DOCUMENT RESUME

ED 389 697 SP 036 342

TITLE	Research in the Classroom: Eighth Annual Report of Research Projects Conducted by Educators in Their Classrooms 1993-94.
INSTITUTION	Colorado Council for Learning Disabilities.
SPONS AGENCY	Colorado State Dept. of Education, Denver. Special Education Services Unit.
PUB DATE	Feb 95
NOTE	26p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Classroom Research; Communication Skills; Educational Researchers; Elementary Secondary Education; Genealogy; Grade 3; Immersion Programs; *Learning Disabilities; Listening Skills; Mathematics Education; Music Education; Phonics; Reading; Special Education; Special Education Teachers
IDENTIFIERS	Colorado; *Teacher Researchers

ABSTRACT

This publication contains reports on eight research studies proposed, developed, and conducted by special education teachers in their own classrooms. The projects are: "Chapter 1 and Special Education Working Together To Activate Students' Participation in Applying Math through the Use of Technology" (Megan Haynes Blancett and Carol Nollsch); "A Modified Math Curriculum To Enhance Learning for High-Risk and Learning Disabled Third Grade Math Students" (Christine Tapia); "Immersed in Print" (Georgette Colasanti); "Using Phonic Icons To Improve Decoding Skills" (Jerry Schmitz); "Using Music To Enhance Skill Acquisition and Retention in Primary Students with Learning Disabilities" (Randee Bergen); "Genealogy: Multicultural Approach to American History for Integrated Learning Disabled Students at the Secondary Level" (Sharon Boatwright, Ken Huff, Matt Gruebmeyer, and Marilyn Lyle); "Assisted Listening Devices To Improve Listening Skills in LD Students with Receptive Language Delays and/or ADD/ADHD and Students Rated as Having Poor Listening Skills by Their Classroom Teacher" (Renee Hornbecker); and "Teaching Verbal and Nonverbal Communication Skills to Students with Learning Disabilities" (Janet Kester and Mary Amid). (JB)

Research in the Classsroom

Eighth Annual Report

of

Research Projects

Conducted by Educators in Their Classrooms

1993-94

cde
COLORADO DEPARTMENT OF EDUCATION
Special Education Services Unit
201 E. Colfax, Room 300
Denver, CO 80203-1799

February 1995

Research in the Classroom

Eighth Annual Report
of
Research Projects
Conducted by Educators in Their Classrooms
1993-94

Sponsored by the
Colorado Council for Learning Disabilities (CCLD)
and the
CDE Special Education Services Unit

Fred Smokoski, Director
Special Education Services Unit
(303) 866-6694

Brian McNulty, Executive Director
Office of Special Services

William T. Randall
Commissioner of Education

Colorado Department of Education
201 E. Colfax Avenue
Denver, Colorado 80203

INTRODUCTION

The Colorado Council for Learning Disabilities is proud to present the eighth annual copy of *Research in the Classroom.*

The Classroom Teacher Research project was started by CCLD in 1987 to encourage teachers to conduct research in their classrooms. It was felt that this would make an important contribution to the improvement of teaching and to the knowledge base which supports how children learn. Interest on the part of Colorado teachers has grown. To date, over 200 proposals have been submitted by teachers throughout Colorado. Of these, 59 have been funded. The next page shows the variety of subjects that have been researched since 1987.

In 1989, two grants were established to memorialize Colorado colleagues who had contributed to the field of special education. These grants were in memory of Audry Eicher and Jeanne Hughes. In 1991, the Ellie Smucker Memorial Fund was established by her family. This fund will continue to be the source of one award each year to be given to the applicant chosen by the research committee as the outstanding candidate. In May, 1994, this grant was awarded to Joye Fuller from Fairview High School in Boulder. Her research is "Stand by the Best: Use of Multimedia Portfolio as Assessment of Content and Transition Skills."

CCLD has been designated as a tax-deductible non-profit organization. Those interested in supporting the grant concept may contribute toward its financial support through gifts made to the CCLD Grant Fund. The awards have ranged from $200 to $500 per project. Additional funds will mean more grants to classroom teacher researchers.

The material which follows summarizes the final reports of proposals which were funded in May 1993. It is hoped that these summaries will encourage more teachers to undertake research projects to be used to improve classroom instruction. They illustrate examples of systematic approaches focused on supplying answers to questions these teachers were curious about. We feel that these methods and results will be of value to both educators and students as we strive to improve classroom instruction through research.

Shirley Bradsby
Research Chairperson

Research in the Classroom
8th Annual Report

It's hard to believe that we, at the Colorado Department of Education, have been collaborating with the Colorado Council for Learning Disabilities on the Research in the Classroom project for eight years! Each year we see the quality of the applications improve and the creativity of the projects grow. This Eighth Annual Report contains summaries of nine classroom research projects.

Two of this year's grants focused on teaching math skills. The study, *Chapter 1 and Special Education Working Together to Activate Students' Participation in Applying Math Through the Use of Technology*, designed by Carol Nollsch, was also funded by National CLD so it can continue another year. It demonstrates effective collaboration between two professionals to develop exciting learning opportunities for students. A second grant, written by Christine Tapia, studied how to best teach math skills to students with learning disabilities (*A Modified Math Curriculum to Enhance Learning for High Risk and Learning Disabled Third Grade Math Students*).

Three studies funded last year focused on reading (Georgett Colasanti's *Immersed in Print*, Jerry Schmitz' *Using Phonic Icons to Improve Decoding Skills*, and Kennye Jarrett, Maureen Morris and Louise Sherman's *The Use of Telecaption Decoders to Teach Reading to Learning Disabled Elementary Students*). In addition Randee Bergen studied the use of music to enhance skill acquisition and retention (*Using Music to Enhance Skill Acquisition and Retention in Primary Students with Learning Disabilities*). So, if you want ideas for helping students learn basic skills in these days of standards-based education, check these projects out.

Meanwhile, Sharon Boatwright, Ken Huff, and Matt Gruebmeyer were interested in helping students learn American history more effectively. They studied the use of genealogy as a tool to help students learn regular content information. If you are interested in unique thematic unit approaches, read the description of *Genealogy: Multicultural Approach to American History for Integrated Learning Disabled Students at the Secondary Level*.

Many students with learning disabilities have difficulty listening. Renee Hornbecker designed a study to assess the impact of using assisted listening devices for students with receptive language delays and/or Attention Deficit Disorder. Her study may also be helpful to you.

Finally, Janet Kester focused on communication and social skill development (*Empowering Learning Disabled Students to Communicate and Socially Interact Effectively*). Need some ideas on teaching social skills? See this report.

Clearly, there is a wide variety of topics and approaches covered by teacher researchers in Colorado. We know you could add to these. Why don't you read over what your colleagues have done and then consider writing a research project of your own? Who knows, maybe next year your project will be written up in this book!

It is with pleasure that we share this Eighth Annual Report of Research in the Classroom with you.

Lois Adams
Kay Cessna
Colorado Department of Education

Table of Contents

Title:	Chapter 1 and Special Education Working Together to Activate Students' Participation in Applying Math Through the Use of Technology
Researcher:	Megan Haynes Blancett - Chapter 1 Academic Skills - Mathematics Carol Nollsch - 6th Grade Special Education, Moderate Needs Teacher
School:	Denver Public Schools Baker Middle School 574 West 6th Avenue Denver, CO 80204 (303) 629-6906

Statement of the Problem: Students with learning disabilities come to the mathematics classroom lacking the ability to apply learned mathematical knowledge to real-life situations.

Objective: To determine the effects of teaching problem-solving skills using a multimedia approach to increase the LD students' application of learned mathematical concepts to real-life situations.

Rationale: Baker Middle School is an inner-city school that has a high percentage of learning disabled students (the 1993-94 estimate for 6th grade is 23%). In addition, two-thirds of all 6th graders and almost all learning disabled students are now in the Chapter 1 Academic Skills program for mathematics. Baker has a high at-risk population with the potential for dropping out of school by the tenth grade. These students come to school with a poor attitude toward mathematics and low self-esteem. In order to better serve tthem, the school is going through a major restructuring in which the teachers are looking at increasing the learning of all students by using a variety of methods to more actively involve them in their own learning. It was our intent to increase the learning of the at-risk students as well as those with learning disabilities by using a multimedia approach in applying their learned knowledge to real life problems involving math.

Procedure: The project was piloted in all the Chapter Academic Skills math classes since: (1) they had a limited class size, (2) the emphasis was on teaching and learning with technology, and (3) the majority of LD students were enrolled in this program. The two teachers pre-tested the students by using the ASC Alternative Assessment Profile form and the Brigance Test of Basic Skills in order to determine the students current abilities to apply mathematical concepts to solving real-life problems.

At the beginning of the year, the Academic Skills Center (ASC) teacher started with a story problem each week in the Chapter One Math class. The problem-of-the-week (POW) was the platform for modeling problem solving strategies, such as: making an organized list, guess and check, and estimation. Initially the POW write-up required reading that was difficult for the LD students. After the first POW, the ASC teacher consulted the Special Education teacher and revised the write-up. They made the write-up as short and succinct as possible without losing the focus on students making mathematical connections and writing descriptions of their thought processes.

Through the first semester, these write-ups were used once a week without technology. A project was piloted in the 8th grade ASC class where the students developed, staged and produced POWS using multi-media. The POWs were cards in a Hyper-Studio stack. Students used the mouse to click on various icons that allowed them to move through the stack, run video segments and play recorded sound. In one POW, the class determined how much the bill would be as they watched a fellow student order dessert for himself and his friends. The *Dessert POW* included a sample menu, a video segment and the recorded voice of the teacher stating the problem. This pilot project created several POWs used in the other ASC classes.

In November, the 6th grade students experienced their first multimedia POW, the Dessert POW. Ronesh, a 6th grader, said, "I like computer POWs because they're easy to understand what the computer is saying instead of reading. This helps me understand what I need to learn. It gives me

more information." By April, the students had experienced over five multimedia POW's; the consensus was the POWs made their learning fun and more realistic. Some of the multimedia POWs were: the Dessert POW, the Halloween Dance POW, the Luge POW, Mrs. Blancett's Birthday POW and the Pinewood Derby POW.

In May, the 6th grade classes worked in cooperative groups of three students to create their own POW. Students had already been generating their own written POWs as part of their weekly write-ups. For example, a 6th grader, Raymond, wrote a POW as follows: "Two race cars started at the race line. The red car went 5,478 feet and the green car went 3,912 feet. How many feet is it going to take the green car to catch up with the red car?"

The project concluded with the students creating their own multimedia presentation of their groups' POW. These final projects entailed the students working cooperatively to create a multimedia presentation of this problem that incorporated pictures, sound, animation and video into a Hyper Studio stack.

In addition, the students have kept portfolios in which their POW have been included. As a part of their portfolios, students reflected on their problem solving, communication and thought transference abilities. Students regularly wrote in journals discussing POWs and doing self evaluations. Also, the students were post-tested with both the ASC Alternative Assessment (completed by the regular Math teacher) and the Brigance test of Basic Skills.

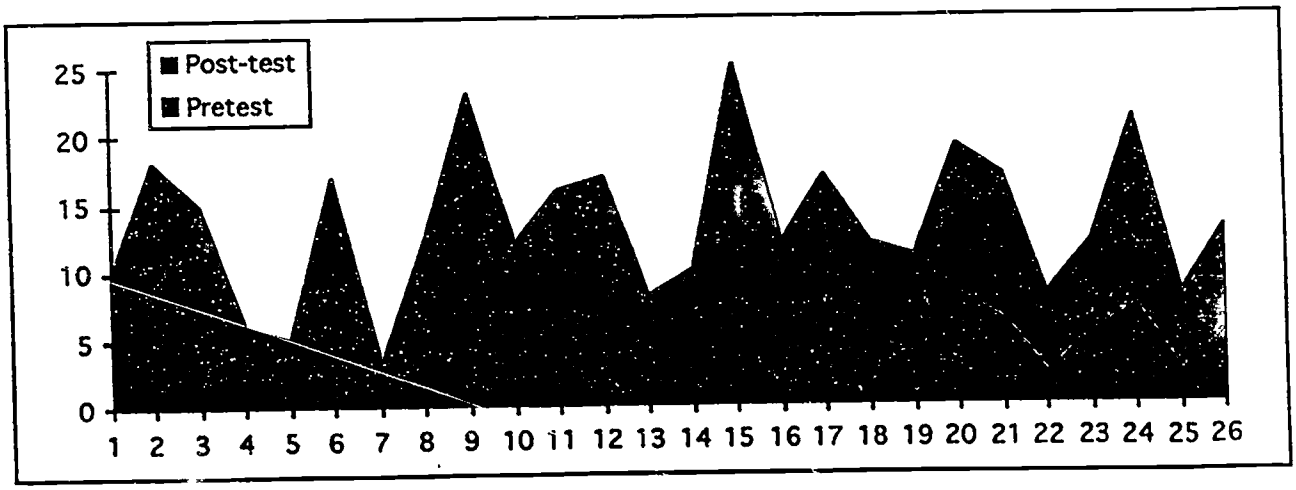
Evaluation of the research:

- Spring 1993 and Spring 1994 scores of IOWA Test of Basic Skills in Problem Solving for all students in the ASC math program:

  Chapter 1's analysis of 1993 to 1994 scores showed Baker ASC students rose 4 NCE's (National Curve Equivalency) on average.

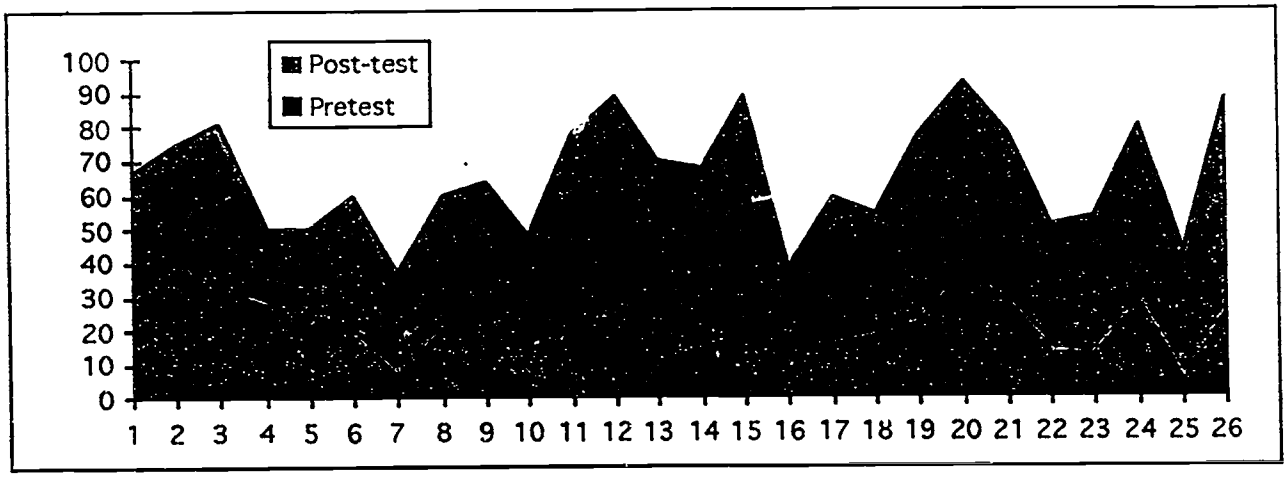
- Brigance Test of Basic Skills, Math Comprehension for LD students:

  Comparison of the story problem portion of the Brigance test showed a dramatic increase in the 6th grade students' ability to solve problems. On the post-test, the students seemed more confident and tried all the problems. In addition, the students knew which concept they needed to apply but made simple errors in computation.



- ASC Alternative Assessment Profile form for ASC math students:

  The pre and post checklist is completed by the student's regular education Math teacher. Again, students showed marked improvement, particularly in applying mathematical concepts and problem-solving skills.



- Students' self-evaluation of their attitude and ability to apply mathematical concepts to real life situations:

  At the end of the year, students answered the following question:

  > "DESCRIBE ALL THE THINGS YOU LEARNED FROM DOING POWs THROUGHOUT THE YEAR. (THINK ABOUT - HOW YOU FEEL NOW ABOUT STORY PROBLEMS COMPARED TO THE BEGINNING OF THE YEAR - THE PARTS OF THE WRITE-UP - MULTI-MEDIA POWs etc.)"

Generally, the students felt very positive about their experience solving POWs and now feel more confident in trying new story problems. The students also like the POWs on the computers, since they involve more of their senses.

> Michelle (6th grade), "I feel good about story problems because they taught me a lot. Now they are easy for me. I think doing POWs on the computer is better because I think it is a lot more fun."
>
> Jennie (6th grade, LD), "At the beginning of the year, I didn't like POWs at all, but now they're easy to do. I have no problems doing them at all."
>
> Ronesh (6th grade, English second language), "At the beginning of the year, it was difficult for me. It was hard. I used to get C's and D's. But when I started asking questions, it was getting nice. Soon I started to get B's and A's. I get 80's or 90's and it is fun for me. There is just one POW that I got 100% on and I'm really proud of myself."

- Teacher observation records of students' participation and involvement in the project:

  The ASC teacher noted a remarkable change over the year. Initially, the students dreaded POWs and complained loudly about the write-up. By the end of the year, the students were completing the POWs with confidence and ease. During ITBS testing, the ASC teacher did not give a POW and several students volunteered to make one up that coincided with the test! All the students began to compete to create their own story-problems so they would be used by the ASC teacher as future POWs.

Plans for Dissemination: The researchers have already begun to share this project. The ASC teacher, Megan Blancett, presented to the ASC Roundtable in January, as well as the Denver Public Schools Technology Fair on April 17th and 18th. Megan has also shown sample multimedia POWs to her professors in the Education Department at the University of Colorado, Denver campus. Further plans include: the Moderate Needs Teacher and ASC Math Teacher will co-present findings to Baker staff and Denver Public Schools Special Education and Mathematics district meetings. In addition, presentations applications have been sent in for two state conferences: Courage to Risk and Colorado Council of Teachers of Mathematics. Journal articles will be submitted to "*Journal of Learning Disabilities*" and "*Arithmetic Teacher.*"

Title: A Modified Math Curriculum to Enhance Learning for High-Risk and Learning Disabled Third Grade Math Students

Researcher: Christine Tapia

School: Minnequa Elementary
1708 E. Orman
Pueblo, CO 81004
(719) 549-7580

Statement of the Problem: A traditional classroom setting and textbook curriculum do not often lend themselves to the more intense, hands-on (concrete) curriculum which learning disabled and high-risk learners need to thoroughly understand math concepts and gain mastery over basic skills. Therefore, a small group setting with more manipulatives and teacher interaction needs to be employed.

Objective: To evaluate the effectiveness of using manipulatives and small group instruction to improve math skills.

Population: Ten third grade students, nine of whom are labeled with perceptual communicative disabilities, and one student who did not qualify for the PC program but has extensive attentional and behavioral problems were selected. The number of students fluctuated throughout the year with as few as five and ending with a total of ten.

Procedure: All third grade students are administered the Individualized Computational Skills Program, Revised (ICSP), Form A as an entering pretest. All PC students participated in the study based on their pretest scores and teacher recommendation. The non-PC student participated based on a low score and difficulty participating in a large group as witnessed by one of the three third grade classroom teachers. Students met for one hour daily, four days a week. Each basic concept was introduced with manipulatives and manipulatives and/or compensatory devices (number lines, matrixes, etc.) were used on a daily basis. Homework, which was given only three nights a week, was modified to a limited number of problems, which were usually in large print and involved a minimal amount of reading. (Students reading levels ranged from readiness to beginning second grade level.) Teaching "strategies" was also emphasized. The teacher read directions and word problems aloud on all assignments, quizzes and tests.

Assessment Instruments: ICSP Forms A and B were given as beginning and ending year tests for basic computation by the entire third grade. Measurement and Time sections of the Brigance Inventory of Basic Skills were given as basic test for time and money skills.

Results: In all test areas there was improvement. The results of the ICSP computational test show gains made from pre to post test.

	PRETEST (FORM A)		POSTTEST (FORM B)	
Student	Raw	Grade Equiv.	Raw	Grade Equiv.
A	1	1.7	22	3.5
B	1	1.7	20	3.3
C	14	2.7	25	3.8
D	3	1.7	18	3.1
E	14	2.7	18	3.1
F	16	2.9	26	3.9
G	14	2.7	27	4.1
H	16	2.9	26	3.9

	PRETEST (FORM A)		POSTTEST (FORM B)	
Student	Raw	Grade Equiv.	Raw	Grade Equiv.
I (non-PC)	5	1.8	18	3.1
J (came late, no pretest)			27	4.1

The majority (80%) gained ten or more problem points in computation and at least one grade level in computational skills as measured by the ICSP.

Implications: This project demonstrates that manipulatives and small group instruction with necessary modifications do improve math skills. The only negative that arose from the grouping was several students with behavioral problems were created less than an ideal environment at times. This researcher would suggest that, if this is tried again, no more than six students be in the group. Also, if at all possible, that this be done more collaboratively with the regular class teacher. Scheduling and caseload are a large factor in this recommendation.

Tests and Texts:

Bolster, Crown, et al. *Scott Foresman Math*, Grade Three. Scott Foresman Publishing, 1987.

Brigance, Albert. *Brigance Comprehensive* Inventory. Curriculum Associates, 1983.

Shaw, Oldaker, Hiehle. *Individualized Computational Skills Program, Revised.* Houghton Mifflin, 1980.

Resources:

Floomer, Anne and Carlson, Phyllis. *Activity Math: Using Manipulatives in the Classroom K-3*. Addison Wesley, 1993.

Cohen, Sandra. *Figure It Out.* Curriculum Associates, 1994.

Mollyneux, Lynn. *Cooperative Learning and Math Success.* Trellis Book, 1992.

Richardson, Kathy. *Developing Number Concepts Using Unifix Cubes.* Addison Wesley, 1984.

Stenmark, Jean; Thompson, Virginia and Cossey, Ruth. *Family Math.* Hall of Science, University of California, 1986.

Title: Immersed in Print

Researcher: Georgette Colasanti

School: Place Middle School
7125 Cherry Creek Drive North
Denver, CO 80224-2044
(303) 758-6111

Statement of the Problem: Meeting the reading and writing needs of special education students in a full inclusion model.

Objective: To offer a rich curriculum and a variety of materials to meet the individual needs of special education students who are in the regular education setting.

Population: A team of 50 seventh graders consisting of 23 special education students including children with learning disabilities, emotional disorders, ADD, and ADHD and 27 "regular" education students.

Assessment Instruments: Informal assessment was given students consisting of 1/2 hour interview asking questions such as: "Do you see yourself as a good reader?"; "What is a good reader?" The formal assessment was the BRI (Basic Reading Inventory to determine instructional level of ability.

Procedure: In each of these procedures all 50 students participated. The students were divided into two classes of 25 with regular and special education combined.

Step 1. To make writing relevant letter writing between student and teacher, student and student, and thank you letters to a guest were devised. For special projects students were given special stationery for motivation.

Step 2. Students read *The Outsiders* and were able to demonstrate understanding of the novel through a variety of projects which addressed individual talents such as artistic, spatial and linguistic. The teacher read the novel aloud and the students completed the projects.

Step 3. The teacher used the "predictability strategy" in nearly all reading assignments. Students kept literature logs where they were asked to predict, "What will happen next?" in the stories and novels.

Step 4. The class read *Pinballs* using the technique of character dialog. Each student was able to read the characters' dialogue from the novel as the teacher had highlighted those words in the individual novels.

Step 5. Students wrote autobiographies and read *The Diary of LaToya Hunter*. Students shared pieces of their autobiographies with the their classmates and they all read LaToya Hunter's story aloud.

Step 6. Throughout the year, project choices were given concerning units on mystery and horror, short stories, poetry, mythology and science fiction that addressed five out of the seven types of intelligence (according to H. Gardner). Materials purchased through the grant such as markers, colored pencils and pens, poster board, colored paper, magazines and blank videos enabled students to produce creative representations of their reading and writing assignments.

Evaluation:

A. BRI testing of ten students at the beginning and the end of the year. The results at the instructional ability level:

- Six students' instructional ability levels increased. Three increased less than one grade level, one increased one year and two months, one increased one year and four months and one increased two years!
- Three students' scores stayed at the same approximate level.
- One student with ED decreased by three months

These 10 students were selected with various labels: six with LD, two with ED, one with ADD and one with ADHD.

B. At the end of the year, informal interviews with all 23 special education students disclosed that they felt better about reading and writing because they had some fun experiences. Here are a few examples of statements made by the students on the video:

1. "I am successful because we read out loud all the time. We had a variety to pick from."
2. "In the beginning of the year, I didn't want to read. Now I love to read all the time."
3. "I like to read now that I am able to read."

Response of Parents: Some examples of feedback from parents are:

1. A letter from the mother of the boy who increased two reading levels thanked the teacher/researcher for encouraging and motivating her son. They were provided with reading lists for the summer and this special education student was exited at the beginning of eighth grade.
2. At honors night in May, seven special education students on the team were recognized for academic excellence and effort. At this time, the parents and grandparents of the children stated that it was this program which encouraged their children to meet with success.
3. During the school year of 1993-94 at conferences, annual reviews and tri-ennials, parents remarked that the creativity and variety of materials made the school experience more positive for their children.

Implications:

- The variety of project materials such as markers, construction paper, pencils and pens was highly motivational to students with LD because they were able to use their "gifts" to demonstrate their understanding and compete favorably with regular education students.
- The use of predictability and dialogue reading encouraged reluctant readers to participate in discussion and activities with regular education students.
- The relevancy activities in reading and writing produced the highest rate of homework and class work completed.
- The presence of five students with emotional disorders presented a negative impact at times despite careful planning, lots of materials and a variety of assignments. The teacher/researcher's interpretation is that the emotional disorders were pervasive and that

learning problems, if they existed, were secondary to the stress and confusion caused by the emotional problems.

- The teacher/researcher believes that there was a positive impact between the regular education students and the students with LD (18) in that the exchange in discussion and the results of projects and activities were such that the students reached individual success. At all times there were four to six levels or varieties of exercises or activities at which students from both groups could excel and then share their results.

Resources:

1. 50 journals used as literature logs
2. 25 copies of *Pinballs* (novel)
3. Scholastic Literature and Writing Workshop - thematic units in fiction, mystery, mythology and poetry
4. Magazine subscriptions to *Teen* and *Sports Illustrated for Kids*
5. Books and tapes of all the books (unabridged)
6. Reading, writing and center supplies

Title: Using Phonic Icons to Improve Decoding Skills

Researcher: Jerry Schmitz, Learning Disabilities Specialist

School: Greenwood Elementary School
5550 S. Holly Street
Englewood, CO 80111
(303) 771-4393

Statement of Problem: Research is frequently demonstrating that the ability to recall and sequence sounds is paramount in learning to read. Most students with reading disabilities have great difficulty remembering and recalling the sounds of the letters in words they are reading. Primary students who are confused with sound recall fall behind rapidly in learning to crack the code in reading.

Traditional approaches do not seem to help these students remember sounds. Picture icons were developed which represented each letter name as well as the consonant and vowel sounds. These pictures were then used as icons and written on the letters as a mnemonic device to foster recall. This study was devised to see if using phonic icons increased the recall of sounds in reading disabled students.

Objectives:

1. To develop a comprehensive approach to teaching reading using phonic icons.
2. To evaluate the effectiveness of this approach in teaching eight first grade students to learn letter names and sounds.
3. To compare this experimental group with other students.
4. To develop the materials necessary to teach this approach; such as: picture icons, flash cards, audio tapes and a computer program.

Population: Eight first graders, who exhibited difficulty learning letter names in kindergarten and were considered at risk for learning to read by their first grade teachers, were used for this project. Data was collected on students' knowledge of letter names, sounds and words.

Procedure: The eight children were divided into two groups of four each. Each group received instruction for 20 minutes a day for 44 days. Pre and post test data was collected on their ability to recall sounds. Students were shown pictures of upper and lowercase letters every day until they could name them correctly. They then moved from pictures to icons and wrote the letters from a visual icon stimuli.

The same procedure was used for teaching the consonants and long and short vowels. Flash cards of icons, tapes and a computer program were also used. Instruction time was 25 days.

During the last weeks of instruction, they began reading words. By the last ten days, the groups of children started reading in a pre-primer basal book.

Evaluation: Students were assessed in September and in December. They were tested on their ability to recall the letter names in capitals and lowercase, all consonants and short vowel sounds.

A comparison group was used to see if the at risk group could close the gap and demonstrate skills close to low average students. The comparison group received no instruction with the icons and was not a matched group in terms of ability, but was average to low average. Charts were kept in September and December. By December all the letter names were known by students. In December the average was 20 letter sounds without icons and that was increased to 23 when they could use icons on difficult ones. The experimental group was unable to read any words on the list in September. By December they knew nine words without icons and 12 words with icons.

Implications: The researcher felt there were two conclusions from the project:

1. When recall of sounds became automatic, children began to read.

2. The picture icons were necessary as a mnemonic device to recall sounds quickly.

The researcher feels a study should be done to confirm what this project data implies; that icons aid the learning of students.

Addendum: The materials used in this study are available to teachers. Contact Jerry Schmitz at (303) 777-7552.

Title:	Using Music to Enhance Skill Acquisition and Retention in Primary Students with Learning Disabilities
Researcher:	Randee Bergen
School:	Centennial Elementary School Littleton Public Schools 3306 W. Berry Avenue Littleton, Colorado 80123 (303) 347-4425

Statement of the Problem: Will learning disabled students' acquisition and retention of skills be enhanced when instruction is linked with music?

Objective: To determine if repeated opportunities to listen to and sing with musical cassettes about the letter names and sounds increases learning disabled students' retention and recognition of letter names and sounds.

Population: Six first grade students and two second grade students, all of whom have been identified as having a learning disability.

Assessment: Students were given these four tests on an individual basis before and after the intervention: naming letters, saying the sounds of letters, writing letters dictated to them, and writing letters that went with sounds that were dictated to them.

Procedure: The pretests (described above) were administrated during the first week of the school year to 13 students who needed additional help learning the names and sounds of letters. The eight students with the lowest scores participated in the research study.

The students were divided into two groups of four. Twice weekly for 20 minutes, each group listened to a music tape at the listening center. Each student wore his/her own pair of headphones and had his/her own booklet to follow along with. The teacher or paraprofessional worked with the group of students, encouraging them to sing along and helping them keep their places in the booklets. The music tape and booklet had a jazzy, upbeat alphabet song with a lower case alphabet and uppercase alphabet to look at; a fast-paced song that pronounced all the letters, the letter sounds and a picture that started with the corresponding letter while the students could look at the letters and pictures in the booklet; and a guessing game in which a sound was pronounced and the students tried to name the letter that made that sound before the tape provided the answer. A sheet with answer blanks was prepared for this portion of the tape so the students could practice writing the letters in addition to saying the letter names. The intervention was used for a period of seven weeks at a listening center within the regular classroom setting.

Evaluation: The post-tests (described above) were administered at the end of the seven weeks and the baseline and posttest results were compared:

Findings: Pretest results showed that generally the students could name more letters and write more letters that were dictated to them as opposed to saying the sounds of letters and writing the letters when sounds were dictated. In other words, they were more likely to know the letter names rather than the corresponding sounds. Post-test results show less of a gap between the students' knowledge of names and sounds than prior to the intervention.

All students in the study improved in all areas assessed on the pre- and post-tests. The students' ability to name letters increased from 2-27% of the 52 letters (26 lower case, 26 uppercase) presented and their ability to name the sounds of the 52 letters presented increased with the 22% to 63% range. They could write between an additional 8-77% of the 52 letters dictated to them and could write 11-50% more of the letters associated with a sound that was dictated to them. Most of

the lower percentage gains are because those students knew a rather high percentage of letters names and sounds when the intervention began and therefore did not have much room to improve.

Naming Letters

Student	Pre.	Post	Diff.
#1	65%	87%	+22%
#2	65%	87%	+22%
#3	58%	73%	+15%
#4	71%	87%	+16%
#5	23%	50%	+27%
#6	85%	96%	+11%
#7	90%	100%	+10%
#8	98%	100%	+2%

Naming Sounds

Pre.	Post	Diff.
38%	77%	+39%
40%	75%	+35%
17%	42%	+25%
40%	62%	+22%
2%	37%	+35%
37%	85%	+48%
12%	75%	+63%
38%	79%	+41%

Writing Letters

Student	Pre.	Post	Diff.
#1	79%	85%	+16%
#2	46%	85%	+39%
#3	19%	96%	+77%
#4	69%	85%	+16%
#5	30%	50%	+20%
#6	85%	96%	+11%
#7	100%	100%	+0%
#8	92%	100%	+8%

Writing Sounds

Pre.	Post	Diff.
50%	81%	+31%
42%	81%	+39%
15%	65%	+50%
50%	77%	+27%
12%	37%	+25%
69%	92%	+23%
73%	85%	+12%
85%	96%	+11%

Implications: All of the students involved, whether they were in first or second grade, had participated in writers' workshop during the previous year in school and had numerous exposures to and expectations of using letter names and sounds. These students, however, did not learn and/or retain as many letter names and sounds as would be expected. Singing letters and their sounds to upbeat music in a small group for a short period (seven weeks) increased each of the student's ability to recognize, name and write letters and their sounds.

Generally, the students were excited about using the tape and headphones. They often had to be asked to quiet down as they sang and shouted out letter names and sounds. Their ability to name the letters and write the letters during the "quiz" portion of the tape steadily increased and only seven weeks passed before it became apparent that it was now time to aid the students in applying their knowledge in daily whole class writing situations such as writers' workshop.

This study indicates that linking skills with music can improve the acquisition and retention of those skills for students with learning disabilities. Age appropriate, enjoyable music that teaches the desired skills must be located and used and assistance must be provided in helping students generalize the newly learned information and skills to "real life" situations. In this case, the students were given booklets with letters and associated pictures to refer to while doing written work in the classroom.

The students involved in the study retained what they learned and to this date know as many or more of the letters and sounds as they did when the intervention ended.

Expenditures: Several musical cassettes associated with various basic skills were purchased, although only one of the tapes was used in this specific research. It was necessary to purchase many tapes so they could all be reviewed and the one that best fit the students' needs and levels could be used. The other tapes were used and continue to be used in the classroom for other purposes.

Title: Genealogy: Multicultural Approach to American History for Integrated Learning Disabled Students at the Secondary Level

Researchers: Sharon Boatwright, Learning Specialist
Ken Huff and Matt Gruebmeyer, History Department
Marilyn Lyle, Media Specialist

School: Englewood High School
3800 South Logan
Englewood, CO 80110
(303) 762-8630

Statement of the Problem: Many secondary students do not see the relevance or usefulness of history in their future; nor do they sense any relationship to historical events and people. The problem is compounded for secondary learning disabled students who struggle with written language and the abstract time/spatial concepts which are peculiar to the study and application of history.

Objectives:

1. To modify and personalize assignments in U. S. History for learning disabled students.
2. To help learning disabled students develop a definitive description of their own unique identities in a multicultural society.
3. To understand how the diversity of cultures has shaped the United States as a democratic society.
4. To create enthusiasm and curiosity for recent history which may have influenced events and decisions in the lives of their families and classmates.
5. To compile demographic information about their community.
6. To provide guided practice using technology to acquire information and to document research.

Population: Ninth, tenth and eleventh grade students enrolled in U.S. History required by the Englewood High School curriculum to meet graduation requirements.

Procedure:

1. Students were pre and post-tested using a teacher-made test.
2. Students compiled a genealogy booklet which included:
   a. family pedigree and group sheets
   b. maps indicating family birthplaces and migration routes
   c. timelines showing concurring family/political events
   d. short essays on topics they chose for family interviews.
3. Students were given lists of descriptions for parts of their booklets and the requirements to be included in each part.
4. Students spent several sessions in the Mac Lab using genealogy software to enter data and notes on family and ancestors.

Assessment:

- Pre/post tests about family data and statistics (teacher made).
- Student's booklet containing personal history assignments.
- Daily observation of response and problem solving strategies.

Findings:

1. All students who took both the pre- and post-test raised their scores on the post test.
2. All but one student completed a genealogy booklet.

3. Genealogy software helped students organize personal information to view in clusters or chronologically.
4. The Colorado Genealogical Society will be featuring students in its quarterly magazine. Several selections from the students in this study will be published in that issue.

Implications:

It appears that genealogy helps students answer the questions "When am I ever going to use this information?" and "Why do I have to learn this?" Students seemed to have more relationship to time, past and future. There are many disciplines within the secondary curriculum where genealogy could be used to help tstudents personally relate to the material: mathematics, writing, psychology, genetics, medical histories, music, art, etc.

There are many teacher education programs now requiring/offering courses in how to use genealogy. The National Genealogical Society established a Teacher Development Committee this past year to work on the needs and education of the classroom teacher. Members of this Committee must be certificate public school teachers currently under contract. Sharon Boatwright is a member of that Committee. It is interested in hearing what teachers are doing with genealogy in their classrooms and what they might have NGS do for them in Colorado. Our state is targeted as a starting point for the Committee.

Materials:

Books:

Arthur, Stephen and Julia: *Your Life & Times: How to Put a Life Story on Tape - An Oral History Handbook* Baltimore: Genealogical Publishing Co. 1986 $8.00

Borg, Mary: *Writing Your Life: Autobiographical Writing Activities for Young People* Fort Collins, CO Cottoonwood Press 1989 $15.95

Davis, John Rivard: *Not Merely Ancestors: A Guide for Teaching Genealogy in the Schools* Baltimore: Clearfield, Co. 1993 $12.00

Flack, Jerry E: *Lives of Promise: Studies in Biography and Family History* Englewood, CO: Teachers Ideas Press 1992 $19.95

Goldrick, Monica and Randy Gerson: *GENOGRAMS in Family Assessment* New York: W.W. Norton & Co. 1985 $12.95

Hankey, Joan Rhodes: *NGS GENEALOGY PUZZLES* National Geological Society 1987

Software:

PERSONAL ANCESTRAL FILE: Genealogical Management System for Home Computers. The Family History Department, Ancestral File Operations Unit, 2WW, 50 East North Temple Street, Salt Lake City, UT 84150. Phone: (801) 240-2584 $35.00

Title: Assisted Listening Devices to Improve Listening Skills in LD Students With Receptive Language Delays and/or ADD/ADHD and Students Rated as Having Poor Listening Skills by Their Classroom Teacher

Researcher: Renee Hornbecker, Speech/Language Specialist

School: Bradford Primary School
Jefferson County Schools
1 White Oak Drive
Littleton, CO 80127
(303) 978-0660

Statement of Problem:

As special education programs move toward an integrated model to serve students in their regular classrooms, many advantages have become apparent. One disadvantage, however, is that we are asking the highly distracted student to attend to instruction in a more difficult setting. No longer do we have the advantage of a small, quiet lab setting, devoid of distractions and background noises. Rather, we have the student with attending problems trying to participate in large group settings with a myriad of distractions. Many children with language, processing or learning disabilities have difficulty listening and/or comprehending in the presence of background noise. Strategies are needed to help these children with listening skill problems improve their abilities to attend in large group settings.

Objective: To determine if the use of auditory trainers (assisted listening devices) could be a useful classroom tool for students with listening skill weaknesses including receptive language delays and ADD/ADHD.

Population: A total of four students from a regular classroom were identified by the classroom teacher and the Speech/Language Specialist. All of the students were in a second grade classroom, two of whom had been identified as having learning/language disabilities by the school special education team. One of these identified students had also been diagnosed as ADD. The remaining two students had not been formally identified by the special education team but were rated as having poor listening skills by their classroom teacher.

Assessment: Each student was rated on a listening skills checklist by the classroom teacher and the speech/language sp cialist. The students were rated before they began to use the trainers and then periodically throughout the semester.

Procedure: Permission slips were sent home to the parents describing the project and requesting permission to use the trainers and for the hearing test.

All four students were given a hearing test by the school district audiologist to ensure normal hearing acuity and to determine appropriate settings for the auditory trainers. All students had normal hearing acuity.

The speech-language specialist and the classroom teacher completed the Listening Skills Checklist for each student (Pre-test). The Listening Skills Checklist focused on the following skills/behaviors: distractibility, staying on task, physical activity, disturbing others, watching speaker, following oral directions, participating in discussions, and day dreaming. Students were rated in terms of the frequency of occurrence of these behaviors/skills.

Each student was trained in the use of the listening devices in a small group. A meeting was held in the classroom to explain the project to the whole group of students and to demonstrate th use of the trainers. Each student was allowed to listen to his or her teacher on the headset for a minute.

After using the units for four weeks, the speech/language specialist and the classroom teachers met to discuss progress and changes in listening skills of individual students. A progress note was sent home to parents and all of the parents requested that their child continue with the program.

The students wore the units during periods of large group instruction and during the administration of spelling tests. The amount of time the students wore the trainers varied from day to day depending on that day's activities. Generally the students wore the trainers 45-60 minutes per day.

Evaluation/Findings:

Students' Reactions:

The students were highly motivated to participate in the project. Previous research results indicated that often the students went through a honeymoon period where they were excited about the novelty of the trainers but that, after a few weeks, they were not as excited, and some even became resistent to continuing to use the trainers. In our group, there was some diminishing of the initial excitement over a period of time, but the majority of students have remained positive about using the trainers. Parents have reported that the feedback they receive from their child at home has also been positive.

Statistical Analysis:

The pre- and post-test scores were analyzed. The difference between the sample means on listening skills were compared to see if there was a significant difference between them.

The T-ratio was used to deal with the distribution of differences between the pairs of means (X's).

$$t = \frac{X1 - X2}{S\,X1 - X2} \qquad t = \frac{18.5 - 14.00}{4.6 - 3.8} = 5.6$$

The degrees of Freedom (df) was computed as $4 + 4 - 2 = 6$. With a df of six at the 1% level of confidence, a t of 3.707 is needed. We can see that with a t of 5.6, we can assert with confidence that the auditory trainers produced a significant difference in listening skills.

Implications: This study replicates other research findings suggesting that the use of amplification in the regular classroom with learning/language impaired students with poor listening skills may be a useful strategy to improve attending skills. By amplifying the teacher's voice over background noises, the students were able to improve their ability to attend, despite competing noises elsewhere in the classroom. The use of the trainers, therefore, should be considered as an option for the student who is having difficulty attending in a large group setting. Further study is needed to determine if the use of the assisted listening devices has any long term benefit in training students to improve listening skills. In other words, once the student has used anauditory trainer for an extended period of time, and then discontinued its use, will he or she have learned listening behaviors that will carry over to improved listening skills?

Title: Teaching Verbal and Nonverbal Communication Skills to Students with Learning Disabilities

Researchers: Janet Kester, Learning Disabilities Teacher
Mary Smid, Teaching Assistant

School: The Havern Center

Littleton, Colorado

Statement of the Problem: Learning disabled students often use ineffective verbal and nonverbal communication skills. In order to become effective communicators, they need specific instruction in observation, analysis and utilization of the elements of communication.

Objective: To determine the effectiveness of a curriculum based on videotaped role plays in increasing the communication skills of students with learning disabilities.

Population: Thirteen learning disabled elementary and middle school students, ranging in age from 11 to 13, participated in the project. The verbal language skills of the students covered a broad spectrum of communication behaviors. Some students spoke very little during their daily activities and communicated mostly through nonverbal messages. Others were highly verbal and tended to dominate the others through their language.

Procedure: The learning disabled students participated in interactive group discussions and role-playing scenarios targeting specific verbal and nonverbal communication skills. During the first semester, the teachers presented information on elements of communication and conducted class discussions. The discussions promoted awareness of the functions that communication skills played in our daily lives. Written notes were taken by the students; they were encouraged to practice using the skills during the week and record their findings.

Videotaped role-playing episodes took place a few weeks apart during the second semester. The scenarios targeting specific communication skills were developed, interpreted and performed by the students. The scenes were designed to show elements of miscommunication first and were repeated to demonstrate the use of effective communication skills. They were edited into approximately two minute sequences, which were viewed as a class and were springboards for discussion. The students then wrote about what they learned from using the new skills and analyzed the impact the skills made on their lives.

Evaluation: The researchers observed the verbal and nonverbal communication abilities demonstrated by the students in the study throughout the year and noted changes. In addition, the written responses of the students were used to assess their awareness of the verbal and nonverbal aspects of communication. The videotaped role-played episodes were also used to assess significant changes.

Results of the evaluations showed that students did not originally differentiate between verbal and nonverbal communication elements, such as voice tone or cues which indicate escalation. As the year progressed, their ability to better understand and respond appropriately to communication signals increased. Their writing indicated an increased awareness of communication elements, and their skill levels increased as demonstrated by class discussions and role playing. They showed greater understanding and compassion regarding the needs of their classmates. There was more effective communication between those students who were more expressive and those who were more nonverbal.

Implications: Further research is necessary to determine which of the two instructional methods, class discussion and video-taped role play, results in greater effectiveness. Further research is also needed to assess the generalizability of the learned verbal and nonverbal communication skills

outside the classroom. The students showed improvement in their communication skills inside the classroom, but are they able to use these skills in other settings?

Resources:

Hayakawa, S.I. (1978). *Language in Thought and Action.* New York: Harcourt, Brace Jovanovich.

Kramer, P. (1992). *Discovering Self-expression and Communication.* New York: The Rosen Publishing Group, Inc.

Smelle, K. (1994). *Planning, Producing, and Using Instructional Technologies* . (7th ed.), New York: Harper Collins College Publishers.

Smith, S. L. (1992). *Discovering Personal Resources*. New York: The Rosen Publishing Group, Inc.

Smith, S. L. (1992). *Discovering Your Own Space*. New York: The Rosen Publishing Group, Inc.