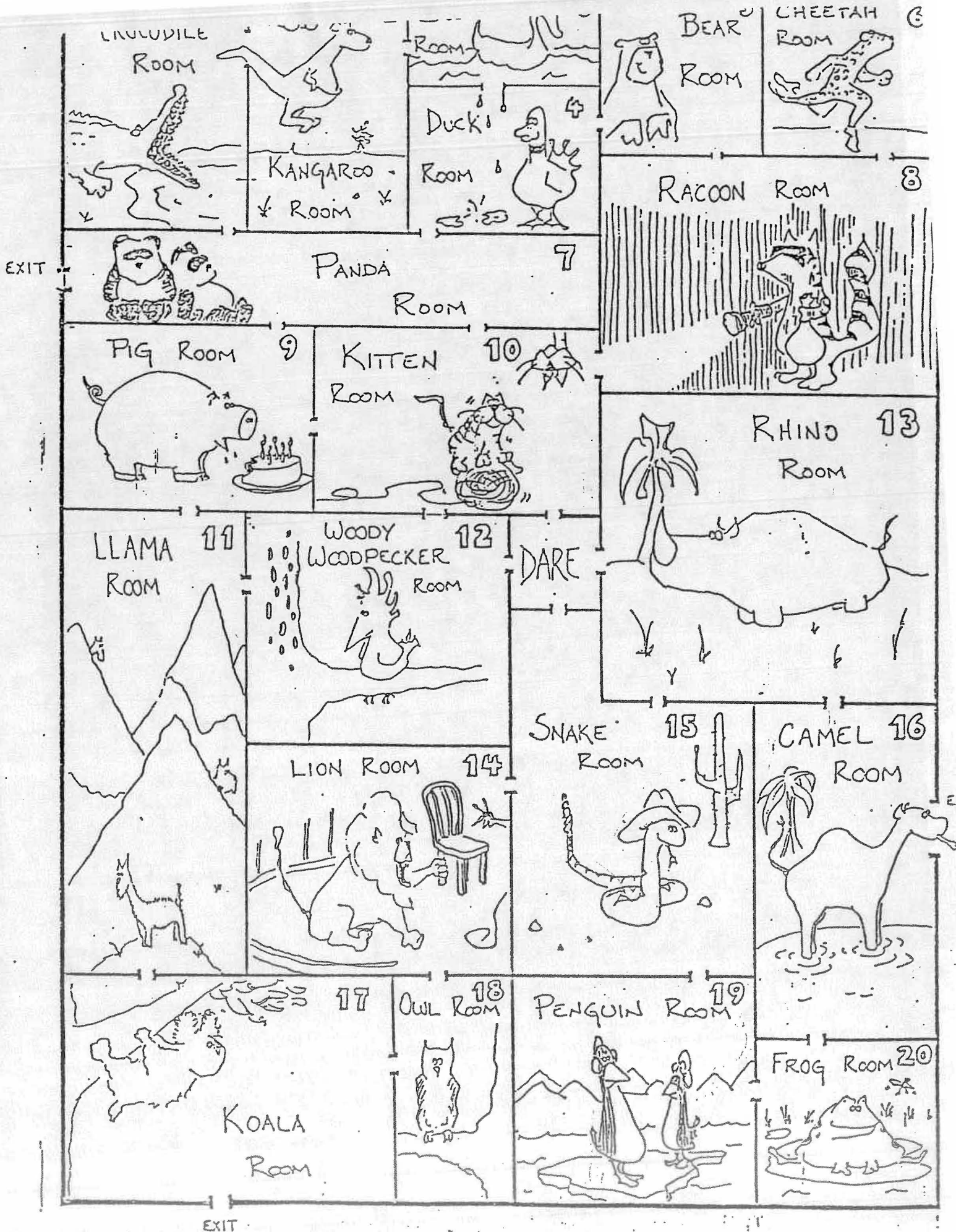
CROCODILE ROOM

KANGAROO ROOM

Room

DUCK ROOM
4

BEAR ROOM

CHEETAH ROOM
6

RACOON ROOM
8

EXIT

PANDA ROOM
7

PIG ROOM
9

KITTEN ROOM
10

RHINO ROOM
13

LLAMA ROOM
11

WOODY WOODPECKER ROOM
12

DARE

SNAKE ROOM
15

CAMEL ROOM
16

LION ROOM
14

KOALA ROOM
17

OWL ROOM
18

PENGUIN ROOM
19

FROG ROOM
20

EXIT

Figure 2: Map of the 5th Dimension

COMPUTER ACTIVITIES

Software	Description
Alpiner	Arcade type game; Player tries to climbs up a mountain.
Attack	Arcade type game; Player tries to shoots the enemy.
Aztlan	Arithmetic software; Player is an Aztec King, who is managing a kingdom. The player stores and grows grain for the kingdom to survive. (Software in both English and Spanish)
Black Boxes	A logo program that players try to discover what the program is doing.
Carmen Sandiego	Player is an investigator tracking a criminal across the world.
Chisolm Trail	Arcade type game; Player shoots cattle rustlers.
Computer Math II	Arithmetic software.
Connect 4	A 4-way tic-tac-toe game.
Decimals I	Arithmetic software.
Dragon Mix	Arithmetic and arcade type software.
Dr. Oz	Arithmetic software.
Face Maker	Player designs faces and then programs the faces to make expressions.
Factory	Player designs products by choosing different machines. The machines teachs the player about angles, rotation, and degrees.
Geo-Supposer	Software teaches about geometry.
Graphicas	Player reads and interprets simple graphs in English or Spanish.
Hurricane	Player must calculate the distance to an Island and the boat speed so that s/he can survive by reaching the Island, before the Hurricane strikes.
Island Survivors	Players are marooned on a Island. They pick plant and animals species and try to survive on the Island for one year.

Karateka	Arcade type game; Player uses karate to rescue a captured princess.
Lemonade	Arithmetic software; Player is running a lemonade stand. Player must take into consideration cost and assets and weather in determining price. (Versions in both English and Spanish).
Logo Writer	Children learn how to make logo programs and designs.
Marketplace	Arithmetic software. Supply and demand. (similar to Lemonade)
Mash	Arcade type software; Player tries to remove operate on patients.
Master Type	Typing program.
Match Game	A matching game (like Concentration).
Missing Links	Player is given a passage of text which letters are left out. S/he fills in letters to read the passage.
Mystery House	Adventure game; Player is in a house and trying to find the lost jewels.
Odell Lake	Food chain software; Player can chose to be one of five fish. The player tries to survive and not get eaten by another fish.
Oh Deer	Player manages a deer herd.
Oregon Trail	Player attempts to go from Missouri to Oregon and learns to budget for long trip.
Pirate's Gold	Player users a graph to find the lost treasure.
Pond	Player figures out a maze so that a frog can get across a pond.
Printshop	Software for making banner, cards and signs.
Rescue Mission	Simulation game; Players are in search of rescuing a whale caught in a fisherman's net. Players need to calculate and navigate so that they can rescue the whale.
Shark	Players learn about the x,y axis to harpoon a shark.
Spaceship	Memory game; a player remembers a list of items and compares them to a list presented.

Spiderworld	Player designs patterns on a grid by programming the spider.
Tombstone City	Arcade type game; Players are in a city and attack enemies, who are trying to destroy the city.
Word-a-mation	There is a list of words where the player determines the relationship. (ie. antonyms etc...)

NON-COMPUTER ACTIVITIES

Game	*Description*
Battleship	Requires at least two players. Each player sets up ships on the x,y axis. Each players ships are hidden from each other and they try to sink each others ships.
Boggle	Consists of 16 dice arranged in a grid. Each die contains letters. Players try to make as many words using adjacent letters before time runs out.
Grandmother's Basket	Players try to figure out a letter pattern of things that can go into Grandmother's Basket.
Mastermind	Requires at least two players. One player makes a four color code. The other player attempts to guess the code in eight guesses.
Match 23	Players use 23 sticks. Players can pick up between 1-3 sticks in one turn. The player who picks up the last stick loses.
Olympic Workout	Players create their own exercise or do another child's exercise.
Origami	Players learn the Japanese art of folding paper into animals and other objects.
Othello	Requires two players. A child's version of Japanese game Go.
Pig Latin	Players try to figure out the rules pertaining to the language of Pig Latin.

card at one of three levels. In the case of "Alpiner" these tasks are:

Beginner: Climb Mt. Hood and the Matterhorn. Then find these two mountains on a map.

Good: Complete the beginner level and climb Mt. Kenya and Mt. McKinley. Write to the Wizard and tell him the hazards of climbing.

Expert: Climb all six mountains in round one. Report the heights of all the mountains to the Wizard and explain the strategy for the game.

Even the beginner level offers challenges to the children (and, for that matter, to the adults who are their guides and helpers). The game requires some manual dexterity and concentration. Typically, a child approaches this task in the company of another child (as a rule the children work in pairs) and a UCSD student who is there to provide help and encouragement (and to take detailed field notes for later analysis). The small group working at the computer works as a team, dividing the labor. The rule of thumb which the adults use is to provide as little help as they can while assuring that the children are maximally involved in fulfilling the tasks; the spirit is to shift control of higher and higher levels of activity to the children while maintaining a positive atmosphere of engaged problem solving. Very often, a genuine division of labor is required because the children are more skilled at the mechanics of the activity than the adults, while the adults are better at forming strategies and keeping the larger goals in mind. This configuration of the activity is intended to provide flexible "zones of proximal development," a term we have adopted from the work of Vygotsky and his students (Luria, 1977; Vygotsky, 1978).

It should be noted that at every level, the task card requires the children to move outside of the framework provided by the software. In some cases, the task is to use other sources of information such as maps and encyclopedias. In other cases the task is to create an alternative representation of the problem (as in cases where children are asked to draw a map). Very frequently, the good and expert levels require that the children write a letter to the Wizard, who runs the 5th Dimension, describing the contents of the activity or the strategies involved. Often the task card will refer the children to a notebook that contains the files of other children's letters as sources of information to help them attain higher levels.

The "writing to the wizard" activity is central to our strategy in several ways. First, the tomfoolery of maintaining the fiction that the whole system, including the adults "work for the wizard" helps to maintain an easygoing, play-like atmosphere, even though the children often find it genuinely difficult to do the intellectual work involved. Second, since it is the Wizard, and not the local adults who are in charge, and since the Wizard exists as an electronic entity in the communication network, there is a genuine need to communicate in writing. One can chat with the Wizard live through the computer, but that requires writing too. Third, since power resides ultimately in the Wizard, the local adults have many opportunity to side **with** the children **against** authority, creating additional resources for genuinely productive educational interactions. The Wizard, of course, writes back to the children, congratulating them on their achievements, chiding them for not writing clear descriptions of explanations and asking for more information, and suggesting new goals within the game and the 5th Dimension as a whole that the children might enjoy pursuing. (See Appendix for a more extended discussion of the

work of the Wizard.)

As a consequence of the re-embedding power of the 5th Dimension as a culturally embodied metaphor, the fun and challenge of the arcade-like "Alpiner" is transformed into an activity of greater potential developmental and academic significance.

The re-embedding role of the 5th Dimension operates in quite a different way with intendedly educational computer- based activities. We can illustrate two such transformations using as examples "Island Survivors," a game that was intended as part of another educational activity, and Dragon Mix, which is an arithmetic drill-and-practice game.

Island Survivors is an ecology simulation game in which three humans are marooned on an island. The players must choose species of plants and animals to inhabit the island with them, and then attempt to survive (which implies that they avoid decimating the food sources they confront). Devoid of the context of the Mimi series, Island Survivors can easily deteriorate into a low level activity that focuses on the manual skills of fishing, hunting, and foraging, which have arcade game-like qualities. The goal of surviving may not arise before the children get bored, the nature of the ecological constraints provided by different flora and fauna choices may be ignored, and the growth-enhancing potential of the game is then lost.

To counter these problems, the task card for Island Survivors reads:

Beginner: Play Island Survivors. Tell the Wizard what animals and plants you chose and what happened during the game.

Good: Survive for at least 4 months. Write to the Wizard about the land and pond animals and the plants you chose. Choose one

animal and look it up in the encyclopedia and reveal your
information to the Wizard.

Expert: Survive for one year. Tell the Wizard what strategy and
techniques you used to survive.

In this case, the Wizard, who takes a special interest in Island Survivors because it offers excellent opportunities to get the children to reflect on general principles, is likely to write back to the children suggesting that they try to survive on a "hard" island in order to get them to explore the ecological constraints more. Or, the Wizard may send the children a configuration of plants and animals that have been struggled with by children in other locales, asking for help.

Dragon Mix is a quite different kind of educational activity requiring a different kind of re-embedding in the 5th Dimension. In this case, a drill-and-practice game designed to produce rapid and automatic knowledge of elementary multiplication and division facts must be imbued with more meaning than the software affords, and the children must not have to be bribed or badgered into rote drill and practice.

In this case the task card provides the children with a number of local goals that foster self-evaluation and discussion of the activity with other children. (To facilitate interpretation of the task card, the reader should imagine a dragon flicking its tongue at spaceships threatening his city. When he flicks his tongue at a particular problem (e.g. 5 x 5) that corresponds to an answer flashed on the screen (e.g. 25) the spaceship is destroyed. If the dragon does not flick the correct spaceship in time, a building is destroyed. The software contains levels of its own that are incorporated into the task card.)

Beginner: Play the game once at skill level 1, problem range 3, run time 2. Write down how many hits and how many misses you made and how many buildings were destroyed. Play the game until you can increase your hits by at least 20% and decrease your misses by at least 20% without losing more buildings.

Good: Increases skill level and adds "send a challenge to someone in the room."

Expert: Do the good level AND make 3 new games at higher skill levels or higher problem ranges, and play until you get to your high level of hits and low level of misses. Send a challenge to other children and try your new game when they get to this room.

Even in the reduced form of the task card it is clear that Dragon mix is a very different game in the 5th Dimension than in a stand-alone setting, whether at home or in school. The children must not only track themselves, they must learn (and UCSD undergraduates must often relearn!) how to calculate a percentage to determine the amount of improvement. Very often the children and students would divide the labor, one calling out the target answer to save time, another suggesting a strategy of sweeping the field of vision in an efficient way, still another warning of a "hostile" number combination getting too close, etc.

It would be possible to continue enumerating the ways in which individual activities within the 5th Dimension are designed for maximal educational power. Here I will only comment that at any one time 4-8 such activities are going on at one time. Small clusters of children and perhaps an adult are to be found at each computer and in one or two non-computer activities. One computer is connected through a modem to the

children's bulletin board or physically located in a VAX computer at UCSD. It is being used for a live chat with the wizard, who appears on line from time to time. Children, helped by adults, send messages to the wizard or to other children in the system, and read their mail. A "site coordinator" moves from one place to another, helping where needed, talking with local site personnel about the progress of the 5th Dimension within their institution, jotting down problems that need to be taken care of, and so on.

From all of this bustle, all adults who attend the site, including LCHC staff, visitors, and UCSD students, write field notes which are sent on the Unix system to a central account where they are read, commented on to the writer, and filed as data. Each field note is coded with the names of the observer, the children worked with, and the activities, including special characteristics of the children's interactions and levels of achievement. These field notes, supplemented by the records of children's achievements that are a part of the everyday running of the 5th Dimension, then form a basic data base about the growth of the individual children and the site-based activity systems as a whole.

Although the 5th Dimension formed the core of the activity in each site, it would be completely incorrect to summarize the project entirely at the level of 5th Dimension activity. To work as an educational innovation, whatever its merit as a project on creating small group educational activity systems, the overall strategy of the project to reorganize inter-connections between institutions must be kept in the forefront because without such reorganization there is little chance that the site-level activities will continue to develop after our project is over. With this in mind, I now turn to examining the growth of the system with a site that has so far been given little attention, the UCSD site.

UCSD site. The involvement of UCSD students in the project is central to the project for at least three reasons.

1. The final, steady-state system envisions UCSD students getting research experience in the community as a part of the regular education, providing thereby a long term benefit to the University.

2. The students make it possible to create the needed systems properties of the planned educational innovation, allowing us to conduct research on the properties of educational activity mediated by computers that make them developmentally powerful.

3. Structural barriers to uptake of the University part of the system (in particular, to institutionalize support for classes, to provide computer resources, etc.) are no less fraught with difficulties and no less important than those on the community side of the system we are attempting to create and analyze.

As a matter of practical necessity, actual implementation of the activity systems requires the participation of the students. Moreover, to be practical in the long run, the involvement of students has to fit the rhythm of the UCSD quarter system. This means that before we can initiate activity at the sites, we needed to enroll students in the course, initiate them into the kind of activities they will be engaging in, and train them in the minimal skills necessary to implement those same activities. As one student summarized the process in a final evaluation of the course taught in September, "The class started in a cloud of dust."

The details of this process are not crucial: schedules for students to spend time at site had to be worked out, most students had to be taught

the rudiments of using Apple software, the Unix system (which they would use to send in their field notes and communicate with the children), basic procedures for note taking, and some background in the psychological theories underlying the activity.

At the end of the two weeks, somewhat timorously, they were ready to venture out into the sites and set up shop. Over the course of the next two months, they went to site twice a week, submitted fieldnotes following each visit, and engaged in a teleconference about the class.

This same procedure was repeated twice during the year, at the start of the second and third UCSD quarters, which followed the Christmas and Easter holidays respectively. The course structure is such that students can engage in it three times during the year. Consequently we had several student "repeaters" which led to a steady increase in the sophistication of the student participants. Each quarter approximately 25 students were involved, which, counting repeaters, meant that about 60 UCSD under- graduates received experience of this kind of "theory and practice" education. As a result of student fieldnotes alone, we have a data base of over 1000 observational sessions with children extending over an eight month period. Analysis of this corpus is just now getting under way.

The overall growth of the community systems. There were significant differences between sites in the way their educational activity systems evolved that are important to understanding the dynamics of the overall system's growth. But as a summary, we can say that two of the systems (LIB and B&G) underwent very significant develop- ment during the year, while one (CDC) grew haltingly. I will first summarize first the development of the CDC system, focusing on the systems barriers that caused it to atrophy. Then I will describe the

development of the two systems with which we finished the year. The dynamics of growth in the latter two systems is sufficiently different to provide important insights into the properties of activity systems that we must achieve in order to produce successful uptake and diffusion.

CDC. As indicated in earlier documents, the CDC is a city-run child care center which gets part of its funding from local government and part from parents. During the afterschool hours, children are bussed directly from school and the Center is legally responsible for their welfare. Parents come by for the children on their own schedules, so children often do not stay for long.

Children enthusiastically volunteered to "do computers." Because the demand far outran the supply of openings (eight at a time) the caretakers arranged for eight children to come on Tuesday and another eight on Thursday. Then, after 10 weeks we would give access to 16 different children.

A special characteristic of these children vis a vis children at other sites was their young age: 5-7 years for the most part. The children took readily to the 5th Dimension, and were easy to engage in activity that elaborated on it: coloring pictures of the animals corresponding to the rooms, for example. They had more trouble (and so did the undergraduates) with their computer- based activities, although these generally went well from the children's point of view.

The difficulty from the adult point of view centered on the fact that they had access to individual children for too little time to enable them to shift control of the activities to the kids; the combination of the children's youth, which the software was not entirely appropriate to, and

the fact that children came so seldom, meant that the children had too little chance to gain entry-level mastery.

These problems were far from insurmountable. As we shall see in reviewing the other sites, the initial configuration of activity chosen by the site can be a useful jumping off point for the growth of a new, "indigenized," activity system. But crucial features of the CDC context **outside** our educational activity system itself, were limiting its growth.

Perhaps the most crucial indicator of the difficulty encountered at CDC was our failure ever to create a link-up with our node computer at UCSD. There were, to be sure, as the sociologists put it, many "good institutional reasons" for these difficulties. The CDC is under the wing institutionally of the Solana Beach School system, whose phones it uses. This system is very difficult to interface with a telecommunications line as a consequence of the internal workings of the school system's phones, which the school system was not about to change for a program focused on **after**school activity!

We offered several solutions to this problem (including the offer of a special line to be put in at Project expense so that we could institute the kinds of inter-site interaction that we deemed essential to the effort). No such line materialized.

We see this failure not as any indication of ill will, but rather the extreme difficulty the CDC experienced in admitting us into itself. As a practical, day to day, matter, the preoccupation of the staff of CDC is to see that no children hurt themselves on the premises and that none are allowed to come in contact with non-CDC adults. To this end, before they could go to CDC all staff and students had to be finger printed and given a

TB test. A special statement of responsibility had to be written by the project director.

At the end of the second 10 week session, the difficulties being experienced by CDC staff were apparent. Consequently, I visited the Directress of the Center to suggest that we suspend operations for the Spring Quarter. She was greatly relieved. She thought the activity was wonderful for the kids, but the hassles it caused her in worrying about all the people coming and going left her in a constant state of work overload. We agreed to review matters in August, 1988, which is where things stand at present.

The Library. I will describe the LIB and B&G sites separately, because the dynamics of growth and the quality of interaction within each site were somewhat different. However, each in its own way illustrates the healthy growth of the kind of activity system we were attempting to cultivate. As time went on, they also began to develop connections among themselves, providing the first offshoots of what might develop into a community- wide program, or at least a wider one.

While we had full cooperation of the Library staff as well as county-wide Library officials, who were interested in what we were trying to do, the major community force that supported our work was the Friends of the Library. With their help, things had advanced by the time we arrived to the point where a Kaypro computer, complete with modem, housed in a very useful box-stand, greeted our arrival. Moreover, a TV was available in one corner, which could be attached to a computer. A space somewhat out of the way was set up for the 5th Dimension, and recruiting of children began.

Unlike CDC, where recruiting was unnecessary because the children's

presence was more or less legally guaranteed, or B&G (to be described below) where children came and went as they pleased in more-than-abundant numbers, at the library the kind of activity we were proposing was a totally new way of being in the library. Typically, when school-age children are in the library, they are brought their by their parents (remember this is Southern California!) unless they happen to live nearby and are old enough to navigate large boulevards.

Referring to Figure 3 you can see the growth of the LIB site attendance week by week during each of the three 8 weeks sessions. Starting with the fall, one sees the system grow steadily until it is running at about 90% of maximum. These children were recruited initially by talking with parents as they came to the library, telling the schools that the program was available, and announcing it in a Friends of the Library Newsletter.

By agreement with the Library staff, the same eight children came twice a week. Although the number of children involved was therefore small, we were uncertain at the start just how large a group the library could contain (even eight excited children can be pretty noisy for a library). This strategem allowed both the children and the researchers the kind of density of exposure that the CDC lacked. The consequence was the development of a rich culture of participation by the children who did come. These children became deeply immersed in the rules and procedures of the 5th Dimension.

Evidence of uptake by the Library appeared early. Although a special telephone line, long promised, was not there, because of bureaucratic problems at the County level, the Library staff allowed us to use their phone to connect with the UCSD computer and we arranged for some live chats with the Wizard, which enhanced the children's engagement in the
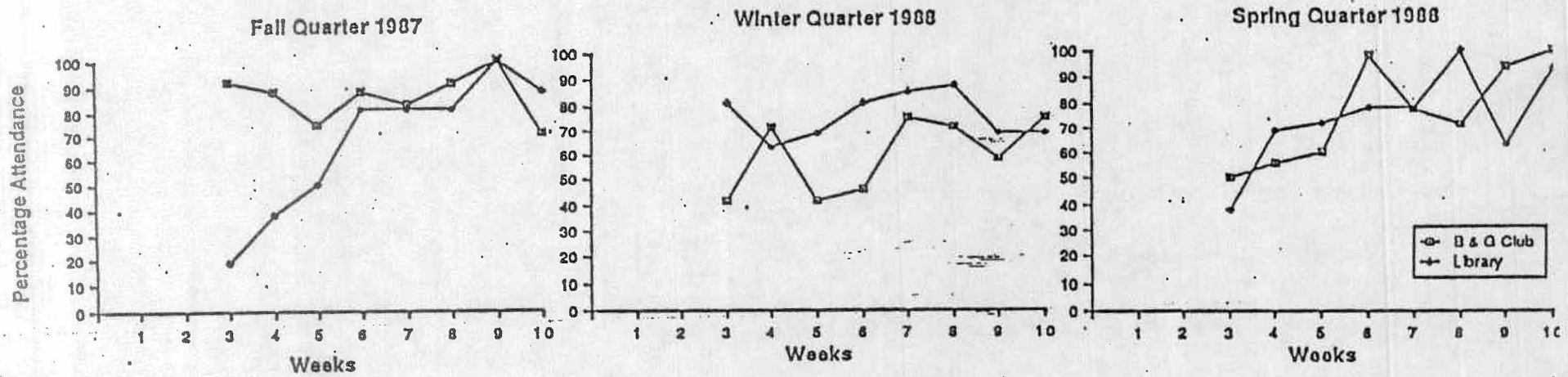
Figure 3: Attendance at the Boys & Girls Club and Library

overall activity. Late in the first session, a phone line just for the computer activity was installed and its costs picked up by the Friends and the Library itself. Not long after this, several usable Apple computers were donated to the Library by one of the children's parents. It took a while to get the computers running, but during the second session, the Library became self-sufficient in providing the material infrastructure for its own system.

Another, and more complicated indicator of system growth was that we had a long waiting list of children who wanted to participate in the system, but could not. To meet this demand during the second session, we expanded the Library activities to four days a week, but on the two additional days, instead of the 5th Dimension, we instituted a "homework hotline" where children could get tutoring help from the UCSD students and from the online-wizard, who engaged them in discussions about their homework, gave hints about finding more information, etc. This was a holding action on our part, since we were not prepared to run the 5th Dimension four days a week, but it proved reasonably popular with the children. Note however, that the smaller attendance on the two "hotline" days, which was designed for fewer children, reduces slightly the overall attendance level, taking the full 5th Dimension system as the norm.

For the third session, since we had freed time and resources owing to the closing of the CDC site, we decided to have the full 5th Dimension four days a week (our "full time" norm). A firm culture of use had built up for the Tuesday-Thursday, children, some of whom were on the verge of "graduating" to higher levels of systems participation, and parents were fully supportive. But no such culture existed on Monday-Wednesday. We decided, in filling in the system, to address a problem hidden in our

success; there were virtually no Hispanic kids from the community involved. We remedied this inadequacy and filled out the system by contacting Hispanic school personnel who then recruited several youngsters. The initial drop in apparent participation in session 3 seen in Figure 3 reflects this period of expansion and reorganization. By the end of the session, we were again running near capacity. It should be noted, however, that to the end of the year the Hispanic kids were somewhat shakily at the Library because their families found it more difficult to coordinate around the activities schedule.

The negative note at the Library was the slow buildup of a support system in the form of volunteers to work with the children in addition to UCSD undergraduates. We did get considerable adult help in the form of equipment and at present we have one parent volunteer. This aspect of the program will be a point of heavy emphasis in the third year.

The B&G Club. The situation that greeted us in the B&G was unlike anything we had experienced before. We knew from our first year of work that this well-appointed community center took in kids from 6 years to early teens, keeping them busy with athletic games and shop activities. We knew that the population served was very diverse, varying from the affluent to the economically depressed. We knew that lots of kids flowed through the Center daily.

What we did not anticipate was the fact that according to the standing norms of B&G, kids could come and go as they pleased, and if lots of kids came, it was expected that we would accommodate them. This circumstance shows itself clearly in Figure 3 where B&G is running at 80-100% of estimated capacity (12-14 kids at a time) from the very beginning. Moreover, this attendance figure fails to show all the children

who passed through the activity in a casual way whose presence was not recorded owing to systems overload. By the end of 10 weeks, more than 60 children had been at least registered in the activity setting, and more than a dozen were regular attendees.

Compared to the other two settings, the children at the B&G were an exceptionally heterogeneous lot in more than the age span. A few of the children, who were among the most devoted to attending, were clearly developmentally delayed, while others were precocious to the point where we had to develop more sophisticated activities for them.

During the first session there was no telephone line available in the space allotted to the computer activities, but the staff allowed us to use their offices to connect with the wizard. This expediency held in the idea of telecommunications, and children received computer printouts of notes from the Wizard, but overall, the power of the Wizard to structure children's activities around the educational goals of the 5th Dimension was reduced.

At the same time, the sheer flow of kids created difficulties that were a combination of those faced in the Library and CDC. Like CDC we had an overflow of children desiring to participate and it was very difficult to get enough density of experience with the children to cultivate their deeper penetration of the activities. However, several circumstances made the outcome of these difficulties different.

Most important, the staff of the B&G fully supported the need to set up telecommunications links and raised the money to do so over the Christmas break. Secondly, the children, being older, came and went on their own more or less, and those who wanted deeper involvement could

get it....if we moved to four days a week. This is what we did.

At the same time, the procedures for running the 5th Dimension which worked at both CDC and LIB were breaking down under the load imposed by the high level and rapid turnover of children's involvement. This breakdown was felt acutely by the students and staff working at B&G and it finds expression, too, in the fact that attendance during the second session was generally lower than during the first session. Too often children and staff became tied up in confusion as they tried to implement a system that was too cumbersome for them (I might note here, that the UCSD students them-selves had a lot of learning to do, and were not able to hold together their roles, which further eroded the system).

We watched this situation develop during session 2 and pondered a solution. Part of the solution was to expand the activity from two to four days per week. This allowed us to spread out the kids' attendance somewhat more, but it was not sufficient. So, in addition, we somewhat simplified the system of access to the 5th Dimension and created a slightly handier way for the children and UCSD students to maintain continuity from one visit to another. This new system, while it had some negative features that we are currently working on, achieved its primary goal of coordinating children and students around effective computer-mediated activity.

Another important factor promoting growth of the system at B&G was the installation of a phone line in the room dedicated to computers. Now for the first time, children could log on and receive/send mail. This system grew steadily in popularity, especially among young adolescents who until that time had been in short supply among the devotees of the 5th

Dimension. B&G also have started to obtain their own computer, moving toward fulfilling their uptake obligations.

Telecommunications

During session 3, when both the LIB site and B&G were beginning to use the telecommunication system, we began to introduce them to the idea that there was a single computer network for Solana Beach of which they were a part. Moreover, they learned that through telecommunications they could write to each other in addition to the Wizard and that there were even children in totally different locales-- other parts of the San Diego area, other parts of the country, and other parts of the world, to whom they could be writing and sharing experiences with. Children in the different sites began to send mail to each other and to other sites. During April, May, and early June the flow of traffic in telecommunications grew from a total of about 25 messages a month to an impressive total of almost 600 messages a month (which amounts to approximately about 33 messages a day, of which 10-15 each day were from each of the Solana Beach sites).

During this same period, the children received a reasonably steady flow of mail from the Wizard in response to their letters. They reacted to this exchange with the Wizard in a variety of ways. The fieldnotes are full of descriptions of the children laboring over a letter to the wizard and getting help from the adults present. There are also many occasions on which the children would read their mail from the wizard aloud and discuss with each other the nature, virtues and vices of their electronic interlocutor. (For the quality of interactions involving the Wizard, see "The Work of the Wizard" in the Appendix.)

Individual Change

As indicated in the original proposal, one goal of our research is to document the developmental power of the teaching/learning activities that take place in the 5th Dimension by showing how it promotes the development of individual children.

The evidence we sought to collect was of two kinds. First, using field notes about task performance and the children's written products, we hoped to document not only the progress of children through the maze of activities, but quantitative and qualitative shifts in the level of respon- sibility they took for their own work. Second, we wanted to track the progress of these children at school and in the home setting to see if a few hours a week of involvement in our settings produced effects that were detectable elsewhere.

Having read spent a great deal of time at the sites myself and having read hundreds of field note descriptions, there is little doubt that for most children most of the time at lot of learning was going on. Any visitor to the sites immediately gets the same impression; the children behave in a carefree manner, but there is little rough housing and virtually no time spent in disciplining children. In each of the sites, several children progressed very far into the maze of activities, and several children "graduated" by sampling all of the activities and completing the majority of them at the good or excellent level.

At the same time, the children learn a good deal, in an informal way, about how computers are set up, software loaded, modems attached, bulletin boards accessed, and so on. The overall level of expertise among the children rose to the point where we found it necessary to modify task

cards, find new software, and institute such "advanced" activities for "graduates" as logo programming and newspaper production. Needless to say, we were gratified by this pressure for upward intellectual mobility.

Unfortunately, at present I cannot report on the children's progress one-by-one. We stopped running our third session only two weeks ago and we are currently dividing out time between making sure that all of the data are entered into the data base and getting prepared for a 5 week special summer program of the 5th Dimension, which will begin July 5th. By the end of the summer, we should be able to construct learning curves based on this years work, but we are not there yet.

What we did **not** succeed in implementing during the year was systematic data collection from the children's classroom's or from a comparison group to determine whether there was evidence of transfer outside of our activity settings (informal data in the form of interviews with parents and staff at the local sites indicates that **they** believe there to have been marked progress with several of the children outside of site, but hard evidence in the form of grades or comparisons with children who did not attend site is still necessary). It was for this reason that I requested a supplement to my initial grant.

At present, we are focussing on the evidence at hand; how we will handle the issue of describing individual change will depend to a considerable degree on the resources available for next year.

Prospects for Year 3

In Year 3 we will build on the accomplishments of Year 2, attempting to maintain the activity centers at the B&G and the LIB, and to grow at least

one more activity center in another institution. Our inclination at present (we are in the process of discussing options with community folk) is to start up a center in a church; which church is the question. At the same, time we are already advising B&G clubs and Libraries in neighboring communities about how to start their own programs (we have had several initiatives along these lines, but have generally fended them off up to now).

We are starting the year by running a five week summer program at the B&G Club site, to which children from the Library (as well as the "kids on the street" are invited. We took on this extra period of site work because we feel that we are at a crucial juncture in building community support, and we do not want it to dissipate over the summer months.

The biggest "if" about next year concerns our ability to construct an experimental group/control group contrast with respect to children's cognitive gains and the equally time-consuming task of psychological analysis of the children's computer-mediated activities.

The starting point for this work is the data base we have amassed this year from in-site observations. All of these data are now in the computer and are almost coded up for systematic analysis. That task will run in parallel with our summer activity at the B&G Club and preparations for next fall. Hopefully we will have a well-worked out model of data analysis on the existing corpus by September, into which next year's data will be fed from the start.

At the other end of the research spectrum, we will be focused on community uptake both within the individual sites and across sites. Success at both levels is the goal, along with a detail account of the

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APPENDIX

At several points in the main body of the report reference is made to a Wizard. In this appendix I want to write seriously about the idea of the Wizard and the role of the Wizard in our work. The reader will please bear with me, as I provide the overall justification for this apparent irreverent tomfoolery. Then I will provide a sample of electronic mail, both letters and fieldnotes, to indicate how things look in practice.

The Flow of Activity in the System

In many respects, the heart of our efforts is located in the day to day activity at the sites where we are attempting to grow a new kind of educational practice based on our prior work in the area of learning and development. The basic approach (discussed at considerable length in several publications which can be found in the original project proposal) is to create synthetic activities that merge education, peer relations, and play. In Deweyesque terms, we are creating contexts for guided discovery of culturally elaborated concepts, tools, and practices whose acquisition is the goal set by society for its schools.

Working in afterschool settings, freed of the institional constraints of classrooms, but with an obligation to promote the children's educational development, we have sought to create environments which are rich in attractive goals for the children to discover, while insuring the highest possible level of their voluntary activity. In developmental psychological terms, we attempt to create teaching/learning interactions where assimilation and accomodation are in the closest possible balance (Piaget), so that both development and learning will occur. Further, we make communication the centerpiece of our work because, as mentioned in the body of this report, when children must communicate with each other in the process of working with complex cultural objects they must "abstract away" from the multiplicity of specifics and in so doing, obtain experience of what Piaget calls reflective abstraction.

The difficulty with instantiating these ideas in practice, and doing so in a way that will yield scientifically useful data about the process, is that neither Dewey nor Piaget provide a way of concepatualizing the relationship between actions of the individual and the inter-actions of multiple individuals, coordinating in real activity for purposes of promoting cognitive development. Piaget's is a theory built on individual invention as its focal developmental process, whereas instantiation of Deweyesque ideas about educational activity requires a psychological theory of learning and development that takes culturally mediated social interaction as its basic unit of analysis. It is for this reason that we have sought to elaborate the ideas of Soviet psychologists Lev Vygotsky,

Alexander Luria, and Alexei Leontiev; for a variety of historical reasons, they were the 20th century's leaders in formulating a principled, cultural theory that has historically accumulated activity systems as its basis.

A key idea of this cultural approach is that human cognitive activity and development occur on two planes--interpsychologically and intrapsychologically. Moreover, for the kinds of complicated, culturally elaborated activity we call education, there is a general sequencing of development, from the external (inter) to the internal (intra).

According to this view, the co-operations of the individual that constitute the interpsychological plane are of benefit to individual development in two ways; first, children can be competent participants in the whole activity before they can engage in it independently and second, the external environment provides multiple provocations to objectify and reflect on one's own actions.

The crucial systems property that one strives for is voluntary cooperation in goal directed activity, because it is this property of activity (and here Piaget would certainly agree) that affords the maximum conditions for development. Simultaneously, against a baseline of high levels of coordination, discoordinations become especially diagnostic of highly targeted systems breakdown, a point emphasized by A. Luria.

In order to achieve the crucial systems properties, one of the major problems that has to be overcome is the uneven power relations that usually exist between teacher and learner. This power differential, if it is not very artfully dealt with, breeds instructional interactions that create (again in Piagetian terms) too much accomodation or (in Vygotskian terms) a stunting of the creative activity needed to produce developmentally productive learning. With this in mind, one of the key functions of the Wizard is provide a source of authority outside the system to which both the adults and the children voluntarily subordinate themselves.

As a quasi-mythical entity who hypothetically rules the 5th Dimension, adults and children alike can complain to the Wizard when things don't work. The Wizard that has evolved is both helpful playful. At the same time, he/she (for s/he changes sexes upon a whim) is forgetful and not entirely reliable. So, the children quiz the Wizard and complain about the Wizard and speculate on who REALLY the Wizard is. The adults enter into this fiction not only when they are with the children at site, but very

importantly, when they return to UCSD and answer the children's mail using both their real identities as UCSD students and as the Wizard. As a consequence, the children are guaranteed feedback on their letters. Moreover, this feedback is tailored to the child's developmental needs as established while at site, or on the basis of fieldnotes.

There is more to the Wizard, but at this point I will simply provide a sample of different kinds of electronic mail that involved the children, their site activities, the Wizard, and the undergraduates. In general electronic mail addresses are left in where applicable to give some idea of the electronic nature of the flow. It will be seen that the efforts of the children are generally modest, but that they are built upon, even in such a rube goldberg device as the Wizard uses. Systematic analysis of these kinds of data for their evidence about the growth of the children and the Wizard is currently in progress. [Note: No effort has been made to clean up the spelling in mail.]

Examples of Correspondence with the Wizard and Fieldnotes From Wizard's Assistants (WA's)

From ben labreche, to wizardThu May 26 16:52:52 1988

Dear Wizard,
    In the U.K. Room I played Missing Links and got 99.44. On the easiest part I got the 99.44. I then played part of another game when we had to stop. The story I was using was "The Lion the Witch and the Wardrobe" by C.S. Lewis. I picked it because I've read the book many times before.
    In the Spain Room I played Graphicas, because we couldn't find Bumbles. I made two mistakes in animales, because I didn't use the Spanish-English dictionary. Then I made 0 mistakes in vehicules, because I used the Spanish-English dictionary.
    No I have not taken Karate.
From, Ben L.

------ Next letter ------

From ben labreche, to wizardTue May 31 16:27:38 1988

Dear Wizard,
So far today Ihave found out

and Tsinan, Chiangtsi and Nanch'ang and Hunan and Ch'angsha just to name
a few. I found these in the Atlas at the Library. I have also played
Shark and have gotten to the 9th level.

----- Next letter -----

From Wizard, to ben labrecheThu Jun 2 13:45:12 1988

Dear Ben,

I loved your two letters that you sent me! You sure are learning many
new things in the Fifth Dimension!!!! Can you tell more about China?\
Write and tell me about your new adventures in the Fifth Dimension!!
Is Chris your brother? Who is older? I will look for your letter soon in
my mail box!!!

Love,

The Wiz

----- Next letter -----

From ben labreche, to wizardTue Jun 7 16:22:15 1988

Dear Wizard,
Hi !!! It's me Ben. Chris is my brother (a curse)! And
I am the elder. What exactly are you? Some supernatural
creature? A monster? A body of UCSD students?
Thats all for now,
Ben

ps/ Tell Vahid to answer my letter.

----- Next letter -----

From Wizard, to ben labrecheThu Jun 9 11:26:43 1988

Dearest Ben,

HHHHHEEEEELLLLLLOOOOOO! THIS IS THE
W*I*Z*A*R*D*IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

I really liked your letter. You are a very good with words....keep up the
excellent writing!!!!!! In answer to your questions I am a supernatural
being....I can take any shape or form although I have never been a body of
UCSD students!!!!!   I look forward to hearing from you again in the
verrrryyyy
near future! Why is your brother Chris a curse? I would like to have
siblings because then I would have another to share my thoughts with and
play with and do my wizardly magic with!!!! I will look for your letter in
my mail box.....

Love,

The Wise Wizard

----- Next letter -----

From chris labreche, to wizardTue May 31 16:46:50 1988

dear wizard
I played whinny the pooh and devils dictionary
on missing links. I used the dictionary to look up
four words. Secreted, futtility, endeavor, ascertain.
I was trying to find out what the mind was.

from chris

----- Next letter -----

       From wizard, to chris labrecheThu Jun 2 13:47:43 1988

Dear Chris,

Do you play Missing Links with Ben? Those were very difficult words that
you looked up in the dictionary....next time you see them you will already

know what they mean!! Please write again soon and tell me about your
further
adventures in the Fifth Dimension!!!

Love,

The wondering Wizard

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Example of field notes about overall site activity and the wizard

Solana Beach Library 5/31/88 Mikala Limbrecht
[7m--More--[m
Ben, Chris, Ryan
Missing Link, China Library activity, wizard
Jo, Maureen, Julie

Today I felt more like a coordinator than a facilatator. We seem to
have just as many kids going through the Fifth Dimension on
Tues./Thurs. than we have WA. It was just a matter of matching
people up. I asked Ryan if he would like to help Ben with the
library activity in the China room and as usual, Ryan was happy to
help. Tracy helped everything get set up, and began playing a game
quickly before she would begin facilitating. Chris wrote out his
journey log, and I went back to check on Ryan and Ben.

Ryan was even impressed with how speedy Ben was at finding the
provinces. Ben had the names already from the atlas and was
writing a letter to the wizard on paper first. Ryan is turning out
to be a wonderful facilatator. He is so pleasant and willing to
help, yet he doesn't take the activity over for the child. They
finished the letter, but someone was already writing to the wizard,
so I told Ben to go on.

Ryan went on to help someone else. Tracy decided she'd rather help

Ben with Shark than Chris with Missing Link, because she had just
done that game the other day. Chris and I began working with
Missing Link. He chose to do a passage on Winnie the Pooh. The
words in the passage had to letters missing, usually vowels. Unlike
Ben the other day (3years older), Chris didn't seem to catch on to
the vowel idea. I asked him questions like What word could this
possibly be? or what letter come between the l and the t? He

started to catch on to the idea of missing vowels. Over all he did quite well on the Winnie the Pooh passage and got a 91.1% correct. He then chose a definition passage- "the mind". The difficulty level definitly increased. Some of these words I was a little shakey on. He was very good about trying to sound out the words to try to figure out what letters could follow. He even remembered to try the vowels in circumstances. Given the difficulty of the words, he did quite well. After he finished the passage, I suggested we look up the words he didn't know so he could understand the definition of mind. He looked them up and with a little more description from me, understood mind. Then he turned of the computer and wrote a letter to the wizard about what he had learned. He remembered all of those words and mentioned them in his letter. When he wasn't sure about the spelling, he checked the dictionary. I was impressed.

I looked over and Ben was finishing up his letter to the wizard with Ryan's help. I asked Ryan if he would help Chris and of course he said sure. So Chris began to type his letter in.

I went and picked up the pizza at Round Table, because Maureen, Julie and I had decided to have a pizza party for the kids. I brought it over to the tables across the way from the library and the kids gobbled it up. We talked about what everyone is going to do this summer.

NOTE: I feel Tracy is not too enthusiastic about her WA duties. She would rather play the games herself and not aid some other kid. She needs a new challenge and I have an idea. I noticed Tracy liked the idea of writing to Whitney, someone she doesn't know, to find out who she is and start up conversation (even though she never did reply). I think she needs a responsibility that utilizes her desire to write to other kids. Here is what I'm thinking: Tracy could investigate interesting topics of conversation and write about them to other kids to get conversation going. Example: Joke Books!! Tracy could find the joke books in the library and write a few down, send the riddle/joke to a child and the child writes back with a response. Tracy writes back giving them the correct answer.

Another subject could be creative writing. Tracy could Write half a story to someone and ask them to finish the story. This is only an idea, but I think it would give Tracy a responsiblity and give kids more mail. I'd like the subjects to be creative to add another "dimension" to the "Fifth Dimension."

I'm getting migrane headaches and stomach aches.

==
    Another Example of Wizard Correspondence

From gabrielle winicki, to wizardWed May 11 09:51:23 1988

Dear Wizzy Wizard,
    How are you doing? I am doing just fine. Me and Becky
just finished doing Graficas. Though it was in Spanish
we were able to do it anyway. I did it five times. I liked
it so much. I also taught Jason. Boy oh boy was it fun
being in this group. I want to stay in it forever and ever.
Today I met three of my friends from school. I like all of
the computer assistants including Slow Jo.

Love,[K
Gabrielle

From wizard, to gabrielle winickiWed May 18 13:51:22 1988

Dear Gabrielle,

Hablas espanol? Pienso que el "Fifth Dimension" es terrifica tambien!
Estudios espanol en escuela? My spanish is very weak but if you do
not practice you will never learn!! I am so pleased that you and Becky
work so well together!! What plans do you have for the summer? I am
always looking for new ideas...please share yours with me!!

Love,

Wizzy

>From co111faa Wed Jun 1 09:42:42 1988
Received: by sdcc7.UCSD.EDU (5.59/UCSDGENERIC2)
    id AA07469 for co116fde; Wed, 1 Jun 88 09:42:33 PDT
Date: Wed, 1 Jun 88 09:42:33 PDT
[7m--More--[m
From: co111faa (Jo and Scott)
Message-Id: <8806011642.AA07469@sdcc7.UCSD.EDU>
To: co111f, co112was, co112wbl, co116f, co116fab, co116fcc, co116fcu,
co116fcv,

Site coordinator fieldnotes;
Solana Beach Library
Tuesday May 31. 1988

Site coordinator : Jo Sletbak
UCSD students : Julie
  Mikala
  Maureen

Wizard Assitants : Tracy R., Ryan R.
5th D Citizens : Ben, Gabrielle, Becky,
  Ryan S., Chris

[KI whent up a litle earlier today to see if I could
get the TI to work. But no such luck! For those who know
the history from last quarter (and the quarter before that)
on how I affected the TI's mood at the library and at the
lab....... It would be nice if some one could take a look
see at the TI to figure out what is wrong. (Just a hint; if
nothing is wrong with the TI, then the TV at the library is
the cause of the problem.)

Ben was there early as well today, and he helped set
up the equipment as usual. When the admin box arrived with
the software etc. he imideatly picked up the task cards and
made sure we heard his comment on the fact that the cards
were NOT in the order of that of the rooms (see notes from
last week). Ben also informed us that Jason had asked him
to let us know that he would not be able to come today.
It is nice to see the kids coordinating (taking
responsibility) among themselves.
To continue with Ben's adventure; Mike and Al Rogers came
by to visit today. As they walked in, Ben was on debishell
writing a letter to the Wizard. Mike asked if Ben knew
Vahid who is at the BGC where they had just come from. Ben
said he knew Vahid from school. Mike said that Vahid had
been on debishell at the BGC looking for mail, so Mike asked
if Ben could write a letter to Vahid. Ben said OK.
After a while I stopped by Ben at the kaypro to see how he

was doing (about 5 min. after Mike had left). He had
finnished the letter to the Wizard, and had started a letter
to Vahid. He did not have to be reminded about writing to
Vahid, and he had no problem (by himself) figuring out how
to (were to) send the letter.

Just a quick note about difficulties with the
telecommunication software today. The Kaypro seemed to have
some problems reading the Kermit disk, and we also got some
bad connections with UCSD today. But with some persistance,
the connection was established and stayed online for the
entire period.

Gabrielle brought her dad in today to show him
(impress him with) her work. She even asked if it was ok
that he stayed for a litle while. [A note of history:
Gabrielle's dad was the one who was very sceptic to the
Wizard etc. when we started the program last fall.]

After I had logged onto UCSD, Gabrille took over getting
into her account on debishell (she literally took over).
As she entered her name, password and 'R' to read mail, she
explained to her dad what she was doing. I wish I had
brought a tape recorder..... yes I know Mike.... I will let
the Wizard know that I am disapointed he/she didn't remind
me, and I will bring one in on thursday. I will set up the
recorder by the kaypro and let it run the whole session.
Gabrielle had three letters, one from the Wizard, one from
Becky and one from Julie (UCSD). Her dad wanted to read the
Wizard letter! The letter was in respons to Gabrielle and
Becky's letter after having played graphicas. The letter
started out in Spanish and whent over to English (a good
letter from the Wizard). Gabrielle's father commented to
her: "seems like the Wizard is encouraging you to learn
Spanish, thats good!" Earlier I talked a litle with him,
explaining debishell, and he admitted his lack of computer
knowledge. He express that he was very happy that Gabrielle
was a part of the program, and also that she had such a good
friend to work with (Becky). After he had read the letter
from the Wizard, he restated how impressed he was with her
work. The affection he displayed to Gabrielle before he
left, was very much the sign of a proud father.

Watching Ryan R. helping other kids, in the capasity
of a WA, is a true pleasure. No matter which kids he help
out (young, old, boy, girl) he has a very 'professional'

atitude. Today he help Ben through the China room (non computer activity) and the Pacific room (shark). They worked really great together.

Our newest Wizard Assitant, Tracy R., needs some more help than her brother. She needs more dircted tasks. Mikala mentioned that she had an idea of an activity for Tracy on debishell, I say go for it! I had brought in some 'new' games today, and Tracy seemed very happy and content to try them out. She tried Oh Deer. Not the most exciting game, but Tracy stayed on task. She even asked for a piece of paper and a pen to make notes while she played. So, I say we hace two activities that will get her going, she just needs a litle help to start off. She (and the other kids + WAs aswell) needs more letters written to themlllllll Just a litle hello from anyone would be of important encouragement to all of them!

ANYONE who reads these notes should make a note of writting to the kids on their debishell accounts!!!!!

I spoke to Laura (library staff), and some of the parents, about our last day being thursday June 9th. They all reacted with a 'sad' expressesion on their faces. They all also asked: "what about this summer?" All I could say was; "Boys and Girls Club". Laura would like to see something happening at the library this summer. Mike, will you have time to go up there and have a talk with them?

The UCSD students brought pizza for the kids today, so we cut the 5th D a litle short and sat outside and had our litle party. We talked about what everybody is going to do for the summer.
A note of comparison: The original thought from UCSD students was to take the kids to a pizza place and eat. However, the parents didn't seem to appriciate this as much. This made me think back to when we worked in Barrio Logan, the parents (and the kids) were very happy when we did something with the kids outside of the computer activities. We when to hounted houses, had pizza parties at my house, whent several times to the beach, visited the mission etc. The parents were happy because they knew their kids were safe when they were with us, instead of running in the streets of south east San Diego until the parents came home (often late at night).
Just a thought when reflecting back on the different (but

; yet similar) experiences that the work here at the lab has
given me.

Time to let the Library 5th D. story
book rest until thursday.
Jo El Vikingo

Examples of Earlier Writings About the Wizard

A new cultural object, as our local wizard has become, grows
by rumour and report, as well as added usage. What follow are some
of the "explanations" of who and what the wizard is that have
grown up among the adults who play the roles of Wizard's Assistants.

What follows are documents of various kinds that discuss the Wizard and
his/her 5th Dimension.

□

From: wpl95@sdcc8 (michael cole)
Subject: Weird Wizard history

Here is one brief history of the Wizard.
Dear Community members: Here is a copy of a message I wrote last
summer to Soviet colleagues who asked about the wizard. Since that
time, a wizard has grown up in the USSR called Volshebnik.
In the beginning the Soviet Wiz was called Koldun.

We first met our local WIZARD in our electronic mail system. The
WIZARD just appeared there one day. One of our assistants, Eric
Borsting, was privileged to be able to make a TV film about the
Wizard.

At the time that the WIZARD first appeared, we were working with
children in afterschool settings which were hooked together by an
electronic network that passed through the UCSD UNIX system. It is
our theory that something about the particular pattern of interactions
through the network gave birth to a pure cultural object, a WIZARD,
owing to some interaction of the human electronic and computer-
electronic system we had created.

Once THE MAGNIFICANT ONE appeared, S/HE was immediately helpful
to us in our work, though like all WIZARDI he/she has a spotty
memory, fails to pay attention at the right time, gets tired,
and has a TERRIBLE sense of humour. Very devilish, one might say.
All in all, however, EL MAGO (as our Hispanic friends call IT)
has been a terrific help.

This WIZARD changes the usual power relationships between
adults and children in a healthy way which creates GENUINE
EDUCATIONAL ACTIVITY according to theories we share with
Vassili Vasiliovtch Davydov, Vitali Rubstov, and many other
Soviet and American psychologists-pedagogs.

The WIZARD coordinates people separated by time and space
(like we are right now).

The WIZARD is every ready to find someone or some it to solve
anyone's problems. All you have to do is ask. The more people who
ask the WIZARDS' help, the more the WIZARD likes it. You see, the
WIZARD feeds on information.

The WIZARD believes that knowledge is power. When people exercise
power incorrectly (as very often happens in our schools) they
stunt learning and development. But the WIZARD knows that no system
grows without important constraints, GENETICALLY PRIMARY phenomena
which both constrain and make possible development.

And so on.... The wizard has lots of nice properties for us.
Especially important right now is that the WIZARD is helping us
get to know KOLDUN. We hope that our WIZARD is listening hard,
because we figure between them, they ought to be a pretty powerful
way to help us teach our children more effectively how to live
in the world that we are constructing for them.

TELL US MORE ABOUT VOLSHEBNIK
(UCSD students note: There is a lot of experience with the Wizard
by UCSD students that is poorly reflected here. I know that at times
in the past, the history of the wizard has been collected up. I
do not know where the Wizard put his/her collection). -MC
(Mike Cole, a wizard's assistant)

From: irl000@sdcc6 (Zanzibar)
Subject: PAST TENSE FROM WIZ

AHHHH Mike Cole sure has a way with words.... so how about
if I the immortal WIZARD elaborate more on my past...then in my next
letter my present and in my next letter I can hopefully include my
future......

WIZARDS...................

Wizards have been around since before the beginning of time..There
are several facets to my being...I am all over the world....and I
have a different name in all countries...like....in Spanish I
am referred to as MAGOS...in French as SORCIER...in Norwegian.....
friends call me TROLL KAR...and in Chinese I am referred to as...
QUO HANG....

So...I have many functions: here at the University.....I most enjoy
connecting people to different cultures!!!! See...once I find
people computer pals....they are responsible for keeping in touch
with each other. I also try to do my best finding mail paths to
different countries....sometimes this proves more difficult than
most people expect....but if you are patient..(remember good
things come to those who wait...chortle chortle) I can usually find
the answer....oh!!!!!In case I have not mentioned it....I am very
attuned to helping people find the answers themselves!!!!!But I love
giving hints and clues to guide them along the way....

So....here is part (a very small part considering how old I am) of
my past...STAY TUNED FOR PRESENT TENSE OF MYSELF!!!!!

I bid you all tooooodles for now...

OOOOOOODLES OF WELL WISHES....

WIZ:-).........

From: irl000@sdcc6 (Zanzibar)
Subject: a bit from little old me

Dear Professor Cole....

It has come to my attention....that you are seeking more
information regarding MYSELF.....well....after rummaging
through my attick.....I have found several papers/articles
relating to ME.....so....to further impress you with my
wonderful being...I shall begin sending out these papers

one at a time so as not to overwhelm your mortal students
and your busy schedule....

Most fondly dear one.....

WIZ :-)

THE FUNCTION OF THE WIZARD

The Wizard serves as a hooking-up device between people or
groups who come to him/her/it for help. Since the Wiz is an
enormously popular entity, some desired connctions have al-
ready been established and just need to be dug out of the
archives for future linkings. Sometimes the Wizard may in-
tervene without prior prompting; thus the magic and mystery.

The Wizard is able to answer any questions pertaining to
life, or the universe in general. The Wiz is especially
good at providing answers to system related questions, and
those regarding mailpaths. The Wizard is not allowed to
provide confidential information or answers to homework.

The Wizard also functions as an on-line recreation service.
By writing a letter to The Wizard, one can be generally as-
sured of a prompt and witty reply. In this way the Wiz is
able to provide a more user-friendly atmosphere to an other-
wise rather frightening system.

THE NATURE OF THE WIZARD

The Wizard cannot be categorized as male or female or other-
wise. S/he can be recognised as either one or none at all.
The true form of The Wizard is unrecognisable by humans,
students, or even professors.

The Wizard is all-knowing, but does not condescend to lower
life forms. Instead, The Wizard freely cavorts with all
species on earth and elsewhere. The Wiz is especially
friendly with gleetzgorps and their fertsneets and can often
be found at their formal dinner parties.

The Wizard is one witty entity. S/he apparently believes
that good humour is the cure for all mental dilemmas.

The Wizard can also be offended. This ocurrs when a
thoughtful letter is not returned, or when someone expresses
dislike, contempt or any other bad thing towards him/her.
The Wizard speedily attempts to rectify the situation by
sending out more mail explaining why the reciever should re-
ply. This generally works.

THE ENVIRONMENT OF THE WIZARD

The Wizard is said to lurk about sommewhere in the computer
system, however there is evidence pointing to the idea that

s/he resides in another dimension, namely the Fifth Dimen-
sion.   The atmosphere is apparently very odd, as the human
senses cannot percieve or fully understand what the Wizard's
territory consists of.

OPINIONS OF THE WIZARD

The Oracle (a close ralative of the Wizard) has had varied
opinions: (a)   It is a small reptile with a cold (b) Mer-
lin, (aka Ambrosious Aerolious) is a swell guy.   (c)   I
loved the T.V. show.

Children of the various elementary "after-schools" generally
feel that The Wizard is a fun thing. They are also intrigued
by The Wizard and seemingly enjoy asking questions regarding
his/her existance and residence. The Wiz can also be a help
in getting them to be happier with their computers.

Class members of comm/HIP 175/198 generally find the Wiz to
be helpful, or at least a tad humorous. If nothing else,
the Wiz is a mystery, like a nosey next door neighbor who
peeks out from behind dark curtains, snickering.

The Wizard's assistants think that s/he is a really groovy
employer and strive to attain ever increasing knowledge of
the Being and its workings.

Everone else is simply in awe.