

# M E R I D I A N

## Technology in an Inclusive Setting



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*"Technology is a part of all students' lives; therefore, all students can learn basic technology skills when placed in an inclusive setting."*

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National Education Association. (1998). Handywoman's special, NEA Today, 17(3), 3-4.

Peck, K. L., & Dorricott, D. (1994). Why use technology? Educational Leadership, 51(7), 11-14.

Ryba, K., Selby, L., & Nolan, P. (1995). Computers empower students with special needs. Educational Leadership, 53(2), 82-84.

Salisbury, C.L., Evans, I.M., & Palombaro, M.M. (1997). Collaborative problem-solving to promote the inclusion of young children with significant disabilities in primary grades. Exceptional Children, 63(2), 195-209.

Technology is underused in special education. CEC Today. July 1997. Vol. 4. No.1

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*"Because we were looking for ways to include the students with disabilities in team activities and were trying*

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## **INTRODUCTION**

Technology in an inclusive setting began as an idea to address some current changes facing us as instructors. This year we were placed on the same seventh grade team. We quickly realized a common goal of ours was including students with mental impairments in more team activities. Many of our team activities centered around technology based projects. However, until this point, students with mental impairments had only been included in field trips. Another challenge we faced was the fact that there was little training given to teachers of special education on the inclusion of the new

*to learn the new technology, we decided to design a program that would meet both of these needs."*

to teachers of special education on the inclusion of the new technology. Because we were looking for ways to include the students with disabilities in team activities and were trying to learn the new technology, we decided to design a program that would meet both of these needs.

As we looked at our schedules we found that the regular education homeroom class which was an extension of a regular language arts class period, would provide us with some students who could work as mentors to the students with mental impairments. Once we identified a group of mentors based upon volunteers, we identified some time in which the regular education students could mentor the students with mental impairments on the computers. The main idea behind these mentoring sessions was that the regular education students would take the knowledge and basic technology skills they had acquired and teach it to the students with mental impairments. We both felt strongly that all students can benefit from the use of technology. Technology is a part of all students' lives; therefore, all students can learn basic technology skills when placed in an inclusive setting.

### **Problem Focus**

#### **1) Few opportunities exist for interaction between general education students and special education students.**

*"Because special education students may require more time and repetition to learn these skills, computer usage should be frequent and consistent."*

Shepherd Middle School has 600 students who are assigned to two 8th grade teams and two 7th grade teams. Students with mental impairments are placed in a self-contained classroom. However, the teacher of these students is a member of one of the seventh grade teams, Team 2. Up to this point, these special education students' interactions with general education students had been limited to lunch, one daily forty-minute enrichment period (art, industrial arts, music, home economics), an annual field trip, and extra-curricular activities, such as school dances.

#### **2) Special education students have been given limited access to current technology.**

Major technology upgrades were made during the 1996-1997 school year. Part of the plan included a new approach to using the computer labs. Prior to the upgrade, two computer labs had been used primarily for math and English classes, but with the arrival of new computers, the labs were changed to an eighth grade lab and a seventh grade lab. Computer time was then divided equally between team teachers. For example, Team 1 and 2, which are seventh grade teams, alternated weeks in the computer lab. It was up to the team to decide how individual teachers on that team

would use the lab for their team week. Every fifth week was allotted for enrichment classes. Although special education teachers were assigned to teams, no specific time was being allotted for their classes.

Special education students should have at least as much computer access as regular education students. They will benefit from the basic computer and Internet skills, keyboarding skills and skills taught through software. Because special education students may require more time and repetition to learn these skills, computer usage should be frequent and consistent. It should also be in an inclusive setting to allow students the learning strategy of modeling.

**3) Teachers are unable to provide the individual assistance and training that are needed for the special education students to use technology successfully.**

The students in the special education classroom have a wide range of impairments that range from mild to severe and include both mental and physical impairments. These impairments limit their abilities when using computers. Therefore, it is necessary to have individualized training and assistance. However, the teacher and support staff were unable to adequately and consistently provide this assistance.

**4) Existing technology software needed to be adapted in order to meet the needs of special education students.**

Although the special education students had prior experience with computers, the new technology included multimedia and Internet capabilities. Training with this technology had not been addressed formally with these students. Also, materials made available had not been age appropriate. Existing software needed to be adapted in order to meet the needs of all students. Technology that addresses the needs of students with a variety of disabilities is available. This software incorporates skills necessary for learning for this population. Not only does it focus on common goals such as daily living, vocational, motor, educational and social skills, it also encourages the use of computers. Computer skills are extremely important in today's world.

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*"Our goal was to implement new technology into the curriculum through activities that were meaningful and engaging to the learner."*

### **Rationale**

Our goal was to implement new technology into the curriculum through activities that were meaningful and engaging to the learner. Over the past year, teachers at Shepherd Middle School have received a new computer in each of their rooms. In addition, some teachers have been given mini-lab stations within their rooms. The introduction of new technology carried with it several new challenges. First, we were faced with the challenge of creating activities. This involved understanding the kinds of activities that are appropriate and useful. Second, as we introduced activities into the included curriculum, we needed to continually assess their impact upon learning. Finally, we wanted to incorporate special education students into technology programs.

Over the course of the next two years we developed a variety of activities to implement and assess. During the first year we focused on the development and adaptation of several specific activities for students with special needs. During the first year of the program, all mentoring took place in a lab setting. Regular education students were paired with special education students. Together they learned typing, basic computer and Internet skills. This allowed time for observation and data collection. It also gave other teachers an opportunity to see the program's progress. At the end of the first year, a summary of findings was be presented to the staff. The presentation was meant to ease staff concerns about inclusion. Some of these activities were already established in the regular education program, but this allowed special education students to use technology in more meaningful ways than were currently available.

After a year of laying groundwork, the second year of the program involved special education students participating in regular education classes and projects. This included classes of students with moderate mental and physical impairments and students with learning disabilities. The activities involved regular education students who mentored special education students. Through the continued use of mentoring and staff support, we established a successful inclusive program.

*"Through the continued use of mentoring and staff support, we established a successful inclusive program."*

## **Preliminary Concerns**

At the beginning of our project, we had the following questions and concerns:

### **1) Scheduling**

- When will we find time to plan activities?
- How do we fit the program into existing class schedules?

### **2) Adequate computer lab time**

- Where will computer lab time come from if no specific time has been assigned to special education teachers?

### **3) Method for selecting technology mentors**

- From which general education class will technology mentors be selected?
- Should the students be selected or asked to volunteer?

### **4) Support of staff**

- Will teachers allow general education students release time to participate in the program?
- Will general education teachers want special education students participating in whole team activities?
- Will general education teachers be flexible with computer times?

### **5) Adaptation of software and projects**

- How do we provide technology experiences to special education students that are similar to those of their general education peers?
- How do we adapt projects to be both inclusive and meaningful?

### **6) Time frame of implemented projects**

- How will we work within team scheduled projects?
  - Can special education students meet these predetermined expectations in the time allotted?
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*"The options for creating engaging technology are limitless as we begin using the resources in front of us."*

## **LITERATURE REVIEW: Connections to Best Practice**

**National Education Association. (1998).  
Handywoman's special, *NEA Today*, 17(3), 3-4.**

The article entitled Handywoman's Special (NEA Today, 1998) is inspiring to anyone hoping to learn or create a technologically rich environment for their students. Michele DePrille is a special education teacher at Midwestern Intermediate Unit in New Castle, Pennsylvania. When searching for software for her students with profound mental and physical disabilities, she was frustrated to find that there weren't any which were age appropriate. Most of the software she found was based on preschool level, yet preschool software, such as Sticky Bear and Big Bird certainly was of no interest to her junior high students.

While watching one of her students interact with a program, she noted that the program was created by using Hyperstudio. Michele then took matters into her own hands and created a program for her students. The program used a digital camera and Hyperstudio. Michele took pictures of her own students and then incorporated buttons which students could easily click on for responses. The program encouraged students to get to know each other visually and was stimulating to the students because they were able to see themselves. Michele went a step further by creating a Halloween program which allowed students to use their voices to be scary. Michele reported that learning to use Hyperstudio was easy. She had no manual or instructions, just some time playing with it.

The options for creating engaging technology are limitless as we begin using the resources in front of us. We have found similar results to Michele. When materials are adapted appropriately, all students can learn and be engaged successfully with technology.

*"The mentors assisted us in the training aspect of the software so that all students had an opportunity to use the technology."*

**Technology is underused in special education. CEC Today. July 1997. Vol. 4. No.1**

An article published in CEC Today (1997) newsletter reaffirmed for us the need to address how technology is being used in special education. This article highlighted results of a study completed by Macro International, Inc. and the Office of Special Education Programs. Surprisingly many of the trends found in the results were similar to trends in regular education. Overall the study found that the use of technology in special education is not really extensive or intensive.

One of the first reasons this has occurred is due in part to the lack of consistent and sustained training and practice special education educators and aides have received in technology. Often they are only exposed to one-shot workshops, and there is little time given for how to practice and integrate the information gained at workshops. Secondly, access to computers seems to be preventing special educators from using computers. As we have found, students should have access to computers on a daily basis for at least thirty minutes a day. Like the adults who are struggling to learn and need consistent, sustained practice so do the students. However, often labs are full or schedules prevent consistent times. Furthermore, the older models seem to be given to the special education teachers as a way to appease them, however these models lack the capabilities of current models. Finally, special educators have problems finding appropriate software. In most cases age and level appropriate software has not been designed to meet the needs of older students functioning at lower levels. All of these factors contribute to reasons why technology is being underused in special education.

We both shared similar concerns when the technology arrived at Shepherd Middle School. By creating a technology mentor program and working together, Susan was able to learn more about the software we had available at Shepherd while at the same time brainstorming ways to integrate the software. The mentors assisted us in the training aspect of the software so that all students had an opportunity to use the technology. Time is still a major factor that has been a stumbling block. We have secured a forty-minute period one day per week and a separate 20-minute block of time on another day of the week. This allows students at least two days each week in the computer lab. Granted, this is still not enough, but it has been a step in the right direction.

*"Classrooms and teacher practices of today must continue to strive for a school climate that benefits all learners."*

**Salisbury, C.L., Evans, I.M., & Palombaro, M.M. (1997). Collaborative problem-solving to promote the inclusion of young children with significant disabilities in primary grades, *Exceptional Children*, 63(2), 195-209.**

This article (Salisbury, Evans, & Palombara, 1997) supported the outcomes of our project in that we used a form of collaborative problem-solving (CPS). According to the article, "Collaborative problem-solving involves an interdependent relationship among two or more people to achieve a common goal." Based upon this study and its outcomes there were similar parallels to our project. Although CPS in this article was a formal process in which students were trained during several sessions, we clearly saw evidence in our informal use of collaboration.

In the article both teachers and students were trained over several sessions about CPS. In this case since the CPS centered around the issues of integrating students with mild to profound disabilities, CPS training sessions for both teachers and students included the following:

- The rationale for inclusive schooling practices.
- A working knowledge of what physical, social and instructional inclusion might look like.
- An overview of criteria used to screen potential solutions.
- Instruction in the 8-step CPS process.

The main ideas included in the CPS process are as follows:

- Identify the issue: "What's happening here?"
- Generate all possible solutions: "What can we do?"
- Screen solutions for feasibility: "What would really work?"
- Choose a solution to Implement: "Take action"
- Evaluate the solution: "How did we do? Did we change things?"

The study conducted had issues that were similar to those we faced. The issues reported upon in the study varied from physical/social, social/emotional, academic, and staff-related issues. We have faced similar issues in setting up and monitoring our mentor program. The findings of this study were consistent with several of the outgrowths of our program. According to the study there were three major findings. First, the process of CPS eventually became routine to both teachers and students. Second, adults had to initiate the process of CPS. Finally, teaching staff felt CPS was an important strategy for promoting the physical, social, and instructional inclusion of students with disabilities in their classrooms. As the study continues to report, their findings had four important

implications which we have also seen as a result of our mentor project. First, the process can be used for solving physical, social, and instructional challenges of inclusion. Second, CPS process encourages creativity of staff and students for creating plausible solutions to real problems. Third, CPS is a part of the current teaching methods researched today. CPS involves teacher flexibility and shared decision making. Classrooms and teacher practices of today must continue to strive for a school climate that benefits all learners. CPS is consistent with these current methods. Finally, CPS is a great tool to encourage social, cognitive, and communication goals among students and staff.

Although we did not set out to use the formal CPS steps, we found ourselves and our students going through a similar process. From the moment we began the project, it was based upon collaborative efforts to solve the problem of integrating students with mental and physical impairments into several of our technology projects so they would also have the experience of using current technology tools. As we looked back, we realized that we went through the steps of CPS to create a successful technology mentor program. Furthermore, as a result of the modeling done by us, we have recognized our students going through steps of the CPS process as well as they completed the different technology projects. Both our project and the article defining steps in CPS have given us a vehicle to use in the future as we begin to integrate students into the classroom on a more regular basis.

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**Peck, K. L., & Dorricott, D. (1994). Why use technology? *Educational Leadership*, 51(7), 11-14.**

*"One student who is basically unable to control her hands enough to type, was able to express herself through the drawing mode of ClarisWorks and using the mouse."*

Peck and Dorricott (1994) in research identified stages which technology has gone through while being introduced into schools over the last ten years. More importantly they have identified ten reasons why technology is a valuable tool for all students to use. Having completed our technology mentor project, we were able to identify with the stages the authors identified and we concur with the reasons for using technology.

According to John Naisbitt in Megatrends, new technology when introduced passes through three stages. In the first stage, the new technology follows a "line of least resistance into the ready market." In the second stage, users improve or replace older technologies with newer technologies. Finally, users discover new functions for the technology. Peck and Dorricott (1994), after studying these stages, came to the conclusion that schools in general are just beginning to enter the third stage. Unlike businesses that move through the stages quickly, schools seem to be moving slower through the stages of technological advancement. They identified several reasons why schools and many educators are stuck in the second stage. First, teachers have found that computers increased their workload rather than decrease it. On the other hand, educators who have moved into stage three are asking, "How can these new tools contribute to a more powerful educational experience?" According to Peck and Dorricott, "Educators at stage three understand that it is what the student does that counts" (p. 12). Educators who have moved to stage three have identified ten reasons to use technology. As we have progressed through the project, we have clearly seen the support for each of these ten reasons identified by Peck and Dorricot.

1. Students learn and develop at different rates
2. Graduates must be proficient at accessing, evaluating, and communicating information.
3. Technology can foster an increase in the quantity and quality of students' thinking and writing.
4. Graduates must solve complex problems.
5. Technology can nurture artistic expression.
6. Technology creates opportunities for students to do



**Ryba, K. , Selby, L., & Nolan, P. (1995).  
Computers empower students with special needs.  
*Educational Leadership*, 53(2), 82-84.**

*"Empowering students through the use of technology meant that students had a new tool that helped them gain control over their learning."*

This article supported our goals and objectives as we started the technology mentor project. The article was written based upon a study conducted in a New Zealand school. Because the article was published back in 1995, this points to the fact that American schools are behind in their thought of how to make the best potential use of technology to benefit all students. A number of years later, we are only beginning to introduce this concept to our school that all students can benefit from the use of technology. The authors' results were similar to our conclusions. Ryba, Selby, and Nolan (1995) found that there were several ways that computers empower students with special needs. Empowering students through the use of technology meant that students had a new tool that helped them gain control over their learning. The authors found that the computer could first be used as a social development tool, a tool to enhance learning opportunities through multimedia programs, and the computer could be used to celebrate learning achievements.

Computers at one time were thought to isolate students. However, we have seen that technology creates excellent opportunities for students to work together. As a result of working together, interpersonal skills are developed. We have witnessed this through the technology mentor program. We have observed students learning how to interact appropriately with their mentor. We have observed a regular education student who was suspected of having severe ADD/ADHD able to focus upon helping his mentoree and actually develop strategies to help his mentoree complete the task. Working as a mentor for this student helped his focusing skills as well. We have also noticed a willingness from both the mentors and the mentorees to exchange greetings and appropriate social interactions in the hallways and in groups when on field trips outside of school. Technology lends itself to several cooperative learning strategies which enhance appropriate social development.

In the past most technology used with special needs students was restricted to drill and skill practices. Many of these were not even age appropriate. The authors found that teachers themselves were able to create several new and relevant learning opportunities through the use of multimedia programs. According to the authors, one such program combined a digitized picture and message from the student. In addition, students were able to create pictures and statements of things they liked. We have seen the same results through using ClarisWorks drawing, painting, word processing, and slide show features. Our students used ClarisWorks drawing and painting to fill in a map of the Canadian Provinces. This is the

same project which all seventh graders do on our team in the fall. Then students are exposed to word processing features by typing up basic recipes. Working with mentors, the students typed recipes which were used to make soup. The soup was then sold to teachers each Wednesday. All recipes were later put into a booklet using the sideshow feature. This allowed students to view and celebrate their final product.

Ryba, Selby, and Nolan (1995) also discovered that technology allows students to celebrate their learning achievements. The authors listed several great ideas on using technology to celebrate learning:

1. School or class announcement of individual student accomplishments.
2. Student demonstrations of software and hardware.
3. A multimedia club.
4. Computer celebrations.
5. Certificate of recognition.
6. Bulletin Boards.

We have found that creating a sideshow to be displayed during the Latin American Festival was one of the best ways to celebrate our students' achievements. All of the Team 2 students were involved in the study of Latin America. One of the projects during the study was to create a postcard from a country they had studied. With the assistance of mentors, students selected pictures from the internet and wrote a pretend postcard. The cards and pictures were all displayed at a booth the students created. Since much of the community attended this event, this was a very public way to celebrate their technological achievements.

As the authors consistently pointed out, there are many ways to empower students with special needs through the use of technology. "Recent advancements in technology means that almost all students can now access and use computers in personally meaningful ways that help them to communicate and learn" (p. 84). The most relevant point that the authors made and that we have witnessed has been that students who have experienced failure in the past just might find that working with computers is fun and that truly enhances the learning process!

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*"The implementation brought together staff members who had not had an opportunity to work together in the past."*

## **METHODOLOGY**

During the second year we began to implement and assess the programs developed during the first year. The implementation brought together staff members who had not had an opportunity to work together in the past. Shepherd has had very little prior interest in actively and successfully integrating special education students into the regular education classroom. Therefore, special education and regular education staff have had very little experience working together and very little knowledge of each other's roles as teachers. We expected to develop some strategies to help staff appropriately include the special needs student in projects involving technology. Ultimately, we hoped to foster communication and understanding among staff and students populations.

### **Time Line For The Project**

#### **Fall/Winter 1996**

Technology arrives in classrooms.  
Attend technology and included curriculum workshops.

#### **Spring/Summer 1997**

Develop the plan and activities for Technology Mentoring Program.  
Program will include these units:

Initial Computer Training/Introduction to the Internet  
Canadian Unit  
Latin America Unit

#### **September 1997**

Begin implementation of Technology Mentoring Program.  
Select mentor students based on volunteer participants.  
Complete initial Computer Training Unit.  
Assess success of the unit.

#### **October-November 1997**

Design Introduction to the Internet activities and Assessment tools.

**December-January 97-98**

Design Canadian Unit and assessment tools.

**February-March 1998**

Design Latin America Unit and assessment tools.

**April-May 1998**

Review designed units and assessments.

**Summer 1998**

Complete design units and review assessments.

**Fall 1998**

Implement Initial Computer Training Unit and Canadian Unit.

**Winter 1998-99**

Implement Latin American Unit and Introduction to the Internet.  
Compile data and report findings.

**January 1999**

Prepare final Presentation.

**February 1999**

Conduct workshop for district personnel and teaching assistants.

**Terminology Used in the Project**

**Adaptations:** Adaptations refer to any adjustments that are made in order to enhance a person's ability to successfully participate in an activity. The adaptations can be temporary or permanent.

**Age Appropriate:** Activities, materials, or interactions that are expected for the chronological age of the student.

**Collaboration:** The interactions between the regular and special educators to enhance learning activities.

**Inclusion:** Students with disabilities are members of the same school community as peers. When appropriate they are included in the chronological age appropriate grade, class, and activities. Inclusion does not mean all instructional time is spent in general education classrooms.

**Mental Impairment:** Any student placed in a special education program due to significant cognitive delays.

**Mentor:** Student who provides guidance, friendship, and a positive social behavior model to chronologically-aged peers.

**Minimal Assistance:** Assistance given only when the student is not capable of completing the task independently.

## Procedures Used For Collecting Information

### Expected Outcomes

Strategies will be successful in helping staff appropriately include the students with disabilities in projects involving technology. Communication will facilitate and strengthen understanding among staff and student populations.

### Criteria for the Success of the Project

The regular education students will participate as technology mentors.

Students will:

- act as a guide to foster independence with technology
- gain knowledge on people with a variety of disabilities
- increase computer knowledge
- communicate appropriately with special education students

Teachers and Teaching Assistants will apply strategies to include students with disabilities.

## Procedures Used For Analyzing Information

**Pre-Technology Skills Survey:** In the fall of 1998, special education students and technology mentors will be given a short survey to determine current skills.

**Video recording of students in the mentoring program:** Once every four weeks students will be video taped to monitor progress.

**Student journals:** Once every week all students will be asked to write about experiences in the technology mentoring program.

**Electronic Portfolios:** Because all students have an individual file on the school's networked system, they will save a project from one of the three included units:

- Basic computer skills
- Painting and drawing - Canada Map ([Appendix #1](#))
- Word processing - Recipes ([Appendix #2](#))

- Basic Internet - Postcard ([Appendix #3](#))

**Post-Technology Skills Survey:** In January 1999 special education students and technology mentors will be given a short survey to determine newly acquired skills.

**Staff Pre/Post Survey:** In the fall of 1998, involved teachers and teaching assistants will be given a short survey to assess current attitudes regarding inclusion. In the spring of 1999, involved teachers and teaching assistants will be given the same survey to measure any changes in attitudes.

## **Performance Levels**

We expect that the performance levels will show a significant increase in the areas assessed.

### **Pre-Technology Skills Survey**

Students will respond to five questions regarding current technology skills. ([Appendix #4](#))

### **Video Recording**

During Technology Mentor sessions, students will demonstrate an increase in positive peer interactions. ([Appendix #5](#))

### **Student Journals**

All students will respond in writing about one experience each week during the technology mentoring session.

### **Electronic Portfolio**

All students will select their best included technology project for their electronic portfolio.

### **Post-Technology Skills Survey**

Using the same questions as on the pre-survey, regular education students will be able to demonstrate five new skills.

### **Staff Pre/Post-Inclusion Survey**

Using the same questions from the pre-survey, teachers and teaching assistants will report on the progress of the program's development. ([Appendix #6](#))

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*"By the completion of the project, most students were able to report their involvement in Internet research, design and presentation of a slide show, as well as use of more sophisticated tools, such as painting and drawing in ClarisWorks."*

## **FINDINGS: Data Results**

**Student Basic Skills Pre/Post Survey (Appendix #4):** In the eight areas surveyed, all peer mentors reported an increase of at least 90% from the pre-survey. These results were calculated based upon the comparison of students' responses to the same questions given both in the pre-survey and the post-survey. No questions were changed. We looked specifically at the responses to question #8, "In what other technology related activities have you participated?" When we compared the pre and post-surveys, we found that there had been an increase in the number of activities. When averaged and compared, the results represented an increase of 90%. For example, most of the peer mentors reported on their pre-surveys that they had been involved in word processing activities only. By the completion of the project, most students were able to report their involvement in Internet research, design and presentation of a slide show, as well as use of more sophisticated tools, such as painting and drawing in ClarisWorks.

**Video Observations (Appendix #5):** On five different occasions for a period of ten minutes at each taping session, portions of the technology mentor program were recorded: These sessions occurred on the first day of the mentor program, one month into the mentor program, two months into the mentor program, three months into the mentor program, four months into the mentor program, and on the final day of the mentor program. Prior to video taping, we established a checklist of behaviors that we hoped students would demonstrate. Our checklist included the following behaviors:

- All students engage in appropriate conversations.
- Regular education students guide special education students using minimal assistance.
- Special education students appropriately accept minimal assistance from Regular education students.
- Regular education students use verbal reinforcements.

As we viewed each taped session, we simply marked either a plus or a minus for each behavior. Following the completion of each taped session, we reviewed the tape and evaluated the observed behaviors. Throughout the technology mentor program, portions of sessions were videotaped.

Of the five behaviors observed, improvements occurred with each evaluation. Initially students were exhibiting assessed behaviors

with approximately 40% accuracy. Over a three month period of mentoring sessions, these results increased to between 90 and 100% in all areas. The special education students also showed an increase in their basic skills. We found that 80% of the students were able to perform all basic skills which were not present at the time of the pre-survey.

**Technology and Inclusion Staff Survey** ([Appendix #6](#)): Several themes were present in the pre/post surveys. Observations made by several staff members included the following:

- an increase in classroom interaction
- a change in the type of activities from skill and drill to engaging activities creating products
- an increase in positive social interactions
- development of pride, leadership and confidence for both regular and special education students
- an increase of special education student involvement on the team

**Student Response Journals:** Initially we had planned students would either orally or in writing reflect upon mentoring experiences. However, due to time constraints it was impossible to accomplish this consistently. Although we have journal entries and oral responses, the inconsistency invalidated the use of this method as an assessment tool.

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*"The number of positive outcomes that have developed as a result of the project have surpassed our initial goals and expectations."*

## **SUMMARY AND CONCLUSIONS**

We were extremely thrilled with the results of our project. Several positive outcomes developed as a result of the Technology Mentoring Program. Because we came to this project with different backgrounds and experiences, we each had individual personal successes. To adequately express our discoveries, we have written individual reflections.

### **Mary's Comments**

When Susan and I first started this project, I have to admit I was apprehensive about how the inclusive setting was going to work. I had little experience with special needs students. On the other hand, I was bothered by the fact that some students were not getting equal exposure to our new technology. I was also bothered that special educators in our district were not receiving adequate training to incorporate the technology with their students. Since I had been working as a technology consultant, I saw this as an opportunity to include Susan in our technology experiences.

After having completed the project, several positive outcomes developed. Students and teachers were both able to develop technology skills further. When I compared the pre- and post-surveys from the students it was evident that there was a 90% improvement in the basic skills area of technology for the mentors. This proves the old adage once again that one truly learns something when they have to teach it to others. Susan and I were able to pilot an entirely new technology project that will be incorporated into the Latin American Theme unit next year. By designing the electronic postcard activity, we were able to experiment with the benefits of using word processing to complete the task. Up to this point, all students on our team designed them by hand. We found that using the word processing helped mentorees express their ideas for everyone to read clearly. Also, mentorees were given the experience of visual travel to the countries about which they had read with Mrs. Bruner by going onto the internet to select a picture. Most importantly, was the growth that occurred within myself and the mentors as we worked with our technology mentorees. After working with Susan, I was able to learn how to adapt the activities to fit the needs of the students. More importantly, as I watched on the videotape, I saw

my body language change throughout the project. At first, like the student mentors, I was very uncomfortable and did not know what to expect from the mentorees. At this point I now interact directly with the students by placing a reassuring hand on their shoulder and telling them "Good Work." I have even learned what they are capable of doing. I have found that we have developed relationships. The most touching moment was during the Latin American Festival when Tina brought her mother up to me to introduce us. Now many of the students greet me in the hallway and have a conversation with me as well. I have seen the relationship between the mentors and mentorees grow as well throughout the year. I was most happy to observe Don, a technology mentor, who has ADD and had several negative experiences at the beginning of the school year become completely focused when he worked with Diana. Social relationships have also developed among the mentors and mentorees. As Amy, a mentor, wrote in her journal entry, "I danced with John several times at the Halloween dance. He even says hello to me when he sees me in the cafeteria." The number of positive outcomes that have developed as a result of the project have surpassed our initial goals and expectations.

### Susan's Comments

*"I felt the most important aspect of our program was the successful incorporation of the students into the regular education curriculum."*

Although Mary and I agree on the highlights of our project, the importance of these accomplishments differ to us individually. I feel that the incorporation of computer skills into the special education program is an immeasurable success. These students can benefit greatly from the use of technology. The peer mentor program has allowed my students access to a computer lab that some teachers deemed "unnecessary for the special education students." The peers have also solved the great special education debate of "How are we going to reach all of these kids when they need one-on-one assistance?" Through the progress of the program, I know the peer mentors learned many new skills as well.

The development of the projects in which my students became involved was excellent. With two teachers collaborating, the projects became much more innovative. I hope that the results of our project encourage more sharing of ideas and curriculum between regular and special educators. It is very satisfying for my students to see their projects admired by others and also to be a part of a team-wide activity.

Mary felt that the growth between the regular education students and the special education students was the greatest project accomplishment. I agree that the growth in friendships is immeasurable. The benefits for both populations are many. But, I have been lucky enough to see this type of bond between the students through the school's Peer Partner Program. This program allows for similar relationships to be built.

I felt the most important aspect of our program was the successful incorporation of the students into the regular education curriculum. Although my students have had interactions with the regular education peers for the six years the peer partner program has been in existence, other teachers and staff have not seen the results. Many have questioned the special education students' academic and social abilities. Some have admitted their apprehension and requested not to work with the students. I think the Latin America project helped to break down some of those barriers. Teachers saw my students interacting appropriately with the student population. They were able to see projects they completed independently and with the help of their peer mentors. I feel that some of the hesitation that has been in the school for the past six years I have been teaching is being replaced with an eagerness to see these students involved. This is a goal I have strived for continually and certainly adds to the success of our project.

## Recommendations for the Future

After concluding the initial phase of the project, we have several changes we would make as we implement the project in the future. First, in establishing mentors and partners, we think a rotating partner schedule would be most effective. We observed some mentors becoming frustrated following long intervals with the same partners. In the case of Diana and Don, Diana required a lot of physical support in order to complete technology tasks. Therefore, Don became uninterested in working with her and eventually requested a new partner. A rotating partner schedule will expand positive peer interactions.

Another concern was the original time allotment chosen for the mentoring sessions. We allowed ourselves only 25 minutes during a weekly homeroom period. These time constraints did not allow for location change, introduction of activity, or adequate time for production. During the project we found more success by arranging an additional 40-minute weekly study period for mentoring. In the future this amount of time will be allocated. This time will occur during Prime Time, a 40-minute study hall. Consequently, mentors will volunteer during this time.

A final issue was the number of projects we targeted for implementation this year. Initially we identified four major technology based projects. Because of schedule changes, time constraints, computer lab problems and lack of technology experience on the part of students and instructors, we had to eliminate some projects initially planned.

## Specific Project Changes to Implement:

### Basic Technology Skills (logging in, using the mouse)

- For mouse practice use puzzle function
- Request mouse practice be installed on all computers
- Create checklist of basic skills for mentors to use as a guide

### Canada Map (drawing and painting in Claris Works)

- Plan at least four to five mentor sessions
- Put map into puzzle function as an introduction and geography lesson

**Recipes** (basic word processing in Claris Works)

- Use of all upper case letters to save time and confusion
- Plan at least four to five mentor sessions

**Postcard** (drawing, word processing, and basic internet usage)

- Review parts of a letter including how to address
- I.D. cards with names and addresses to alleviate any communication concerns
- Pre-writing activities completed in classroom before attempting computer postcard

**Latin American Booths**

- Latin American projects will be integrated (special education and regular education students in the same groups)

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**About the Authors**

**Mary Lindig** has taught seventh grade for the past eleven years. During her career, she has presented workshops at her school, Shepherd Middle School as well as internationally in Guatemala. She completed her Masters from Aurora University in June of 1999. Although technology has become one of her hobbies, Mary also loves to read- any kind of book, camp, travel, swim, snorkel, and play with her new baby daughter who arrived this past July.

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