BEYOND BUDDY:
THE SUSTAINED INFLUENCE OF THE BUDDY SYSTEM PROJECT

January, 1998

submitted to the
Corporation for Educational Technology

by

ROCKMAN *ET AL*
San Francisco, CA and Bloomington, IN

ROCKMAN *ET AL* **605 Market Street, #305** **San Francisco CA 94105**
415/543-4144 **FAX 543-4145** **info@rockman.com**

BEYOND BUDDY:

The Sustained Influence of the Buddy System Project

Introduction and Overview

We know from past studies of the Buddy System Project that Buddy students leave elementary schools as sophisticated computer users. Most have mastered basic computer skills, and are not only comfortable with computers but also used to doing much of their school and homework on them. The more advanced Buddy graduates may also be skilled at complex applications, programming, telecommunications, trouble-shooting, repair, multimedia presentations—including the research, writing, and organization skills that the best of such presentations require—and an approach to learning that equates tackling assignments with solving problems.

We conducted this study to find out what happens *beyond* Buddy. We asked former Buddy parents and students and secondary teachers how these very computer-literate students use their skills in the middle and high schools they attend. We asked teachers if they could spot Buddy students. Looking for ways in which secondary schools themselves are changing in response to students with an impressive array of technology skills, we also asked if schools have added technology, changed assignments, shifted the focus of staff development, or seen growth in family involvement.

We found, first of all, that the majority of Buddy parents think that the skills and experiences their children gain in Buddy last not just into secondary schools but beyond: the ease with technology, the confidence, the new friends, the new community contacts, and the comfort with presentations—all these, according to parents, are lifelong skills. We heard success stories that could be traced to Buddy: the story of a farm family whose agricultural fortunes changed dramatically because of the skills both parent and student learned through Buddy, and the story of a child with a communicative disorder whose Buddy skills not only kept him in good stead through secondary school but also gave him the confidence to study computer science in college.

We also found that the teachers who have the opportunity to see Buddy students using their skills, generally the computer or business teachers, say these students far outshine their non-Buddy peers. Some say they also have superior research skills. Those teachers who know what Buddy students can do have enlisted them to help solve technical problems, even baffling ones, and encouraged them to explore new technologies.

We also found that secondary schools, by their very nature, do not always offer Buddy students the opportunity to use their skills. Subject-matter teachers often lack the training, experience, and support needed to use technology effectively in their classrooms and individual disciplines. Scheduling difficulties limit access to technology, which both parents and teachers say is the primary reason students don't use what they know. Technology is most often available in computer labs, which are fully booked with computer classes. Although the schools we surveyed are increasing their use of technology and expanding offerings, "computers" is still typically a class and computer labs are the primary locus of technology use. The forays into new technologies the computer teachers afford Buddy students are often confined to labs and do not involve subject-area projects. In some cases, even these teachers do not see Buddy students *use* their skills because they often place out of keyboarding and other basic computer classes.

Departmentalized curriculum and instruction and shorter periods in secondary schools make the long-term, interdisciplinary projects Buddy encourages hard to manage. Secondary teachers say that the accountability issues they face differ from those in elementary schools and that they must focus on competencies in the specific subjects. These teachers also see far more students daily than elementary teachers.

Students themselves also compartmentalize courses, and think about typing papers rather than doing projects. Having just made probably the biggest jump they make in the course of their schooling, students are also preoccupied with things other than utilizing the skills they arrive with. As teachers say is also typical of middle schoolers, students may not want their parents to be as involved in their schooling as they previously were. Buddy students may also not stand out from their peers because other elementary schools are gradually incorporating more technology and teaching basic computer skills. Their emphasis may be very different from Buddy's, but what sets Buddy apart from other technology programs may not be readily apparent in secondary schools.

Some of the parents we surveyed accept these realities of secondary schooling. They may have home computers and do not feel that skills are being lost from lack of use. Yet even the parents who believe in Buddy's staying power expressed concern about the need to use expert skills beyond elementary school. Many were eager and eloquent in their suggestions for bridging the

gap: they suggested more open communication between schools, more access for students, more teacher training for secondary teachers, more creative assignments—all to enable teachers to take advantage of what these highly computer-literate students have to offer. A number of the teachers we interviewed echoed parents' sentiments. Both teacher and family recommendations, along with the other findings from the study, are reported below.

Methodology

We conducted our study of Buddy's sustained impact in three sites where Buddy has had a substantial long-term presence. The most intensive study took place at a site where students from a single Buddy elementary school move to a single secondary school (Site 1). (The district's first Buddy students are now sophomores.) We conducted a less intensive study at two other Buddy sites, one in which the Buddy school, along with five other elementary schools, feed into consolidated middle and high schools (Site 2), and one in which students from a single Buddy site attend different middle and high schools (Site 3). Our goal was to survey approximately 60 former Buddy students or families, or 20 in each site.

Because the sites chosen were veteran Buddy sites, we began with a general knowledge of individual implementations of Buddy. To gather additional background information, we talked with site coordinators, who also provided names of appropriate secondary school contacts and helped coordinate data collection. In Site 1, we interviewed secondary teachers in person and administered surveys to both teachers and former Buddy students and families. (Either students, parents, or both could answer questions.) Teachers distributed the surveys, and students returned them to school, a plan that resulted in a fairly high rate of return.

In the other two sites, we conducted preliminary telephone interviews with a limited number of teachers and administrators and distributed surveys to families. In Site 2, administrators distributed the surveys along with return envelopes; about one third were returned. In Site 3, we received a list of former Buddy families, to whom we mailed surveys and return envelopes. Return rates among those families who had not moved (a number of undeliverable surveys were returned) were also lower than expected, although we received just under our original goal of twenty surveys.

We looked at what skills Buddy students bring to secondary school, how they use those skills, what access they have to technology, and how they influence the next schools they attend. We also asked teachers about assignments, their own personal use of computers, and how secondary schools had changed—in staff development, in acquisition of technology, in teaching strategies—as a result of having students with advanced technology skills.

Finding evidence of long-term or residual effects is not an exact science, because of the many factors that intervene along the way: students change, families move, elementary and secondary schools are very different institutions. Even taking these vagaries into account, we gained important insights into how Buddy graduates use their skills. These findings may point to some changes the project can bring about, in both elementary and secondary schools, to secure Buddy's benefits beyond the elementary years.

Findings

Family data: Forty-nine families, most of whom were very positive about their Buddy experiences, returned the surveys. (Totals below may not equal 49 because not all respondents answered all questions) The return rate was somewhat lower than that of other Buddy surveys, but not surprisingly low given that these were families with no current Buddy affiliation. Some uncertainty about Buddy's future and legislative funding may also have influenced the rate of returns: families may have been awaiting funding decisions or directing their energies to a letter-writing campaign in support of Buddy.

We also received unsolicited testimonials from two former Buddy families who wanted to go beyond what our surveys asked to explain how Buddy had not only given their children invaluable computer skills but also left them with a lasting desire to learn and use sophisticated research skills to do so. During the course of the study, coordinators, teachers, and others involved with the project shared the kinds of stories we have often heard about Buddy—that it has reached children and families that otherwise would not have had access to technology and in some cases provided skills and incentives that have made further education possible, improved job prospects, and fundamentally changed families' economic futures.

Teacher data: Fifteen teachers in Site 1 filled out surveys and/or talked with us during school visits. The teacher data reported below comes primarily from this site. Telephone interviews that preceded our surveys in the other two sites indicated that many secondary teachers were not aware of which students were Buddy graduates and did not believe they could adequately respond to our inquiries about carry-over skills and attitudes. Administrators in one site suggested that only computer or business teachers might see a difference (in keyboarding and other basic computer skills), since teachers see many students each day and Buddy students may not move to secondary schools in sufficient numbers to stand out.

One Buddy site coordinator also noted that the existence of computer labs and technology programs in other elementary schools since Buddy began may have narrowed the gap between Buddy and non-Buddy students. Comments

from students and parents suggest that there may be differences, apparent in even a small group of students, but the assignments and status of technology at secondary schools may not tap those differences.

We asked both families and teachers a similar set of questions (see Appendix for questionnaires), and found that in some cases the two groups saw things differently. The discussion that follows is divided into the general categories of both surveys—technology skills; other benefits of Buddy; lasting benefits; availability, access, and use; changes in secondary schools—and where appropriate compares family and teacher responses.

Technology Skills

When asked about the most important technology skills gained from Buddy, several **parents and students** noted either basic computing skills or keyboarding skills (respondents could list more than one skill). In Site 1, just under half (47%) also found e-mail, or learning to use a modem, to be very important. Among other often-mentioned technology skills were word-processing and general operational know-how—one student noted learning computer terms and "how the hard drive works." Others mentioned being comfortable with the physical "hook-ups of the system." One parent said that through Buddy his child "became interested in basic programming."

	Site 1 (19)	Site 2 (7)	Site 3 (17)	Total (43)
general technology skills	11	6	12	29
keyboarding	9	5	10	24
e-mail	10	2	8	20
operation, maintenance	8	3	2	13
word-processing	8	0	3	11
data bases, spreadsheets	0	0	3	3
multimedia skills	1	0	2	3

Table 1. Technology skills gained in Buddy (family survey).

The Site 1 **computer and business teachers** find that Buddy students are "very computer literate" and "simply have more skills." They can "find their way around on almost any computer or software." "They learn quicker," and "have a head start on many skills." Among the specific skills these computer teachers noted were word-processing (a skill also noted by an English teacher) and "the skills of computerization." "Mostly," said one teacher, "Buddy students are *literate*, they can use the computer as a tool to help them." Another teacher noted that former Buddy students "have the ability to use the computer for finding information, for word processing, and some introductory spreadsheets. They can use the computer to make visually interesting reports w/ graphics." "They already know keyboarding—can jump

into spreadsheets and other word processing—can understand programming easier." "They like to experiment." One teacher, a science teacher thought that elementary teachers should pay even more attention to keyboarding.

Additional Benefits of Buddy Participation

Students and parents noted other benefits of Buddy participation (see Table 2). Highest among them were the friends and contacts made through Buddy and the availability of the home computer. Parents said that Buddy "brought child and parent closer" and brought "closer communication with school." "Skills for the future" also ranked high among these former Buddy families. Other benefits ranged from study skills to the opportunity to take trips, such as Rotunda Day trips and yearly sharing sessions. Some parents also noted the importance of gaining confidence with technology in general, being "less afraid to do things on computers" and "less fearful of new technology." One parent saw "a sense of 'risk-taking' that was not evident before."

	Site 1 (19)	Site 2 (7)	Site 3 (17)	Total (43)
home/school/community connections	8	4	6	18
availability of home computer	5	1	6	12
new knowledge/future skills	4	1	6	11
trips, presentations	5	0	3	8
comfort, confidence with technology	4	1	2	7
research & study skills	2	0	3	5

Table 2. Other Buddy benefits (family survey).

When asked how these skills had helped in middle and high school, half of those who said that what they had gained in Buddy had helped them in secondary school said that Buddy had put them "ahead in computer skills" or in keyboarding. Students also remarked on faster typing skills and noted that they had "a head start on other people who did not have the advantages I had..." and that they "knew a lot more than most high schoolers did coming into high school." One parent felt that because students had mastered the basics, they could learn more advanced skills in junior and senior high schools.

A number of parents or students said that their Buddy skills had been a help in doing reports and typing papers—"typing quickly" seems to be a major advantage, as does the ability to handle the mechanics of word processing, (setting margins, moving paragraphs, etc.) with ease. A few parents noted that their children were comfortable with Internet research and CD-ROM resources. Students also said they had been "able to do more tasks quickly."

We also asked **teachers** whether or not former Buddy students exhibited skills that were not necessarily technical—such as research and study skills, positive

attitudes toward school, or enthusiasm for learning. Again, the Site 1 computer teachers, along with a social studies teacher, remarked on differences. Buddy students, they noted, "stay after school, are very interested in extra projects. They work as aides." They have "better computer research skills." "They are more able to do research in the library on the computer." One business teacher observed that "(Buddy) students are more inquisitive."

One Site 3 teacher we spoke with noticed a very obvious difference between Buddy students and other in-coming middle schoolers: They have far superior research skills, and "know their way around a university research library." He was impressed by the caliber of work, the know-how of students, and the interest in conducting research beyond the school itself. Previous research, conversations with the site coordinator, and parent surveys indicated that these particular Buddy students do considerable research, much of it in the community and in a local university library, for long-term projects while in the Buddy program.

Lasting Value of Buddy Participation

The majority (71%) of **parents** also believe that the benefits of the Buddy Project extend beyond the elementary years. One student said "your skills stay with you, no matter what." The lasting benefits parents and students noted are the "opportunity to teach others," skills that "...will help you survive in an up and coming technological society" and being "more prepared for today's jobs...." One student said "The experience I've gained from this project will help me in whatever I choose to do."

When asked if they thought the benefits of the Buddy Project extended beyond the elementary school years, six **teachers** said "yes." Among the lasting benefits they cited were: "We have had an increase of students going into computer-related careers," "it gives students life long skills," "They understand how to use the technology."

This question also revealed some real frustration from **parents**. Some worry that students are losing skills, and even interest. They seem to believe that the skills carry over because they have longevity—not because students necessarily get to use skills. Some parents noted that they have purchased computers for home so that students do not lose skills. One noted, "My child is lucky that his parents can afford a home computer. He would sure miss out at school." One parent concerned about the Internet does not want a computer at home, but also said he does not want his child to lose computer skills. Other parents responded to this question with comments like "Skills gained and not used go to waste...," "my child got better grades and did homework better in elementary school," and "skills extend, but can go no further because they don't offer anything close to Buddy at the middle/high school."

Surveys and interviews also indicated that the **teachers** most attuned to any differences in technology skills between Buddy and non-Buddy students were those who teach computer or business classes, confirming the notion that in secondary schools technology is generally seen as a subject rather than a tool, and that it is more often the province of computer or business teachers than of subject-matter teachers. As noted above, the Site 2 administrators we spoke with did not think that subject-matter teachers could generally tell any difference between Buddy and non-Buddy students; they also suggested that most of the elementary students feeding into the consolidated secondary schools have exposure to technology, lessening the differences.

Whereas the computer and business teachers said they saw a big difference between Buddy students and their non-Buddy peers, other subject-matter teachers at Site 1 generally said that they do not see a difference between Buddy students and those new to the district, nor have they noticed any changes over the years, since Buddy began. An English teacher said that in general students seem to read less and write more poorly than they did a few years ago, a fact she attributes not so much to technology itself as to computer and video games, television, and other activities that have replaced reading. Another English teacher concurred, although she noted that students' writing may be better organized; she added that changes in elementary school teachers and language arts curriculum have contributed to the decline in reading and writing skills.

The teachers who have not had the opportunity to see Buddy students using data bases, complex applications, or multimedia presentations tend to focus on keyboarding skills. One said, "Why teach computers if you don't prepare the student with understanding the keyboard. Personally if the student has to watch and peck his way to type, then Buddy is a waste. This program could be an integral asset to the student, but not as I see it developing."

Some teachers did not, or said they could not answer questions about computer skills because they didn't really know enough. Teachers did not note any differences in motivation or attitudes toward school. They are not aware that Buddy parents are any more involved in school, but also stressed that a decline in parental involvement typically takes place in middle school, as students become more independent, PTO's less active, and contact time with individual teachers decreases.

Availability of Technology and Student Access

What emerged in this study is that secondary teachers may not see Buddy students utilizing their skills because they lack access to technology. In our interviews and surveys, **teachers, parents, and students** repeatedly said that

students did not have the technology or access to it that they had in Buddy. Responses to several questions, from parents, students, and teachers, suggest that the lack of carry-over is often due to a lack of access. In response to a question about carry-over of skills, one teacher said "In our situation no. The high school has very little to no equipment. Students do not have the opportunity to use the skills they acquired."

There were, however, variations in reports of how much technology is actually available in secondary schools, just what kind of access students have, how and how often they use technology, and how often teachers use technology—providing an interesting profile of school technology use.

Although **parents and students** in Site 3 noted a general lack of technology in secondary schools, those in both Site 1 and Site 2 cited a variety of technology—laptops, computer labs, classroom computers, video equipment, access to IHETS, Internet access, and the technology involved in a Robotics class. According to **teachers** (a computer teacher and a math teacher who formerly taught computer classes), Site 1 has computers, including a lab of 30-40 computers, laptops, scanners, laser discs, and Internet access. Interestingly, only those teachers who teach technology classes and the media services teacher listed the full range of available technology. Two teachers mentioned "computers," a lab, and Internet access in the library. One teacher added that there is "very little available for the whole school to use"; another said she did not know how much technology was available. Three teachers left the question blank.

According to **both teacher and family** surveys, students can theoretically use computers almost any time of day. The highest availability is during specific class periods or assigned lab times, followed by after school, during lunch, and after school. According to parents, the time students have least access is during assigned library time, although in secondary schools students do not generally have a regularly assigned library time. Teachers also pointed out, however, that even though computer labs are open at various times, transportation conflicts limit students' use before or after school. During school, the use of the labs for other purposes limits their access.

There were also differences in responses to where computers were located: Some teachers said they were in the lab, in classrooms, and in the library, but others said computers were only in one of these locations or that they did not know. In Sites 1 and 3, computers are located, according to the family responses, in the labs, classrooms, and in the library. In Site 3, although there are computers in some classrooms, several respondents noted that they were only to be used by the teachers.

Use of Technology

There was also a range of responses, and some differences in responses from **computer teachers and other teachers**, in how and how often students get to use technology, though there does not seem to be frequent use, again because of limited access. Two computer teachers in Site 1 said that students use computers daily; two other teachers say "once a week," three, "once a month," and three do not know. Table 3 shows **family responses** to the question.

	Site 1 (19)	Site 2 (7)	Site 3 (19)	Total (45)
Never or almost never	5	0	11	16
Sometimes	10	5	4	19
Frequently	4	2	4	10

Table 3. Frequency of computer use (family survey).

The classes in which students most often use technology, in all sites, were English, Social Studies, and Computer classes. When asked about a project, paper, or activity the student did on a computer, almost all those who responded mentioned "typing a paper." A small number of students mentioned doing research with computers or using electronic resources. One student noted using Print Shop for book report illustrations. Five students/parents noted that a research paper involved the Internet or downloading information (information not available in school library, that would have been impossible to find without electronic resources); one student also remarked that classmates did a less than adequate job because "they didn't have computer or Internet access." One parent said the her son or daughter had written essays for college scholarships.

Site 3 students and parents suggested that the secondary school projects were not of the caliber of History Day projects their students had completed in elementary school. According to parents, for the elementary projects students used the Internet; scanners; word processing, multimedia, and presentation skills; and contact with the community.

We also asked students and parents, as well as teachers, whether or not homework assignments required the use of a computer. **Family responses** are reported in Table 4.

	Site 1 (20)	Site 2 (6)	Site 3 (18)	Total (44)
yes	4	4	2	10
no	11	2	14	27
sometimes	5	0	2	7

Table 4. Computer required for homework (family survey).

Teachers in Site 1 noted that they cannot require that computers be used (or, to be more specific, that papers be typed) because so few students have home computers. There was some variation in how many students actually have home computers: four teachers said they didn't know; one said 10%; two, 20-25%; two, 33%; and one, 50%. Interestingly, of the **parents** responding to this question, 79% reported that they had home computers—either personal computers or those obtained by siblings through the Buddy. Although we do not have enough data to know just how many students in the total school population have home computers, it is telling that in this sample the actual numbers of home computers far exceeds teacher estimates. (It is also interesting that personal use among teachers was relatively high: eight use computers daily; one, once a month; one teacher left the question blank.)

One parent said that his son or daughter was not allowed to do homework on the computer. Again, the two computer teachers require that homework be done on computers (much is done at school); three others request that it be done on computers; five do not request or require, two because they assume students do not have access to computers and one because she "can't get kids" to complete homework using computers.

Changes in Secondary Schools Resulting from Buddy

In addition to determining what skills Buddy students bring to secondary schools, we were interested in finding out whether having students with sophisticated technology skills had prompted any changes in secondary schools or teachers. When asked if having the Buddy Project in the elementary school had influenced the school's acquisition or use of technology, seven **teachers** in Site 1, the intensive site, said "yes." One added: "We feel the need to continue these skills at high school, thus we must keep our computer facilities up to date." "We are improving our own computers." Another teacher noted that being connected to Internet came from having computer-literate students. Three teachers—the same teachers who see differences between Buddy students and others—said that the school had used Buddy students' talents and skills to teach others or prepare materials.

We also asked if there had been changes in training or staff development, all but one of the teachers said "no" or "not sure." The other teacher, who teaches keyboarding, word processing, economics, law, and accounting, said there had been "many more workshops, in house and out." What was striking in the questions about school changes and staff development is that only the computer teachers noted changes. They seem to have a very different view of school technology than subject matter teachers, all of whom were eager to learn more about software and applications in their disciplines but do not seem to have the time, training, and classroom technology necessary to integrate them into their teaching.

In our interviews, we asked teachers if having Buddy students pushes them to use more technology for teaching and learning. Again, the computer teacher said that "We have to continually be ahead of the game—find those students something more challenging—teachers in all areas are getting interested genuinely, also." "We have to keep the learning going." Teachers suggested that keeping the learning going was difficult, again because of the lack of technology. They said that limited access makes it hard to say, for example, whether or not former Buddy students incorporate technology-based resources more than their non-Buddy cohorts. One teacher wrote: "... we do not have the capability... to maintain and build upon what the students learn in the elementary school. The technology is there, but not here. We do not have near the computer capability of the grade school. It is like training a soldier to drive M-1 tanks, and when they get to their units, all they have are jeeps!"

Conclusions...

This study sampled a relatively small number of both Buddy graduates and secondary school teachers. However, because the results are consistent across sites and with what we have heard, repeatedly, in our previous studies of the Buddy System Project, we feel confident in presenting the following general conclusions.

- Parents agree that Buddy offers invaluable skills—not only technology skills but also lifelong skills. They believe that Buddy teaches problem-solving and in-depth research skills, and encourages students to use technology as a tool and look beyond school to the community, research libraries, or the vast resources available through telecommunications to enhance their learning experiences.

- Parents reported less of this kind of instruction in secondary schools than in elementary schools. Where elementary schools have most successfully trained Buddy students in research and problem-solving skills, parents seem most concerned about what happens when children leave.

- Although not many teachers are fully aware of their skills, the basic computer skills Buddy students bring to secondary schools serve them well: those with excellent keyboarding skills place out of basic classes, type papers with ease, and impress business and computer teachers with their expertise. Some may have opportunities to utilize and explore more advanced skills, interests, and knowledge, but in fairly circumscribed ways—in labs, in specialized classes, or in individual pursuits.

- Generally the technology skills beyond word processing get less use in middle and high schools than in elementary schools. Although former Buddy students type papers and conduct some Internet research, they do not routinely do homework on computers, conduct in-depth research, use databases and spreadsheets, solve problems with technology, or communicate with teachers—in essence do those things Buddy promotes.

- The teacher comment comparing Buddy technology, and technology available in the secondary school, to jeeps and M-1 tanks points to a consistent finding in our survey: students generally have far more technology available to them in elementary Buddy schools than they do in secondary schools.

- Further, when students enter secondary school, they have fewer teachers who have the training and experience to use technology for instruction. Because teachers lack experience, and often underestimate not only the skills but also the technology students have available at home, they have not established requirements and expectations for student use of technology.

- Scheduling and transportation requirements, along with other institutional realities of secondary schools, limit both students' and teachers' access to the technology that *is* available. Although labs are open before and after school, students and teachers may not be able to come early or stay late. During lunch, computer or other teachers may not be able to supervise.

- Although changes are occurring, technology also seems less integrated into the curriculum in middle and high schools than in Buddy elementary schools. Some teachers encourage students to use computer labs for the research and word processing involved in reports, but again access is problematic.

- In our survey, the business or computer teachers not only saw more advanced technology skills, but also cited more significant changes in secondary schools that have come about as a result of Buddy—not only more technology, but also more training and staff development and more sharing with elementary schools.

- The lack of coordination and sharing, although not unusual between elementary and secondary schools, troubles a number of parents, who worry that their students are losing computer, research, and study skills.

- Two subject-matter teachers noted some shortcomings in Buddy students (and in other students as well) that they believe Buddy could address, particularly those in keyboarding and writing skills.

- Gradually, secondary schools as well as elementary schools are adding more technology, and some sharing is taking place between elementary and secondary schools. Buddy has instigated some of that sharing, but could also speed that process along.

- All the teachers we spoke with or who filled out our surveys seem eager to learn more about technology and use it for instructional purposes; some use computers themselves, for personal productivity and for grade keeping and other managerial purposes. Many subject-area teachers, however, are limited not only by the lack of access and time but also more by a lack of knowledge of technology resources and examples of curriculum integration.

- In time, any advantage in technology skills Buddy students have may disappear as others, with the addition of more technology in non-Buddy elementary schools, become proficient and former Buddy students get accustomed to using skills in labs rather than in classrooms.

and Recommendations

The recommendation most frequently heard from parents was “offer Buddy and BuddyNet to secondary schools." This request does not stem just from a desire to have a Buddy computer at home, but rather from a desire to have an opportunity to use technology tools at school. Although that suggestion is too ambitious and idealistic to carry out, there are other more practical ways to implement the parents’ suggestions—and to extend the project itself, offer training to secondary teachers, utilize the skills and experience of former Buddy parents, make the importance of technology an administrative mandate, and enhance Buddy teaching at the elementary level.

Increase awareness among secondary teachers of Buddy and what Buddy teachers and students are doing:

- Have students or teachers write articles about Buddy for the secondary school newsletters and subject-area newsletters.
- Have Buddy teachers share ideas with the middle and high school teachers about the ways they are using technology in various subjects. Secondary teachers could be invited to elementary meetings, either faculty meetings or in informal faculty lounge sharing sessions; or elementary teachers could attend secondary departmental meetings.

- In print or at meetings, have Buddy teachers provide samples of student work.

Extend the Benefits of Buddy Training and Sharing Sessions:

- Involve secondary school teachers, content or subject-matter teachers in addition to computer teachers, in the Buddy meetings and demonstrations.
- Ask if Buddy coordinators can sit in on technology planning sessions for secondary schools.
- Use Buddy staff development programs for selected middle and high school teachers where there are extra seats.
- Pay Buddy teachers to offer staff development to the secondary schools in their region; support them with a kids' cadre.
- Coordinate other efforts—hold special subject-matter sessions on integrating technology into the curriculum during in-service days; combine elementary and secondary training and in-service; share ideas for joint research projects between elementary and secondary students.
- A number of parents also recognize the importance of teacher training. One parent emphatically recommended: "Teacher training! The Buddy teachers are well trained and use technology throughout the curriculum, but others...are afraid or ignorant or apathetic and don't take advantage of using and building on the student's knowledge and skills, challenging them to continue learning more."

Make it important to use technology and integrate it into the curriculum:

- Parents saw a need to improve computer classes themselves. As one parent suggested, "Quit looking at computers, technology as a subject to be taught.... Provide opportunities to use the computer as a CREATIVE TOOL for completing tasks or solving problems."

- "Make it important to use the computer..." suggested one parent. Another suggested that schools should use technology "the way a real business would."
- There was also the suggestion that the "administration...enforce a policy of teachers integrating technology."

Improve Buddy Elementary Projects:

- Make sure that Buddy students can keyboard well when they leave for secondary schools.
- Encourage in-depth, long-term projects among Buddy elementary teachers, so that the Buddy experience augments research as well as basic technology skills.
- Encourage elementary teachers to find out what technology, research, writing, and other skills students will need in secondary schools.

- Parents also recommended creating "more meaningful assignments at the elementary school. There was a lot of time spent typing spelling words, English assignments, etc. Students need more creative, technologically involved projects."

Take advantage of the valuable resource of former Buddy parents:

- Parents suggested taking advantage of the expertise and experience they have, by continuing the parent groups that supported and extended Buddy during the elementary years.

- Put former, knowledgeable Buddy parents on school committees that make decisions about technology funds.

Extend Buddy to Secondary Schools:

- Offer group-buy opportunities to the adjacent secondary school parents and students and teachers.
- Conduct collaborative projects with secondary schools, where the elementary do the technology and share it up and the secondary kids do the content and teach it down.
- Place a secondary school leader (at the state level, e.g., president of secondary school principals) on the board of Buddy.
- Pilot the move of Buddy to some middle schools, similar to what is going on in Anderson; or use Anderson as a model for school corporations to consider.

Appendix

Family and Teacher Surveys

The Buddy Project Secondary School Study
Family Questionnaire

As part of our study of the Buddy Project, we would like to ask you, as former Buddy families, whether or not the benefits of Buddy extend beyond elementary school. We want to learn what skills Buddy students bring to middle and high schools and what might be done to ensure that Buddy skills and experiences carry over to students' secondary school years. Your honest and thoughtful responses will help us answer these questions. Thanks for your help.

Student's Current School_____Grade _____

Please note who filled out this questionnaire: ❑ Student ❑ Parent ❑ Both

1. In which grades did you take part in the Buddy Project?
❑ 4th grade ❑ 5th grade ❑ 6th grade

2. What were the three most important *technology skills* gained from Buddy?

_____

_____

_____

3. Other than the technology skills, name three other benefits of Buddy participation:

_____

_____

_____

4. How have these skills helped you / your child in middle or high school?

5. How often do you / your child get to use these skills in middle or high school?

never sometimes frequently

1 2 3 4 5 6 7

6. What kinds of technology are available to students at your current school?_____

_____

_____

7. In which classes or subjects do you / your child use computers or other technology skills?

❑ English ❑ Science ❑ History or Social Studies ❑ Other_____

❑ Business ❑ Art ❑ Foreign Languages

❑ Math ❑ Music ❑ Computer Applications

8. Choose one of the classes checked in Question 7, and describe a paper, research project, or activity you / your child did on a computer.

9. Do homework assignments require the use of a computer? (Do papers, for example, have to be done on a computer?) ❑ yes ❑ no

10. Do you currently have a home computer? ❑ yes ❑ no

11. If your / your child's school has computers, where are they located? (please check all that apply)

❑ computer lab ❑ classrooms ❑ library

12. When do students use school computers? (please check all that apply)

❑ before school ❑ during specific class periods ❑ any time they want

❑ after school ❑ during assigned computer lab times

❑ during lunch ❑ during assigned library time

13. Do you think the benefits of the Buddy Project extend beyond the elementary school years?

❑ yes ❑ no

Why or why not?

14. What do you think could be done in elementary school, or in middle and high school, to make the most of Buddy skills and make sure they carry over to later grades?

Thank you.

The Buddy Project Secondary School Study
Teacher Questionnaire

For the past several years an elementary school in your district has been part of the Buddy Project, a statewide school and home technology project. As part of our evaluation of Buddy, we would like to find out what technology, research, and study skills Buddy students bring to middle and high school, and whether or not Buddy makes a difference beyond the elementary school years. Your honest and thoughtful responses to this questionnaire, which should take only about 10 minutes to complete, will help us answer those questions. Confidentiality is important to us; no names will be used in reporting this information. Thanks for your help.

Name_____
Last First MI

School _____
_____

1. How many years have you taught at this school?_____ _____

2. What grade(s) do you teach? ❑ 6th ❑ 7th ❑ 8th ❑ 9th ❑ 10th ❑ 11th ❑ 12th

3. What subject(s) do you teach?_____

_____

4. How knowledgeable are you about the Buddy Project?

know little about Buddy			somewhat knowledgeable			very knowledgeable
1	2	3	4	5	6	7

5. How did you learn about the Buddy Project?

6. Can you tell which of your students were in the Buddy Project? ❑ yes ❑ no

If so, how can you tell?

7. What special skills, if any, do Buddy students bring to middle or high school?

8. Ideally the Buddy Project should make a difference not just in students' computer skills but also in their research and study skills, their attitudes toward school, and the involvement of their parents in school activities. Please cite any differences in these areas between Buddy and non-Buddy students that you have noticed.

9. Has having the Buddy Project in the elementary school influenced your school's acquisition or use of technology? ❑ yes ❑ no ❑ not sure

If yes, how?

10. Have there been any changes in technology training or staff development?
❑ yes ❑ no ❑ not sure

11. Has your school "reached out" to the former Buddy students by using their talents to teach others or prepare materials? ❑ yes ❑ no ❑ not sure

12. What kinds of technology are available to students at your school?_____

_____

_____

13. How often do your own students use computers at school?

❑ never ❑ a few times a month ❑ a few times a week ❑ daily

14. Do your homework assignments request or require the use of a computer? (Are papers, for example, to be done on a computer?) ❑ request ❑ require ❑ neither

15. Approximately how many of your students have home computers? _____

16. How often do you personally use a computer?

❑ never ❑ a few times a month ❑ a few times a week ❑ daily

17. If your school has computers, where are they located? (please check all that apply)

❑ computer lab ❑ classrooms ❑ library

18. When do students use school computers? (please check all that apply)
❑ before school ❑ during specific class periods ❑ any time they want
❑ after school ❑ during assigned computer lab times
❑ during lunch ❑ during assigned library time

19. Do you think the benefits of the Buddy Project extend beyond the elementary school years?

❑ yes ❑ no

Why or why not?

20. What do you think could be done in elementary school, or in middle and high school, to make the most of Buddy skills and make sure they carry over to later grades?

Thank you.