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Home-Tutoring Programs with Special Education Students: Four Descriptive Studies

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HOME-TUTORING PROGRAMS WITH SPECIAL EDUCATION STUDENTS: FOUR DESCRIPTIVE STUDIES

BY

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ABSTRACT

The purpose of this study was to determine the positive and negative effects of home-tutoring on four handicapped students and their families, and to ascertain if a home-tutoring program would be positively accepted by the students and their families. The descriptive studies were conducted using students of different handicaps and age levels.

During an interview prior to the involvement program, parents were asked about the amount of time presently spent studying with the child, the family members involved with studying, the familiarity of the parents with the IEP goals, and their feelings about involvement. At the post-treatment interview, the same questions were asked as well as ones about the benefits and problems of the home-tutoring program.

A 9-week observation period preceded the 9-week home-tutoring program. Students were pretested and posttested to compare achievement results. Parent-initiated teacher contacts were recorded during both sessions. During the 9-week parent home-tutoring program, the parents were sent a weekly set of lessons and a parent record sheet.

The four descriptive studies provided several results. Three of the students showed an improvement in their skills after the parent-tutoring program. However, half of the students indicated that the lessons were frustrating, and one felt the lessons were

boring. The number of parent-initiated contacts showed little or no increase for all of the students. Only one of the parents became more familiar with the goals of the IEP. The involvement persons remained basically the same during the parent-tutoring program as before the study. One half of the subjects reported positive family reactions to the tutoring program. The other half reported sibling jealousy because of excessive parent-involvement time.

In conclusion, the studies indicated that an individualized home-tutoring program may be beneficial for some handicapped students and their families. However, the limitations of this descriptive investigation make it premature to draw any firm conclusions. The results do indicate areas of further research.

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CHAPTER I

Introduction

Rich, Van Dien and Mattox (1979) paraphrased an ancient proverb, "One parent is worth a thousand teachers" (p. 26). This translation clearly expresses my feelings about the positive value of my students' parents. As a teacher of hearing impaired, visually impaired, and physically handicapped students, I have found that effective parental involvement and cooperation are extremely important. To discover the effects of home-tutoring on the students and their families, four descriptive studies will be presented on individual handicapped students.

Rationale and Purpose

In a small rural public school in Troy, Missouri, the incidence of handicapped students is low. Consequently, the students can theoretically be placed in the same special classroom from kindergarten through the twelfth grade. The development of an effective parent-teacher partnership appears to be essential for the most positive benefits for the child.

Although the student is the focal point of interest in a home-involvement program, other individuals will also reap benefits. The teachers, the parents, and their families could all be positively affected by the program. Without a parent program, misunderstandings and conflicts can occur more frequently. Moles

(1982) notes that different demands on the families and the teachers can limit home-school communication and parent involvement. With this information in mind, the need for an effective parent-cooperation program is great.

An individual home-tutoring program may not be practical for regular classroom teachers who generally have larger classes than the special education teachers. Special education teachers can often execute a successful parent program which is developed in conjunction with their special education programs. All handicapped students in special education classes have an Individual Education Plan (IEP) which is created for them to direct the educational program. In addition to the academic skills, the blind/visually impaired, hearing impaired, and physically impaired students' IEPs may include the skills of braille, slate and stylus use, cane use, walking with an ambulatory aid, navigating a wheelchair, auditory training, and speech, depending on their individual needs.

Handicapped special education programs are individualized; home-involvement programs must be individualized, as well. Epstein and Becker (1982) questioned how parent involvement programs could take into account the special needs of each student. Each individual requires different kinds of parental assistance. Using the descriptive study approach, individual needs will be addressed in the four studies.

Educational literature frequently requests more parental involvement (Filipczak, Lordeman, & Friedman, 1977). However,

only a few systematic studies are available on parental involvement that give specific objectives applicable to elementary and high school students (Gotts & Purnell, 1984). Gotts and Purnell call for research which sets objectives and measures outcomes with the goal of improved parent-school communication. They believed that six aspects of home-school communications should be linked with the research. Consideration should be given to the academic level, the locus of communication, the group size to which the communication is directed, the directional flow of communication, the topics involved, and the communication methods used. The four descriptive studies will attempt to address some of these aspects for each individual.

Many programs of parent involvement are available for teachers to incorporate into their educational programs. These include sending newsletters, making home-visits, utilizing telephone hotlines, creating home-tutoring programs, and using parent volunteer systems. Rich, Van Dien, and Mattox (1979) found that the most effective form of parental participation involved the parents with their own child's education. Rich et al. (1979) stated, "The parent-as-tutor approach appeals to the most basic parental motivation for involvement in the first place - the desire to help one's child do better in school" (p. 29). The four descriptive studies will evaluate the effectiveness of an individual home-tutoring program for four handicapped students. The purpose of the study is to determine the positive and negative effects of home-tutoring on the four students and their families

and ascertain if a home-tutoring program would be positively accepted by the students and their families.

Method

During an interview prior to the treatment involvement program, parents were asked about the amount of time presently spent with the child studying, the family members involved with studying, the familiarity of the parents with the IEP goals, and their feelings about involvement. At the post-involvement interview, the same questions were asked as well as ones about the benefits and problems of the home-tutoring program. The interviewer also asked for suggestions for further improvements in the program.

A 9-week observation period preceded the 9-week home-tutoring program. Students were pretested and posttested so additional information could be obtained. Student achievement and parent communication were recorded during both sessions.

Having taught the 4 students involved in the descriptive studies for a minimum of 2 years, I am definitely aware of their achievement levels in my classes. Because some of them already have high achievement levels, a dramatic change in achievement would not necessarily be apparent. However, Herman and Yeh (1980) recommend researching the specific ways that parent participation exerts effects in student achievement. These effects may include a change in attitude toward school, better work quality, or an increase in effort on assignments. The descriptive studies

analyzed these specific effects in student achievement.

Operational Definitions

The definitions for several terms used in the paper follow.

Positive Effects

The operational definition for "positive effects" in these descriptive studies is skill improvement, increased understanding of the IEP goals as reported by the parents, increased parent-initiated communication of any kind (meetings, phone calls, notes, etc.), and/or a more comfortable parent-teacher relationship measured through teacher observation.

Negative Effects

Negative effects are operationally defined as frustration, excessive time limits, and boredom of the student or parent as measured by the parents on a weekly record sheet.

Home-Tutoring

The operational definition for the term is any family members working with the student on teacher-directed activities.

Increased Achievement

Increased achievement is operationally defined as an improvement in an area of skill measured by grades, formal or informal tests, or parent or teacher observation.

Descriptive Study

In this research, a descriptive study is an individualized study of a child's progress during an individual home-tutoring program. The purpose of the study is to establish the positive and negative effects of a weekly home-tutoring program and to ascertain if a home-tutoring program would be positively accepted by the students and their families.

Research Questions

The primary purpose of the descriptive studies is to find the effectiveness of a weekly home-tutoring program, and to determine if the program will be accepted by the families.

Question One

What will be the positive effects of the home-tutoring program?

Question Two

What will be the negative effects of the home-tutoring program?

Question Three

Will the home-tutoring program increase achievement? In what specific areas?

Question Four

Will the number of parent-initiated teacher contacts increase?

Question Five

Will the involvement program burden the parents of the handicapped children?

Question Six

Will the parents become more involved in the goals of the child's IEP?

Question Seven

What amount of time will parents spend in home-tutoring activities? At what frequency?

Question Eight

Will both parents be equally active participants in the program?

Question Nine

Will the type of handicap influence the degree of parental participation?

Question Ten

How do the other non-involved family members respond to the

participating family members giving additional attention to the child in the home-tutoring program?

CHAPTER II

Survey of the Literature

History

Times have surely changed. This common expression has been said numerous times, and can certainly be applied to the changes in the family and in education. Croft (1979) presents some statistics which illustrate these changes. At the beginning of the 20th century, more than half of the households had another adult relative living with them in addition to the parents. These relatives were helpful for teaching the children about proper behavior. In the 1950's, this percentage dropped to 10 percent, and the figure in 1979 was close to 4 percent. Today, most of the teaching of behavior and values rests on the mother and father.

In addition to the changes in the family home, Croft (1979) shows the impact the work force has had on the family. More than half of the mothers with school age children were in the work force in 1975. Croft (1979) pointed out that the percentage of mothers with preschoolers who work was 39%, which was an increase of more than three times the figure in 1948. More surprising was the statistic showing that one out of every three mothers of infants was part of the work force.

In addition to the mother being away from her children, in some instances, one of the parents was missing completely from the

family (Croft, 1979). Croft noted that one out of six children under eighteen years of age lived with just one of the parents.

The U.S. Bureau of the Census (1984) presented some statistics about the labor force status of women and married couples. In 1960, 30.5% of the married women in the United States were in the labor force, but the figure increased to 52.8% by the year 1984. In 1960, 18.6% of the married women with children under 6 years of age were in the labor force. By 1984, this percent had jumped to 51.8%. Because women who are divorced or separated have had to be the primary wage earners, those percentage jumps have not been as great.

Swick and Duff (1979) mentioned how common it was to find single parent families, parent surrogate families, and families formed through remarriages.

Croft (1979) listed some of the changes in the lives of parents at the end of the 70's. The most significant ones included:

> (1) the increasing number of divorces, leaving only one parent to raise the children; (2) occupational mobility - having to move in order to keep or find a job; (3) the breakdown of friendly, stable neighborhoods; (4) school districts that require children to leave their neighborhoods to attend; (5) separate patterns of social life for different age groups; and (6) the delegation of child care to institutions. (p. 6)

Life at home is different for children today, too. After the parents have a day at work, they come home to laundry, cleaning, and cooking. Once these are finished, little time and energy are left to spend with the children. Consequently, the children count on the television voice for entertainment. Larrick (1976) stated

that "the television has taken over as entertainer, pacifier, and baby-sitter for hundreds of thousands of preschoolers and primary grade children" (p. 134). Unfortunately, the television always keeps the child a passive observer, not a talker or a doer.

The changes at home have brought many changes at school, too. Brandt (1979) found that there was a vastly different student population, an increase in the knowledge to be disseminated, a tremendous amount of mobility in the population, trauma from desegregation, and a decline in the number of neighborhood schools.

During the 1960's and the 1970's, civil rights, women's, consumer, and anti-Vietnam War movements all showed the effectiveness of participation (Davies, 1976). Croft (1979) pointed out that schools "were criticized for being unresponsive to the people they served" (p. 7), and a participation movement in the schools began, too. More parents felt they deserved to be part of the classroom and involved in the decision-making process.

Changes in Education

While many individuals joined this school participation movement, people have also gone the other direction and become apathetic. Some parents have lost faith in the public schools. Adelson (1981) expressed his views on the changed allegiance to the public schools:

> Twenty years ago there were few families with children to educate who would have considered anything but the

> public schools, for to do otherwise, even to ponder it seriously, seemed to suggest a rejection of the democratic spirit, a rejection of a tacit social contract. That is not the case today. (p.15)

Seeley (1982) stated that the public school was "failing the individual students, failing the families and communities, and failing the nation and its future" (p. 42). Seeley continued to explain that the government had set up government-run, professionally staffed bureaus which were responsible for educating the students. After the results were not satisfactory, the government added more services.

Epstein (1984) listed some of these parent involvement federal programs. They included Head Start (1965), Head Start Variations (1967-1971), the Education of All Handicapped Children Act of 1975 (Public Law 94-142), Parent Advisory Councils created by Amendments to Title I of the Elementary and Secondary Education Act in 1974 and 1975, and Chapter I of the Education Consolidation and Improvement Act of 1981. Regarding these programs, Epstein stated, "Even though we can point to successful programs, there is little to document their effectiveness" (p. 70).

In 1983, the National Commission on Excellence in Education reported on our education system in an Open Letter to the American People titled, "A Nation at Risk: The Imperative for Educational Reform". This letter proclaimed, "Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world" (p. 4). Among the many suggestions for improvement was a plea to parents to assume an active role in their children's education.

In many school districts, including the Lincoln R-III School District in Troy, Missouri, the federal program associated with P.L. 94-142 had a great impact on the special education programs. Effective in September, 1977, P.L. 94-142 mandated a free, appropriate educational program for handicapped students from five years of age to age twenty-one. Rutherford and Edgar (1979) mentioned several provisions of the parent-teacher relationship which included:

> (1) all handicapped children's right to an education, (2) confidentiality of records, (3) procedural safeguards, (4) individualized education programs (IEPs), and (5) general parent involvement. (p. 28)

With these provisions, parents were theoretically active participants in their child's educational program. In practice, however, several other factors needed to be addressed before an effective parent-teacher-student relationship occurred. First, some parents have been told for years that they do not know how to teach, and, thus, they have little faith in themselves to do so (Brandt, 1979). Second, parents were often contacted only when there was a problem, leaving a negative image of teachers with the family (Rutherford & Edgar, 1979). Third, there might have been a parental fear of the teacher before the initial meeting. The final factor that hindered parental involvement was the media's attack on the schools (Rutherford & Edgar, 1979).

Parental Impact on Education

While the schools have come under attack, the impact of the family has been revealed. Heffernan and Todd (1969) stated that a

child was most influenced by the parents. Cooke and Apolloni (1975) stated that "parents are both morally and legally responsible for their children's performance, behavior, and development" (p. 169). Gains and Pegg (1984) reported that the attitude of the parents toward school and education was the outstanding environmental feature that influenced success or failure in learning.

Although the family has a great impact on the education of children, Leichter (1980) cautioned against placing the blame for failing to educate or criticizing the way in which they educate. He continued, "Experience in the family is a very personal and emotional part of everyone's life. It is hard to be neutral and objective in judging a family, whether it be one's own or someone else's" (p. 11). Family criticism comes from varying views and often in inconsistent ways. Mothers are blamed for a child's poor language skills, and poor home discipline causes low test scores. Professional working mothers are criticized for hindering the psychological development of their children. However, working class mothers who stay at home to raise their children, but accept welfare funds are labeled as lazy. An examination of the family is done at school to find reasons for failing instead of succeeding (Leichter, 1980). Bell (1975) stated the great need for parents to end the era of materialism and to rededicate themselves to learning at home.

Because parents have such an important role in their child's success, teachers must develop positive parent-teacher

relationships. There are several different qualities that are necessary to develop this relationship. These include trust (Rutherford & Edgar, 1979), commitment (Moles, 1982), and mutual confidence (Heffernan & Todd, 1969).

Rutherford and Edgar (1979) felt that trust was one of the most critical factors that affected the parent-teacher relationship. They stated the following:

> Trust is a fundamental prerequisite for establishing any type of relationship though admittedly something difficult to develop. Like the Zen Buddhist monk who has to experience or do before he can find, one has to experience trust before he can know it. Before there can be cooperation, there must be trust; but before there can be trust, there must be opportunities for individuals to work together. Trust is an ingredient of cooperation that grows as cooperation grows, that is both a part and a result of cooperation. (p. viii-ix)

Teachers and parents must understand one another's roles. Built with the role clarification was the important element of trust. The parents and the teachers must be able to have trusted each other, knowing the best interest of the child was of foremost importance (Rutheford & Edgar, 1979).

A second quality important in the development of the parent-teacher relationship is commitment. Moles (1982) stated that he felt that a "whole-hearted commitment of teachers, schools, and school systems" (p. 47) was perhaps the most important aspect of a successful parent participation program. A serious commitment was needed from all participants for a parent-teacher relationship to be a positive one.

Mutual confidence is a third quality of importance in the relationship between the parent and the teacher. Heffernan and

Todd (1969) reported the following:

> Mutual confidence is the framework within which effective school and home relationships occur. The school respects the responsibility of the parent, and values what he is able to do with his children within the limitations that he has. Such respect on the part of the school for the parents is mirrored by parental respect for the school. (p. 19)

All of the three qualities, trust, commitment, and mutual confidence, are transcended by another variable important to the development of positive parent-teacher relations. This variable, communication, is the basic ingredient teachers need to initiate and continue their parent involvement program (Croft, 1979). With honest and open communication, the parents, the teachers, and the students have a more positive relationship. Swick and Duff (1979) stated that parents and teachers truly learned together only with positive communication.

Effective communication skills between teachers and parents are important because they are the basic educators of students. However, both groups have their own set of beliefs and values. Leichter (1980) reported that because of these differences, some tension was inevitable. These differences have caused a great variance in the child's walk from home to school. Leichter (1980) stated the following regarding the walk:

> The daily walk from home to school and back varies significantly depending upon the similarities and dissimilarities between home and school. For some the walk is short and direct. The child finds in the school the same books, toys, forms of reading and writing, ways of organizing behavior in time and space that are found in the home. For others the route is longer and more complicated. The language spoken is different from the language spoken in the home. The books, toys, forms of reading and writing found in the school are different

> from those found in the home. The scheduling of activities in the school is different from that in the home. For some children the walk from home to school and back is a walk between two sets of adults who know little about each other. The parents know little about the teachers or the activities of the school, and the teachers know little about the parents and siblings and activities in the home. For some students the walk between the home and school is a walk between two sets of adults who respect each other. The parents respect the professional competence of the teachers and the teachers respect the educational efforts of the parents. For other children, the walk between home and school is a walk between two sets of adults who are in strenuous opposition to, and even open conflict with, each other. The teachers criticize the family for neglect or lack of concern with their children's achievements, and the parents criticize the school for incompetence in instruction and inadequate attention to the educational needs of their children. For some children the walk between home and school is between two sets of adults who hold similar world views and values. For others the walk is between adults who hold distinctly different and conflicting world views and values. For some children the similarity of home and school makes the transition easy. For others the similarity may be boring or even oppressive. For some children the dissimilarity of home and school is a matter of confusion and disorientation. For others it is a source of stimulation and excitement. Some children go directly home from school. Others spend many hours in after school programs, formal lessons, or with friends in their homes or on street corners. Some children spend hours watching television. Others see only a few selected programs. (p. 5-7)

The Teacher-Parent Partnership

"Most professionals know that they don't have a monopoly on expertise and that a narrow, castle-and-moat view of professionalism is self-defeating" (Davies, 1976, p. 26). With this knowledge in mind, more teachers have participated in parent involvement programs. Although teachers excluded parents from the school in the past, they have recently developed programs for parents to be active participants in the educational system.

Swick and Duff (1979) stated that the parents and teachers have a common interest in the total development of the child. Both need team planning and human relation skills to be effective in their educative roles. Parent-teacher teaming must begin in the early stages of family life if it is going to be effective. Parents and teachers must each do their own part to make the team successful.

Seeley (1982) reported that a partnership between parents and teachers was the needed format for a successful education program. He named common effort toward common goals as the chief characteristic of partnership. Stressing the fact that the relationship was mutual, neither the parents nor the teacher took the position of a client. Even though the participants in the partnership could have been extremely different, each contributed to meet the set goals.

Seeley (1982) pointed out that the greatest advantage the partnership concept had was the escape it provided for blame if educational failure did occur. Without this partnership, the parents could blame the teacher, and the teacher could blame the parents for the failure. With it, the parents and the teachers tried to work together to further the best interests of the children. If failure did occur, adjustments and not accusations would be made.

Child advocacy systems stress the importance of parents and teachers working together. Rutherford and Edgar (1979) reported, "Teachers and parents who work together in establishing child

they were relied on for the planning and the guidance of the program.

Some points must be remembered regarding parent-teacher relationships. First, face to face contact with the parent appeared to be necessary for effectiveness (Heffernan & Todd, 1969). Second, the schools that have adapted as the family structure changed were more successful (Swick & Duff, 1979). Next, most schools could have done more to involve parents (Epstein, 1983). Teachers needed to share information with the parents regarding the progress of the child (Rutherford & Edgar, 1979). This information was important to parents because it gave them information about their child's future. Finally, teachers needed to instruct parents how to help the child at home.

In the same way that children must be treated as individuals, parents, too, need individualized attention. Heffernan and Todd (1969) stated the following:

> Each family is unique and each parent is an interesting person to meet because of relationships between his behavior and that of the child whom the teacher works with daily. (p. 22)

The temperament, values, and learning rate of the parents could be reflected in the behavior of the child. Swick and Duff (1979) felt that informal and formal contacts with parents gave teachers and parents information about each other.

Types of Parental Involvement

Many different methods are available to involve parents in school. Newsletters are sent on a regular basis to inform parents

about the school's calendar, extracurricular events, parent meetings, field trips, hearing and vision screening programs, preschool screening, achievement testing dates, and information about special education. The newsletters are often sent monthly so parents can plan ahead.

Teachers are involved with the parents through home-visitations. Rutherford and Edgar (1979) state that these visits allow teachers to see the child's home environment and lets parents meet with the teachers in a setting in which they are comfortable. They continue to point out that although there are these advantages, disadvantages occur with home visitations as well. Home visits are very time consuming and some families feel their privacy is invaded, or are embarrassed about their home.

Parent-teacher involvement is sometimes enhanced through notes and telephone calls. Henniger (1981) felt notes were an effective form of communication because they took less teacher time, but allowed the teacher to express and reflect on what was written. He also praised the use of the telephone because it was easily accessible, available, and gave immediate feedback to both parties.

Another type of parent involvement is the use of the parent as a volunteer. Parents are asked to aid with various things at school. These tasks include everything from drilling specific skills with individuals or small groups to collecting lunch money.

Parent workshops are a means of parent involvement. At these workshops, parents learn parenting skills, make simple

instructional aids, observe mini-lessons, and develop tutoring skills.

Other parent involvement programs include parent-teacher conferences, parent-teacher curriculum development teams, family-help programs, telephone hotlines, and school bond issue campaign groups. All of these parent involvement programs can help parents and teachers grow together and expand their knowledge of the whole educational system.

A specific parent involvement program that appealed to the parents most basic motivation for involvement is the parent-as-tutor program which allowed parents to fulfill their desire of helping their own child in school. Rich et al. (1979) stated that this program is the "basic, most fundamentally meaningful form of participation from which other modes can flow" (p. 29). Two reasons for the success of the program included the increased academic performance that research links with it, and the great opportunity it offers for widespread involvement and continued participation. Moles (1982) included these as possible home-learning activities:

* Reading activities in which the parents listen, correct and praise their children's reading
* Discussions (based on teacher-suggested guidelines) about television programs that parents and children watch together
* Family games that relate to school work
* Instructional techniques designed for parents to help with homework. (p. 45)

With the home-tutoring program, parents were actively involved in executing the goals set for the child. Each child's program was individualized to fit the objectives of the program.

The work schedules of frequency and time were varied to suit the individual needs of the family. Regarding this program, Epstein (1984) stated the following after analyzing a survey which questioned principals, teachers, and parents on parent involvement.

> If schools had to choose only one policy to stress, these results suggest that the most payoff for the most parents comes from teachers involving parents in helping their children learn at home. (p. 72)

Individualization

Parental involvement opportunities need to be present at all levels of schooling (Brandt, 1979). Although the involvement practices begin with the early years, their positive values have led to their inclusion at all of the child's school years. Involvement practices which cover this wide span of years and needs require individualization. The physical, intellectual, social, and emotional needs of each child vary greatly, and individualization allows their needs to be met.

After the passage of Public Law 94-142, the Individual Education Plan (IEP) was instituted to meet the individual needs of all handicapped students. The annual IEP meeting serves as a method of communication between the school and the parents to establish the needs of the child, to determine the services that would be provided, and to predict the outcomes of those services. This meeting is conducted with parents and teachers equally involved as active partners. The IEP process requires parental involvement and is built on the foundation of individualization

(MacMillan & Turnbull, 1983).

In the IEP, individual needs are stressed by including the learning styles, strengths, and weaknesses of the learner. Parents are to develop the goals and objectives with the teachers, and consequently, they will know the expected outcomes of the yearly plan. Within this partnership of IEP development, an individualized home-involvement program is expected to continue as well.

Rutherford and Edgar (1979) cautioned against having parents of handicapped children work as volunteers. School time may be the parents' only time to take a break from caring for the handicapped child or be engaged in pleasurable activities. This caution indirectly supported the home-involvement program for the handicapped students. Because parents would be with the child after school hours, the most productive involvement program needs to be established at that time.

Handicapped students also require additional learning opportunities which the home-involvement program would be able to supply. In order to have the program executed, the teacher must provide specific materials and a clear description of the interaction with the child. Even though failure sometimes occurs, modifications can be made to adapt the program to meet the needs of the individual.

Effects of Parental Involvement

Parental home-involvement programs have produced several

positive effects in the regular school. First, achievement scores increased after the parent involvement program. Watson, Brown and Swick (1983) conducted a study of neighborhood support, parental involvement, and income and educational level of the home to ascertain their individual and total effect on the children's achievement upon entering the first grade.

Using a sample of students from the Western Region and the Midlands Region of South Carolina, 362 homes were studied from two suburban school districts. Achievement levels of the children were measured by an individually administered skills assessment battery. Neighborhood support, parent involvement, income level and educational level were measured by a parent questionnaire.

After the data was gathered, the scores from the assessment battery and the parent questionnaire were merged. The direct and indirect influence of each of the four variables was determined. Among the findings in the study was that "there was a significant relationship between the amount of support given a child by the home and the achievement of that child in the first grade" (Watson et al., 1983, p. 177).

Second, parents view teachers more positively if they are part of a parent involvement program (Epstein, 1984). Epstein conducted a parent involvement study through the Center for Social Organization of Schools at John Hopkins University. The study surveyed 3698 first, third and fifth grade teachers and principals in 600 Maryland public elementary schools. The teachers and principals were questioned about their attitudes toward parent

involvement and the ways they involved parents in their children's learning at home. From the 600 teachers, 82 case and control teachers were chosen who differed in their emphasis in parent involvement. Surveys were given to the parents of the children in these classrooms.

After the survey responses were tabulated, the results were recorded. Among the results included one which suggested that "teachers who are leaders in parent involvement...are viewed more positively and are considered by parents to be better teachers" (Epstein, 1984, p. 72).

Collins, Moles, and Cross (1982) conducted a survey of home-school partnership programs in the upper elementary and secondary schools in many large American cities. Numerous parent involvement programs were found that improved the school performance and social development of children. In addition to using conferences, workshops, classes, home visits, or telephone calls, over 60% of the home-school programs expected the parents to do home-tutoring.

Some of the results of the study included a reduction of absenteeism, an improvement in student behavior, and a restoration of confidence and participation among parents. (Collins et al., 1982).

Rich et al. (1979) provided some additional effects of the parent-as-tutor program. These included increased child motivation, increased child skills, an improved parent self-image, increased parental motivation to work with the child, increased

parenting skills, improved understanding of the school role, and increased interaction between the parent and the child. Also reported was the important finding that parents voluntarily and delightedly did these activities with their children. By doing this, parents pleased themselves as teachers, and were pleased by their children as learners.

Cooke and Apolloni (1975) included the following in their list of postulates from educational and psychological literature which support parental involvement and participation in the schools:

> Parents who develop skill in instructional and interpersonal interaction with their children have proven likely to share their knowledge with fellow parents. Thus, a "diffusion effect" occurs, increasing still further the cost effectiveness of parental involvement. (p. 169)

With the cooperation of the family, the school, and the community, improvements were found.

CHAPTER III

Methodology

"In an NEA poll (1981), over 90 percent of the teachers in all parts of the country and at all grade levels stated that more home-school interaction would be desirable" (Moles, 1982, p. 44). Concurring with this need, research further emphasized utilizing a home-involvement program.

In special education classes, the needs of the individuals are written in their IEP. Consequently, the parent involvement program must be individualized, too. The purpose of these descriptive studies was to find the effects of the weekly home-tutoring program on the students and their families. Several research questions have been proposed regarding the timing of the program, the degree of involvement, and the effects of the program.

Subjects

The population for the four individual descriptive studies consisted of four handicapped students from the Lincoln County R-III School District in Troy, Missouri.

Student A was a healthy 11 year old, hearing impaired sixth grade girl. After spending four years at Central Institute for the Deaf in St. Louis, she came to the Lincoln County R-III School at the beginning of second grade. Her hearing was normal at 250

Hz, but it fell to the severe-profound range by 500 Hz. Unfortunately, the loss occurred within the range of speech. Through the use of bilateral hearing aids, speechreading skills, residual hearing, and speech, Student A communicated and learned orally. Reading, spelling, language, social studies, using money and time-telling skills, science, and speech were the areas on which her 1985-86 IEP focused.

Student B was a healthy 18 year old blind and hearing impaired senior boy. After attending Missouri School for the Blind in St. Louis from ages 5 to 15, he enrolled in Lincoln County R-III at the beginning of the 1982-83 school year. Student B's vision was diagnosed as having light perception only, but his vision did not aid him in mobility. Because of a moderate to severe hearing loss, he faithfully wore bilateral amplification. These aids allowed him to hear at relatively close distances and in quiet settings. Student B's goals for the 1985-86 school year included improving the use of the slate and stylus, cane travel, and handwriting skills.

Student C was a blind 16 year old boy in his junior year of high school. He began in the Lincoln County R-III school system at the age of 5, and performed solely in the regular classroom until his eighth grade year. Multiple eye surgeries were performed to stabilize his deteriorating vision. His IEP goals for the 1985-86 school year included improving braille skills.

Student D was an eight year old physically handicapped third grade girl. She had a form of congenital muscular dystrophy which

limited her physical abilities. Wearing leg braces, she walked with a walker with assistance. Most of her travel time at school was spent in the wheelchair. Goals for the 1985-86 school year included walking with an ambulatory aid without assistance, and increasing limb strength.

Procedure

The four descriptive studies were conducted during the fall semester of 1985. The first 9 weeks served as an observation period. Records were kept on the students' achievement. All types of parent-initiated teacher communication were also recorded. The communication types included phone calls, notes, and meetings.

Before the home-tutoring program began, the parents were interviewed to discover their feelings about the amount of time spent studying with the child, the family members involved with studying, the familiarity of the parents with the IEP goals, and their feelings about involvement.

The students' present level of performance was individually assessed by a pretest. Student A was assessed by an oral teacher-made test of her ability to use money and tell time (Appendix C). The speed and accuracy of Student B's slate and stylus skills were tested. He was dictated material to braille, and then the time and number of errors were recorded (Appendix D). Student C was given the Colorado Braille Battery to assess his present level of functioning as well as a teacher-made timed

braille reading test (Appendix E). The Colorado Braille Battery measured how well he knew the elements of the Grade 2 braille code and the rules governing its use. Form B was used as the pretest and Form A as the posttest. The present level of functioning for Student D was established by counting the number of times she lifted her right leg when standing in her braces with her walker (Appendix F). Her physical therapist's goal was to have her lift her foot when walking instead of dragging it. Lifting while standing was the first step toward lifting while walking.

The parents were asked to complete the weekly parent record sheets (Appendix A) that gave information about time and frequency of involvement, the task difficulty level, degree of parent and child enjoyment and frustration, and the amount of participation by different family members. The pre-treatment and post-treatment interviews compared the degree of IEP goal involvement, the reaction to studying, the parents' feelings about the public school system, the involvement time and frequency, the involvement persons, and the effects the program had on other family members. Parent-initiated contacts were recorded by the teacher and compared with the pre-treatment program.

The parents were sent a weekly set of lessons for their child for the 9-week home-tutoring program. Student A worked on a lesson on money use and a lesson on telling time. Based on the pretest, the initial set of lessons was developed. The parents and/or the students' reaction to the lesson, as well as the lesson results, provided the direction for the next lesson. The parents

were given instructions with each money-use lesson and each lesson on time. Collectively the lessons included games, worksheets, reading material, and activities. A week's set of lessons was designed to take less than an hour. Sample lessons are in Appendix G.

Student B's two weekly lessons consisted of print paragraphs on various subjects which were dictated to the student. These in turn were brailled by the student using a slate and stylus. Although the paragraphs were in print for Student B's home-involvement person, the finished lessons were in braille. The lessons averaged averaged 320 braille cells. (A full braille cell consists of two vertical lines of 3 dots each. The use of a combination of one or more of these dots indicates a letter, a punctuation mark, or a word, for examples.) The home-involvement persons were sent instructions which directed them to read the lessons to Student B, who brailled them using his slate and stylus. Student B was a competent braille reader and was quite efficient in the use of a braille writer, but needed practice in the use of the slate and stylus. After the dictation, the involvement person also recorded the time involved in brailling the paragraphs. After I checked the lessons, the number of incorrect braille cells out of the total number of cells was recorded for each lesson. Then the average number of seconds to braille each cell was computed for each lesson. A week's two lessons were designed to take about an hour. Appendix H contains some sample lessons and results.

The same set of paragraphs was used for Student C as was used for Student B. This student, however, was given the copy in braille. He read the the brailled material and his home-involvement person wrote any errors or omissions on the print copy. The involvement person also recorded the amount of time it took to read the brailled material. As a relatively new braille reader, Student C had some difficulty remembering what the dots in the braille cell meant, and so the errors were recorded according to the number of braille cells that were in error. After turning in the papers, the number of braille cells out of the total number of cells was recorded for each lesson. The average number of seconds to read each braille cell was computed for each lesson. A week's two lessons were designed to take about 30 minutes. Sample lessons and results are found in Appendix I.

The weekly lessons for Student D stated the number of leg lifts that should be accomplished each day. The leg lifts were performed while the student was wearing her bilateral leg braces and using a walker. With the braces locked, and while standing, Student D was instructed to raise her right leg off the ground without any assistance. Her parents were also given the same directions and were instructed to record the number of unassisted lifts out of the total. The involvement person then recorded the amount of time it took to complete the lesson. A week's set of lessons was designed to take less than ten minutes. The lessons are found in Appendix J.

Included in the first of the nine weeks of lessons was a

letter to the parents (Appendix B). This letter presented several points that Karnes and Franke (1978) suggested to parents when working with their children.

Records were kept on the parents and students during the 9-week involvement program. After the 9-week program was completed, all students were given a posttest, and the parents were interviewed again. During this interview, the parents were asked to respond to the questions, giving both the positive aspects and concerns of the program, and also giving suggestions for possible improvements or changes. Adaptations could then be made for involvement in the future.

Interview Questions and Rationale

The pre-treatment interview was conducted to explain the program goals to the parents, and to introduce the program to them, if consent was given for participation. The interview then continued with questions that established the present level of performance in areas related to parental home-tutoring and the attitude of the student.

The pre-treatment and post-treatment interview questions were not limited to a specific set of questions. A few basic questions were presented, and additional questions could have been asked if needed to gain more information about the specific individuals. The post-treatment interview questions repeated the pre-treatment interview questions, and then some were added which focused on the parents' feelings about the program. The following are "starter"

questions for the initial interview (with the rationale):

1. What is the average amount of time your child spends daily on homework? Harris (1983) stated that although there is no set rule, at least 15 minutes per day per subject should be spent on homework. The Lincoln County R-III Elementary suggests 10 minutes daily for first graders, 20 minutes for the second graders, and so forth.

2. How do you feel about having your child in the public school system? If the parents are uncomfortable about the child's school placement, an effective school-home partnership is difficult to develop.

3. How many days and how much time per day do you spend doing homework with your child at home? Working parents have less time to be involved with their children. The program would be more effective if they weren't overburdened.

4. What amount of time do each of the family members study with the child? The mothers of my students generally spend the most time working with them. The home-involvement program is designed for all family members to participate.

5. How do other family members react to you studying with the child? Other family members often resent having one of the parents spend extra time with one child. Negative pressure may hinder the progress of a home-tutoring program.

6. Do you feel you are familiar with the goals of the IEP? Parents often willingly accept the goals discussed for an IEP, but don't have a working knowledge of them. Knowing the goals gives a

stronger motive for working with the child.

7. How does your child react to studying at home with family members? Some children are very receptive to working with their parents, while others are quite resentful. The home atmosphere will greatly affect the progress of the program.

8. How do you feel about studying with the child at home? A home-involvement program needs a positive working atmosphere to be effective. Without parental support, little can be accomplished.

The post-treatment interview questions are follow-up questions and, therefore, are repetitive of the pre-treatment interview questions.

1. What is the average amount of time your child spends daily on homework?

2. How do you feel about having your child in the public school system?

3. How many days and how much time per day do you spend with your child doing school work at home?

4. What amount of time do each of the family members study with the child?

5. How do other family members react to you studying with the child?

6. Do you feel you are familiar with the goals of the IEP?

7. How does your child react to studying at home with family members?

8. How do you feel about studying with the child at home?

9. Do you feel burdened with the extra work of the

home-tutoring program?

10. In the future, what kind of involvement program would you want? What role do you want me to fill?

CHAPTER IV

Analysis of Data and Findings

Student A Data

Student A was a healthy 11 year old, hearing impaired sixth grade girl. Through the use of hearing aids, speechreading, residual hearing, and speech, Student A communicated and learned orally. The achievement goals for the student were to improve her ability to use money and tell time.

Parent Interview Responses

Student A's mother attended the pre-treatment and post-treatment sessions and responded to all of the questions. The pre-treatment and post-treatment interview questions were identical for the first 8 questions. Questions 9 and 10 were added for the post-treatment interview. In addition, three questions were spontaneously asked during the interviews. Question 11 was asked during the pre-treatment interview and questions 12 and 13 were asked during the post-treatment interview.

1. What is the average amount of time your child spends daily on homework?

2. How do you feel about having your child in the public school system?

3. How many days and how much time per day do you spend with your child doing school work at home?

4. What amount of time do each of the family members study with the child?

5. How do other family members react to you studying with the child?

6. Do you feel you are familiar with the goals of the IEP?

7. How does your child react to studying at home with family members?

8. How do you feel about studying with the child at home?

9. Do you feel burdened with the extra work of the home-tutoring program?

10. In the future, what kind of involvement program would you want? What role do you want me to fill?

11. Do you work on time and money skills now? (pre-treatment)

12. Do you feel informed enough about what is happening at school? (post-treatment)

13. Did the program help? (parent-initiated post-treatment)

Amount and frequency of studying, and involvement persons. At the pre-treatment interview the mother stated that on the average Student A spent one hour daily studying at home. Studying on the average 5 days a week, the parents spent 6 hours and 30 minutes weekly studying with Student A. The mother continued to report that the father spent 5 hours weekly studying with the

student and that the mother studied 1 hour and 30 minutes weekly with her. These responses were not consistent. The reported parent involvement time was greater than the total time the student spent studying. The oral interview made it difficult for the parents to respond consistently and accurately.

The mother's responses at the post-treatment interview indicated that Student A worked for 1 hour and 30 minutes daily at home. Studying on the average for four days a week, the parents spent 6 hours a week studying with Student A. The parent also stated that the father studied with her the majority of time, but the mother was the person who helped Student A prepare for tests.

Student, parent, and family member reaction to studying. At the pre-treatment interview, the mother responded to the question soliciting the student, parent, and family member reactions to Student A and the parents studying together. She reported that sometimes there were concentration problems when they first began studying, and that the student often wanted to do work on her own just to have it finished. The mother stated that she and her husband were willing to do anything at home that would help Student A. She continued to report that other family members and Student A's only younger sister reacted "fine" when they studied with Student A.

The reactions at the post-treatment interview concurred with those at the initial interview. The mother indicated that the student's reaction to studying with the parents was usually

"fair," but it depended on the content. The worst reaction came when they were studying math. The mother reported again that she and her husband would do anything to help, although they would have to make an effort to do it. She stated that she did not feel burdened by the extra work of the home-tutoring program.

In the future, the mother indicated that she would like the home-tutoring program to keep continuing on a weekly basis. She stated she would help with anything that needed to be done.

Public school placement reaction and IEP goal familiarity. The mother responded to the questions regarding her feelings about the public school system and her familiarity with the IEP goals. At the pre-treatment interview, the mother indicated that she felt it was "great" having Student A in the public school system. Although she could not name any IEP goals, she was willing to do anything at home that would help Student A. At that point, no time was spent working on time-telling or money-use skills at home.

At the post-treatment interview, however, some responses were more positive than the ones given at the pre-treatment interview. The mother again reported that she felt that it was "great" to have her child in the public school system. The mother also reported that she did feel informed and did not feel "in the dark" with what was happening at school. In response to the question which asked her familiarity with the IEP goals, she named reading, science, social studies, health, time-telling skills, and

money-use skills as subjects covered by the IEP.

Concluding the interview the mother asked if the home-tutoring program had helped. I replied that Student A had improved in several areas in both telling-time and money-use skills.

Summarizing the pre-treatment and post-treatment interview results, only one basic change was made when comparing the two interviews. The change showed an increase of the parent's knowledge of the IEP goals. The studying times, involvement persons, and the reactions to studying were similar in both interviews.

Pretest and Posttest Responses

Student A was given an oral pretest and posttest on using money and telling time. The tests and responses are found in Appendix C.

Student A was first given the tests on using money. Table 1 illustrates the number of correct responses on the pretest and the posttest, and indicates if an improvement was made. Five general areas were checked: coin identification, skip counting, counting coin amounts, writing money amounts, and solving money story problems.

On the pretest, in the area of coin identification, Student A was able to name and tell the value of the penny, nickel, dime, and quarter. She correctly named the half-dollar, but gave the incorrect value for it. On the posttest, the student correctly

Table 1

Student A Money Pretest and Posttest Comparisons

	Pretest & Posttest Total Number of Responses	Pretest Total Number of Correct Responses	Posttest Total Number of Correct Responses	Improvement Areas
Coin Identification	5	4	5	(+)
Skip Counting	5	3	4	(+)
Coin Counting	5	3	4	(+)
Writing Money Amounts	3	3	3	
Money Story Problems	3	2		(+)
	4		4	

named and told the value of the penny, nickel, dime, quarter, and half-dollar.

The second section on money tested the student's ability to skip count. In the pretest, Student A counted by 5s, 10s, and 25s correctly. She, however, inserted 75 when she was counting by 50s. Also, when counting by 10s (starting with 5), she began with 5, went to 10 and continued counting by 10s. In the posttest, when the student was asked to count by 5s, 10s, 10s (starting with 5), 25s, and 50s, she counted correctly for all except 50s. As in the pretest, she inserted 75.

The next section asked the student to count the coin amounts. In the pretest, when presented with different amounts of coins to count, Student A answered correctly for three out of the five amounts. Her knowledge of the correct value of the half-dollar hindered her in making an accurate response. In the posttest, Student A again counted different amounts of coins as presented. She correctly counted four out of the five amounts, having difficulty counting with multiple half-dollars.

In the pretest and posttest, the student was asked to write the money amounts as they were dictated to her. Student A was able to write dictated amounts correctly using the dollar sign and the decimal point or the cent sign alone.

The final section tested the ability of the student to solve story problems which involved money. When asked to solve them in the pretest, Student A correctly found the cost for the items, and could compute the change if one item was purchased. She, however,

had more difficulty figuring change when more than one item was purchased. In the posttest, all of her responses were correct.

The money-use pretest and posttest responses indicated an improvement in four out of five areas. The student improved in the areas of coin identification, skip counting, coin counting, and money story problems. Student A responded correctly on all items on the pretest and posttest in the area of writing money amounts.

After the test on money use was given, the student was asked to respond to questions involving time-telling skills. Table 2 illustrates the number of correct responses in the pretest and the posttest, and an indication if an improvement had been made. The skill areas on the test included telling and setting the time on a face clock, skip counting, naming the hands of a clock, stating time equivalents, finding minute intervals, and stating time relationships to light and darkness.

In the pretest, Student A had some difficulties telling and setting the times on the face clock. She was able to tell the correct time on the hour, and at the 15, 30, and 45 minute intervals. She could not identify the number of minutes before the hour or after the hour. When asked to supply the digital times for the time on a face clock, Student A read the number nearest the hour hand. She correctly named the time if it was 10:05, for example, but she named the wrong time for the hour hand when it was almost a new hour, as 10:54 for 9:54. Student A could set the time on the hour and at 15 minutes. However, the hour

Table 2

Student A Time Pretest and Posttest Comparisons

	Pretest & Posttest Total Number of Responses	Pretest Total Number of Correct Responses	Posttest Total Number of Correct Responses	Improvement Areas
1. Telling the Time (o'clock, 15,30,45)	4	4	4	
2. Setting the Time	4	2	4	(+)
3. Skip Counting by 5s	1	1	1	
4. Clock Hand Identification	3	0	3	(+)
5. Time Equivalents	5	4	5	(+)
6. Telling the Time (minutes before, minutes after)	4	0	0	
7. Supply Digital Times from Face Clock	3	2	3	(+)
8. Minute Intervals (o'clock and 30)	2	2	2	
9. Minute Intervals	2	2	0	
10. Time Relation to Light/Dark	4	4	4	

hands were directly on the hour instead of past it for the 30 minute and 45 minute times.

In the posttest, Student A correctly named the times on the hour, and at 15, 30, and 45 minutes. However, she still could not identify the number of minutes before or after the hour, but she correctly supplied the digital times for the times on the face clock. When asked to set the times on the hour, and at the 15, 30, and 45 minute intervals, Student A set both hands of the clock correctly.

Another area of the time-telling tests was skip counting. For both the pretest and the posttest, Student A correctly counted by 5s to 60.

Student A was also asked to name the hands on a face clock. In the pretest, the minute, second, and hour hands were all confused when she was asked to name them. However, in the posttest, she named all three of the hands of the clock correctly.

Comparing the pretest and the posttest, Student A improved on the time-equivalent section. The tests sought the number of minutes in an hour, a half hour, and a quarter hour, the number of hours in a day, and the number of seconds in a minute. In the pretest, the student responded correctly to all of them except the quarter hour. In the posttest, however, correct responses were given for all of the items.

In the pretest and the posttest, Student A was asked for the number of minutes from one time to another, from 2:20 to 3:00, for example. Although all correct responses were made in the pretest,

incorrect responses were given for the more difficult items in the posttest.

The last section checked the student's ability to label times of day as being light, dark, or both. Student A easily responded correctly to these questions on the pretest and the posttest.

The time-telling pretest and posttest responses indicated an improvement in 4 out of the 10 areas. These areas included setting the time, clock hand identification, time equivalents, and supplying the digital times from a face clock. In 4 areas, the student correctly responded to all of the items in both the pretest and the posttest. These areas included telling the time on the hour, and at the 15, 30 and 45 minute intervals, skip counting, finding minute intervals on the hour and at the 30 minute intervals, and finding time relationships to light/darkness. However, in the area of telling the time using the terms "minutes before" or "minutes after," the student did not answer any items correctly in the pretest or the posttest. Also, in the area of minute intervals, the student responded correctly to all of the items in the pretest, but missed all of them in the posttest.

Lesson and Parent Record Sheet Data

Student A completed both the telling-time and money-use lessons for the nine weeks. The content for the first lesson was based on the pretest responses and the content for the subsequent lessons was based on the results of the completed lesson

worksheets, and the student's and parents' comments about the level of difficulty of the lessons. Sample lessons and responses are found in Appendix G.

The first 2 weeks' lessons involved coin identification, counting by 5s, 10s, 25s and 50s, and clock hand identification. Student A successfully completed the worksheets for these lessons. However, the mother indicated on the parent record sheet (Appendix A) that the student had some difficulty identifying the Susan B. Anthony dollar.

The lessons for the third week progressed to counting bills and coins with sums over $1.00. Her responses were correct and her mother commented on the parent record sheet, "She had a pretty easy time with the money." The mother reported that the time-telling lesson that used the terms "half-past," "a quarter to," and "a quarter after" was difficult for her child. However, Student A correctly completed the worksheet.

Student A advanced to more difficult skills during the fourth week. In the area of money-use, the lesson focused on finding the sums of money using the print names of the bills and coins without showing their pictures. A second money worksheet asked Student A to fill in the numbers of coins and bills that were needed to make a certain amount of money. According to her mother, Student A had more difficulty with this skill. The lesson on time instructed the student to match the time "before the hour" with its digital time. For example, "14 minutes before 1" was matched with 12:46. Student A successfully completed this task.

The lessons for the fifth week involved time and money skills. The money lesson focused on choosing the pile with the correct amount of change. Student A's mother commented that the student had a little problem with this, but she did do well on the worksheets. The goal for the lesson on time was for the student to write the correct digital time next to the time, as 9:46 was the digital time for "14 minutes before 10." Student A responded correctly to 10 of the 15 questions on the worksheet.

Student A had review lessons for both money and time for the sixth week. In the money lesson, she practiced finding the sums of money and the numbers of coins or bills needed, as in the fourth week. The time lesson reviewed the use of the terms "half-past," "a quarter to," "a quarter after," "before," and "after." Student A did well on the worksheets.

After asking for feedback from the parents, the mother suggested that the remaining three weeks of lessons focus on figuring change for the money lessons, and reviewing the time-telling terms for the time lessons. In the money-use lessons, the student had some difficulty computing the change, but she was successful by the last lesson. On the worksheet for Week 8, Student A had considerable difficulty writing the amounts of change. For example, instead of writing 29¢ or $.29, she wrote .29¢. The following week's lesson asked the student to write the amounts in two separate columns, the first using the cent sign and the second using the dollar sign and decimal point. The telling-time lessons all reviewed the terms studied in the

previous lessons and each included a worksheet covering the skill.

On the average, according to the parent record sheet, Student A took 32 minutes to complete her weekly lessons. The times ranged from 19 to 60 minutes. Student A did both the money-use and time-telling lessons in the same session.

The parent who helped was also recorded on the parent record sheet. For three lessons, both parents were identified as the involvement persons. Student A's mother was the involvement person for two lessons and the father was the sole involvement person for three lessons. On Week 8, the student had her own name written as the involvement person.

The difficulty level of the task, the child reaction, and the parent reaction were always recorded on the parent record sheet (Appendix A). The scales ranged from 1 to 5, with 1 being the most positive. The average for each scale was 2. Consequently, the difficulty level of the task on the easy-frustrating scale was relatively easy. The child and parent reaction, recorded on the enjoyable-frustrating scales, were both relatively enjoyable. Likewise, the child reaction on the stimulating-boring scale was also relatively stimulating.

In summary, Student A generally progressed on both the money-use and time-telling lessons. The lessons averaged 32 minutes weekly, and the parent and student reactions were positive. As recorded in the interviews, both parents participated in the parent-tutoring program.

Student B Data

Student B was a healthy 18 year old blind and hearing impaired senior boy. Visually, Student B had light perception. He faithfully wore bilateral amplification so he was able to understand speech at relatively close distances. The academic goals for the parent-tutoring program included increasing his speed and accuracy while brailling with a slate and stylus.

Parent Interview Responses

Both of Student B's parents answered the questions for the pre-treatment interview, but only the mother was present at the post-treatment interview. The pre-treatment and post-treatment interview questions were identical for the first 8 questions. Questions 9 and 10 were added for the post-treatment interview. In addition, questions 11 and 12 were spontaneously asked during the pre-treatment and post-treatment interviews, respectively.

1. What is the average amount of time your child spends daily on homework?

2. How do you feel about having your child in the public school system?

3. How many days and how much time per day do you spend with your child doing school work at home?

4. What amount of time do each of the family members study with the child?

5. How do other family members react to you studying with the child?

6. Do you feel you are familiar with the goals of the IEP?

7. How does your child react to studying at home with family members?

8. How do you feel about studying with the child at home?

9. Do you feel burdened with the extra work of the home-tutoring program?

10. In the future, what kind of involvement program would you want? What role do you want me to fill?

11. Do you work on slate and stylus skills now? (pre-treatment)

12. Do you feel informed enough about what is happening at school? (post-treatment)

Amount and frequency of studying, and involvement persons. At the pre-treatment interview, the parents stated that on the average Student B spent 45 minutes daily doing homework. Their five-day studying schedule with the student totaled about 10 minutes daily. They reported that the mother spent the 10 minutes with Student B, but the father also spent some time working with him.

The mother's responses at the post-treatment interview indicated that the average time the student spent daily on homework was 1 hour. On the average, she spent 15 minutes of the hour studying with the student five days a week. The mother also reported that the father studied with the student, too.

Student, parent, and family member reaction to studying. The parents responded to questions which asked for the student, parent, and family member reactions to Student B and the parent studying together. In the pre-treatment interview, the parents stated that Student B solicits his maternal grandmother and likes to study with her. Although he was sometimes crabby, he preferred to have someone there than to be left alone. Also, the mother stated that Student B wanted his father's help in algebra because he was "smart" in that area. The mother indicated that the student would argue with her or "them," but would never argue with his father when his mother was gone. The parents felt that working with Student B was "fine" because it was something that had to be done. They did realize that it was a challenge to do so. When asked how other family members reacted to them working with their son, they only stated that the student's older brother, who is married and not living at home, didn't like it.

At the post-treatment interview, the reaction responses were similar to those in the initial interview. Student B's mother reported that Student B liked having other family members study with him. She continued to report that she and her husband, her mother, and her sister all knew that the time spent studying with the student was necessary, but that her other son felt that too much time was allotted for Student B. The mother felt that studying at home with children should be a necessary part of education and that all parents should be involved with their children.

The parent did not feel too burdened with the extra work that the home-tutoring program involved. However, she did report that if the student had known the basics of the slate and stylus when he was younger, it would have been better. She stated that although only two nights were needed for the lessons, planning was needed because she never knew what the schedule would be.

In the future the mother reported that she wanted the program to continue with two lessons per week because they helped Student B. However, she indicated that the initial lessons could have been shortened to one sentence instead of paragraphs.

Public school placement reaction and IEP goal familiarity. The parents reported their feelings about the public school system and their familiarity with the goals of the IEP. At the pre-treatment interview, Student B's parents stated that the public school placement was much better than his previous school. They continued to comment that they didn't think he would have made it through in the other setting, and that in the public school, Student B had more personal contacts. The parents also knew several of the goals of the IEP. These included mobility, money use, and working in the regular classroom.

At the time of the pre-treatment interview, the parents stated that they were not working on slate and stylus skills at home.

At the post-treatment interview, Student B's mother reported that she felt the public school system was "4A" and "tops." She

felt that she was informed enough about what was happening at school. She also stated that she was familiar with the goals of the IEP.

In summary, the responses from the parent interviews indicated a slight increase in study time for the student and the parents, but the involvement person, and the parent and student reactions were about the same for both interviews.

Pretest and Posttest Results

Student B's pretest and posttest assessed his ability to braille the dictated paragraphs correctly with a slate and stylus (Appendix D), and it also measured the amount of brailling time. The results are shown in Table 3. In the pretest, the total number of braille cells in the paragraph was 326. Out of those 326 braille cells, Student B made 38 mistakes. Rounded off to the nearest tenth, the student's error percentage was 11.7%. There was no consistent pattern in his errors.

Rounded off to the lowest minute, Student B took 29 minutes to braille the material. Finding the average to the nearest tenth, he spent 5.3 seconds brailling each cell.

A posttest was administered after the lessons were completed. The same reader that dictated the pretest also did the posttest. The student brailled the paragraphs using his slate and stylus. The total number of braille cells was 344. When Student B brailled the material, he made 27 errors. Dividing the number of errors by the total number of braille cells, the error percentage

Table 3

Student B Pretest and Posttest Results on Slate and Stylus Braille Writing

	Pretest	Posttest
Total Number of Braille Cells	326	344
Number of Incorrectly Brailled Cells	38	27
Error Percentage	11.7%	7.8%
Total Minutes to Braille Paragraphs	29	27
Seconds Per Cell Brailling Average	5.3	4.1

to the nearest tenth was 7.8%. As in the pretest, there was no consistent error pattern.

Student B spent 27 minutes brailling the paragraphs. Each braille cell, on the average, took 4.1 seconds to braille.

In summary, when comparing the pretest and posttest results, there was a decrease in the amount of errors and in the amount of time it took Student B to braille each cell.

Lesson and Parent Record Sheet Data

Student B brailled 18 lessons with his slate and stylus as assigned. After correction, the number of incorrect braille cells was divided by the total number of braille cells to obtain the error percentage. The results are tabulated in Appendix H. As shown in Figure 1, the student's error percentages generally decreased, although there were peaks (for example, Lesson 15), and valleys in his performance.

Figure 2 shows the average braille cell writing times to the nearest tenth of a second for Student B. These times were taken from the lesson sheets, multiplied by 60, and divided by the number of braille cells in the lesson. As shown in the graph, there is an overall decrease in the number of seconds needed to braille each cell. Beginning with Lesson 12, Student B consistently took about 4 seconds to braille each cell.

On the average, according to the parent record sheet, Student B took 51 minutes each week to braille his two slate and stylus lessons. The student spent 19 to 33 minutes brailling each

Figure 1

Braille Writing Error Percentages For Student B's Lessons

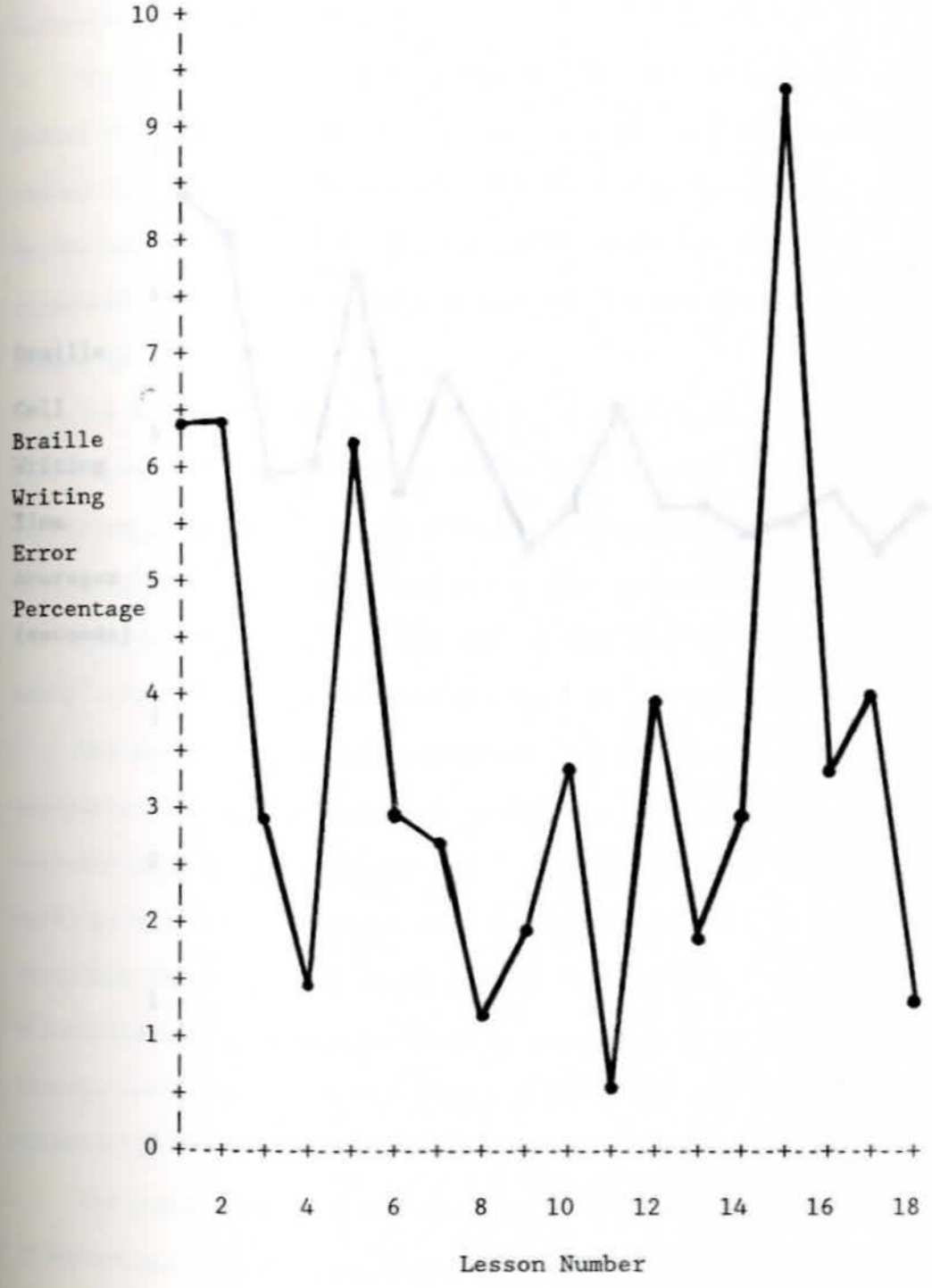
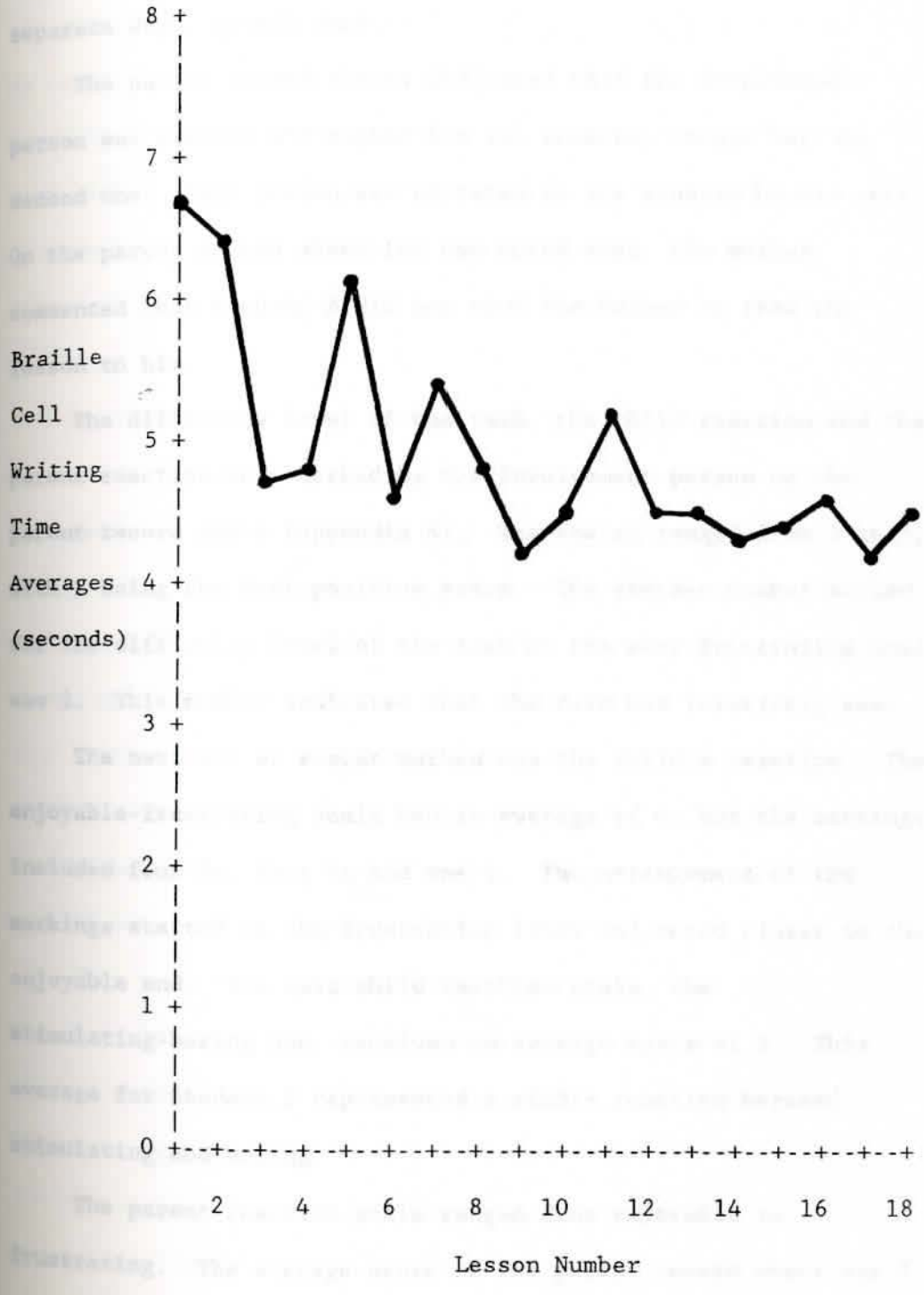


Figure 2

Braille Writing Time Averages for Student B's Lessons



lesson. The average brailling time for each lesson was 26 minutes. The two weekly lessons were always brailled on two separate days, except once.

The parent record sheets indicated that the involvement person was Student B's mother for all lessons, except for the second one. This lesson was dictated to the student by his aunt. On the parent record sheet for the third week, the mother commented that Student B did not want the father to read the lesson to him.

The difficulty level of the task, the child reaction and the parent reaction were marked by the involvement person on the parent record sheet (Appendix A). The scales ranged from 1 to 5, with 1 being the most positive score. The average number marked for the difficulty level of the task on the easy-frustrating scale was 2. This number indicated that the task was relatively easy.

The next set of scales marked was the child's reaction. The enjoyable-frustrating scale had an average of 4, but the markings included four 5s, four 3s and one 2. The arrangement of the markings started at the frustration level and moved closer to the enjoyable end. The next child reaction scale, the stimulating-boring one, received an average score of 3. This average for Student B represented a middle reaction between stimulating and boring.

The parent reaction scale ranged from enjoyable to frustrating. The average score on the parent record sheet was 3, or in the middle range of the scale.

Several remarks were written on the parent record sheet under the "Comments or Suggestions" section. After the second lesson, the aunt recorded, "He was nervous at first, but then he relaxed. He concentrates on what he is printing and forgets how to spell. Normally he is a fantastic speller. He felt more confident as he went along."

During the third week of lessons, Student B's mother recorded, "Did not want to change location of using slate.-- Works in living room."

On the parent record sheet for the fourth week, the mother commented, "Still calling out individual letters instead of words. Different locale--started under protest but no problems once started." She continued, "I believe if he did this everyday he would get really proficient at this because the last few sentences always go very quickly."

On the fifth week, Student B's mother wrote, "Moved to another room...Trying to get him to remember 5 or 6 words at a time without waiting for each word to be pronounced and sometimes spelled out."

When referring to Lesson 13 during Week 7, the mother recorded, "Ask to get to it and get it done. Unable to hold slate without a firm base. Lost his place at one time and could not locate it without help."

The comments on the Week 8 record sheet stated, "#15 under duress! and Threats! getting started. No problems during writing."

After the final lesson, the mother suggested, "Firmly believe

the SLATE should be introduced to the student along with the braille writer as soon as the child/student has learned the characters and alphabet."

In summary, Student B had an overall decrease in his brailling errors, and an increase in his speed to braille each cell. The involvement person was always his mother, except once. The child and parent reactions were average to frustrating, and the difficulty level was relatively easy. However, several negative comments were written about the student's work habits on the parent record sheet. The average amount of time to complete each lesson was 26 minutes.

Student C Data

Student C was a blind, 16 year old boy in his junior year of high school. He attended only regular classes until his junior high school years. Multiple surgeries have been performed to help stabilize his deteriorating vision. In the home-tutoring program, achievement goals for Student C included increasing his braille reading speed and accuracy.

Parent Interview Responses

Student C's mother attended both the pre-treatment and post-treatment interview sessions. In both interviews, the questions were identical for the first 8 questions. Questions 9 and 10 were added for the post-treatment interview. Also, three questions were spontaneously addressed during the interviews.

Question 11 was asked during the pre-treatment interview and questions 12 and 13 were asked during the post-treatment interview.

1. What is the average amount of time your child spends daily on homework?

2. How do you feel about having your child in the public school system?

3. How many days and how much time per day do you spend with your child doing school work at home?

4. What amount of time do each of the family members study with the child?

5. How do other family members react to you studying with the child?

6. Do you feel you are familiar with the goals of the IEP?

7. How does your child react to studying at home with family members?

8. How do you feel about studying with the child at home?

9. Do you feel burdened with the extra work of the home-tutoring program?

10. In the future, what kind of involvement program would you want? What role do you want me to fill?

11. Do you work on braille skills with the student at home now? (pre-treatment)

12. Do you feel informed enough about what is happening at school? (post-treatment)

13. Did the program help? (parent-initiated post-treatment)

Amount and frequency of studying, and involvement persons. During the pre-treatment interview, the mother stated that Student C daily spent about 2 hours on his homework, but that this time varied. On five days of the week, these 2 hours were spent almost solely with the aid of the mother, but the student's sister and father sometimes helped, too.

At the post-treatment interview, Student C's mother stated that the average amount of time the student spent on homework was 1 hour to 1 hour and 30 minutes. Student C was accompanied by his mother three or four times weekly for 1 hour to 1 hour and 30 minutes. Although his sister did spend some time helping with the braille reading lessons, all other homework aid came from the mother.

Student, parent, and family member reaction to studying. At both the pre-treatment and post-treatment interviews, the mother was asked to indicate the student, parent, and family member reactions to Student C and the parents studying together. At the pre-treatment interview, the mother stated that Student C worked well at home with her and with his younger sister. In response to the question that sought her feelings about working with the student, she replied that she didn't have any choice but to do so. Also, she reported that there was some sibling jealousy from his younger sister when the mother spent so much time with Student C.

During the post-treatment interview, the mother continued to report that Student C reacted "OK" to studying at home with family

members. Generally, he didn't mind working with them, and wanted to get his homework "over with." It didn't bother the mother to study with the student, but she reported that other family members needed her time, too.

Student C's mother stated that she didn't feel burdened with the extra work involved with the home-tutoring program. She requested that more brailled material be sent home in the future as the student needed the practice.

Finally, the mother asked if the program had helped Student C's braille reading skills, and I informed her that it had.

Public school placement reaction and IEP goal familiarity. During the interviews, the mother was asked her feelings about the public school system and her familiarity with the goals of the IEP. At the pre-treatment interview, the public school system, according to the mother, was working better for Student C than she hoped it would. She was glad it was working well because it was what the student wanted to do. The goals of the school's IEP were familiar to the mother. These included braille and resource help in keeping up with the classes in the regular classroom. Concluding the interview, Student C's mother reported that her son didn't read or write braille at home unless he was corresponding with his pen pal or he was doing a braille assignment.

At the post-treatment interview, in response to the question regarding her feelings about the public school system, Student C's mother stated that she felt he was getting all of the education he

needed. After asking if she felt informed, the mother replied that she thought that the communication between home and school was "OK." However, she did ask that she was called about information rather than sending it home with Student C. She stated she was familiar with the goals of the IEP.

In summary, the pre-treatment and post-treatment interview responses indicated that there was a decrease in the amount of study time which was probably caused by a decrease in homework in Student C's regular classes. The involvement persons and the parent and student reactions were basically the same.

Pretest and Posttest Results

Student C had two separate pretests and posttests. First, the Literary Code of the Colorado Braille Battery was administered to measure his knowledge of the elements of the Grade 2 Braille Code. Secondly, teacher brailled paragraphs were presented to check his braille reading speed and accuracy.

Form B of the Advanced Level of the Colorado Braille Battery was given for the pretest. Student C was asked to choose the correct braille form in response to what was said to him. The responses were recorded by the test administrator. In the punctuation section, the student correctly identified 17 of the 22 braille responses. In the Word Form Test, 29 of the 36 responses were correct.

In the teacher-brailled pretest (Appendix E), the student correctly read 318 of the total 326 braille cells of the

paragraphs; eight errors were made. Dividing the number of errors by the total number of braille cells, the error percentage for the pretest was 2.5%.

Student C spent 14 minutes reading the material. On the average, he took 2.6 seconds to read each cell. Table 4 compares the results of the pretest and the posttest.

For the posttest, Form A of the Advanced Level of the Colorado Braille Battery was used. Student C was instructed to choose the correct braille response, and the test administrator recorded his answers. In the punctuation section, the student correctly identified 18 of the 22 braille responses. The second part of the Literary Test was the Word Form Test. Student C correctly responded to 31 of the 35 words. However, the errors were not the same as those in the pretest, except for one.

The second posttest was teacher-brailled paragraphs. The student correctly read 281 of the 285 braille cells of the paragraphs (4 errors). The error percentage for the posttest for Student C was 1.2%.

Student C took 11 minutes to read the brailled paragraphs. On the average, he spent 2.3 seconds brailling each cell.

In summary, on the tests, Student C showed little improvement on the the Colorado Braille Battery, but he did improve his scores on the teacher-brailled paragraphs. The student decreased the number of errors, and improved the average reading time for each braille cell.

Table 4

Student C Pretest and Posttest Results on Brailled Paragraph Reading

	Pretest	Posttest
Total Number of Braille Cells	326	285
Number of Incorrectly Read Braille Cells	8	4
Error Percentage	2.5%	1.2%
Total Minutes to Read Brailled Paragraphs	14	11
Seconds Per Cell Braille Reading Average	2.6	2.3

Lesson and Parent Record Sheet Data

Student C read all 18 brailled lessons as assigned, and the results were tabulated (Appendix I). The braille cell errors the student made while reading were then counted and divided by the total number of braille cells. The results were the error percentages. As shown in Figure 3, Student C's braille reading error percentages are in a decreasing pattern, except for the peak for Lesson 15.

The time Student C spent reading the lessons was recorded by the involvement person on the lesson sheets. These times were taken from the sheets, multiplied by 60, and divided by the number of braille cells in the lesson. The resulting figures gave the average number of seconds (to the nearest tenth) Student C spent reading each braille cell. Figure 4 shows that these times decreased although there were many peaks and valleys in the graph.

Next, the 18 lessons were divided into three groups of 6 lessons each, and the braille cell reading averages were tabulated. The first 6 lessons averaged 2.1 seconds a cell. The braille cell reading average for Lessons 7 to 12 was 1.8 seconds, and the average for Lessons 13 to 18 was 1.6 seconds. These figures also illustrate a decrease in Student C's braille cell reading time.

According to the parent record sheet, on the average, 19 minutes were spent reading the lessons each week, or about 10 minutes a lesson. The individual lessons ranged from 7 to 16 minutes. For over half of the 9 weeks, both lessons were

Figure 3

Braille Reading Error Percentages for Student C's Lessons

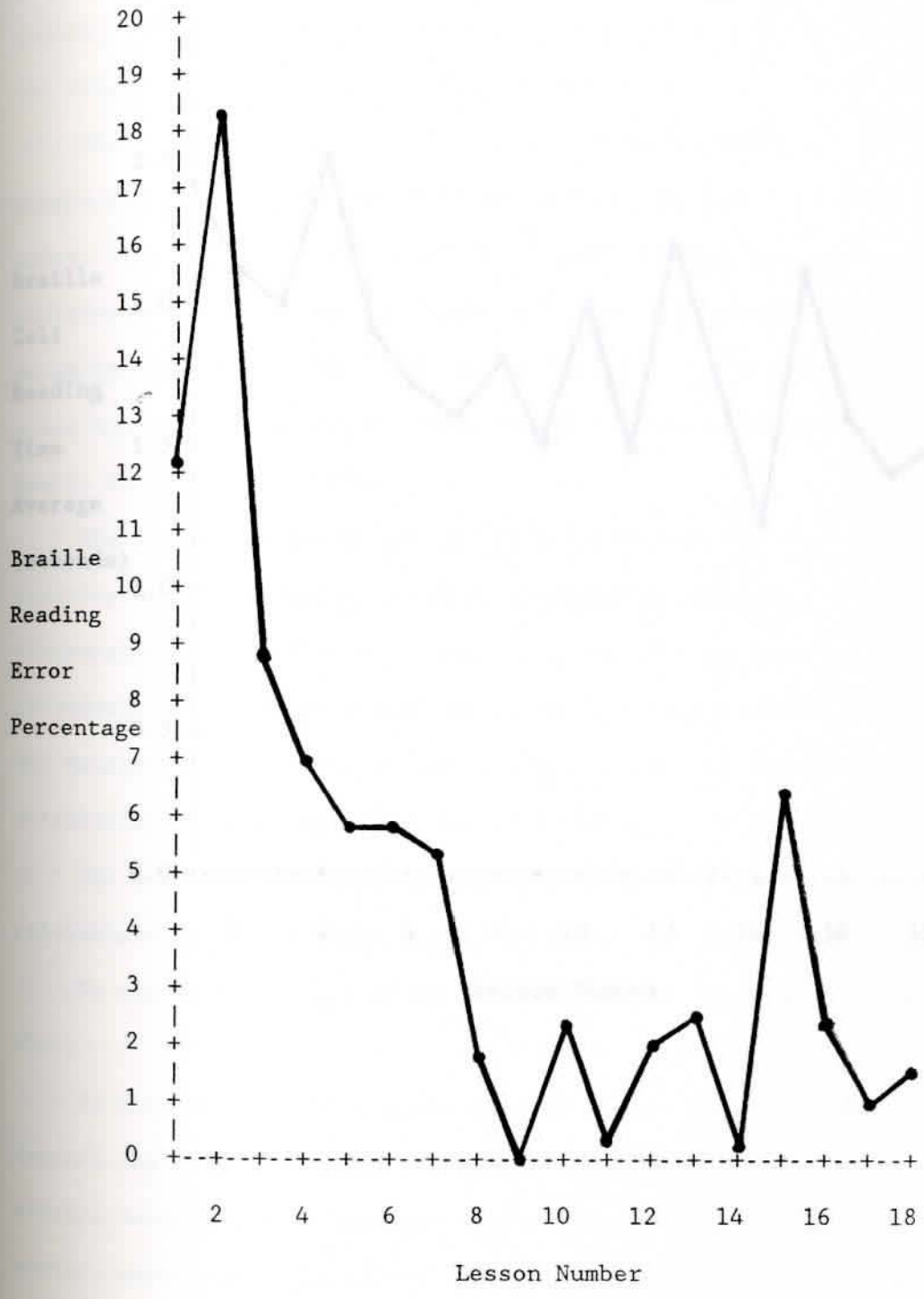
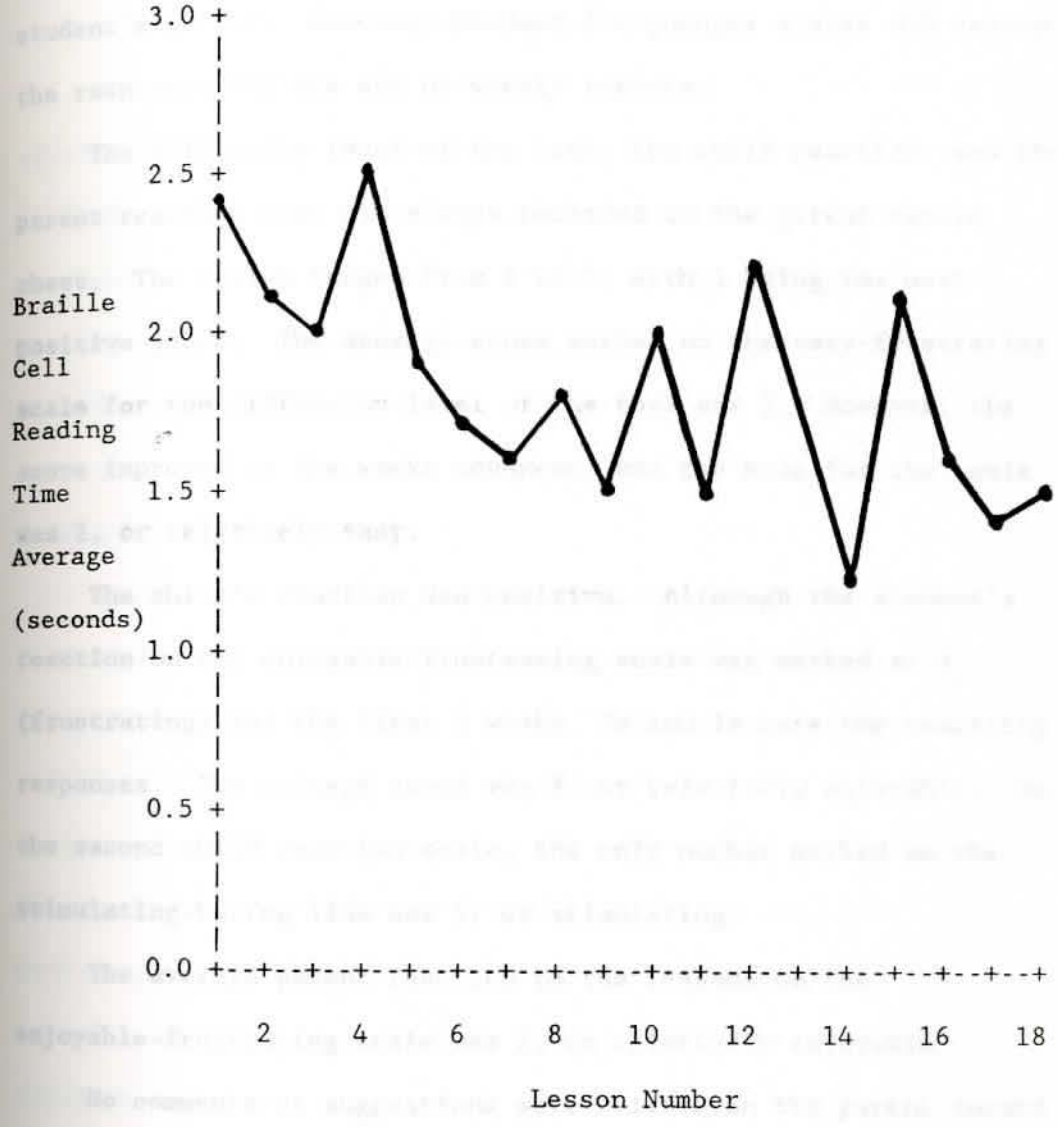


Figure 4

Braille Reading Time Averages for Student C's Lessons



completed on the same day. The parent record sheets indicated that the involvement person for the lessons was generally the student's mother. However, Student C's younger sister did record the responses for one set of weekly lessons.

The difficulty level of the task, the child reaction, and the parent reaction were all always recorded on the parent record sheet. The scales ranged from 1 to 5, with 1 being the most positive score. The average score marked on the easy-frustrating scale for the difficulty level of the task was 3. However, the score improved as the weeks advanced, and the mode for the scale was 2, or relatively easy.

The child's reaction was positive. Although the student's reaction on the enjoyable-frustrating scale was marked as 5 (frustrating) for the first 2 weeks, 2s and 1s were the remaining responses. The average score was 2, or relatively enjoyable. On the second child reaction scale, the only number marked on the stimulating-boring line was 1, or stimulating.

The average parent reaction to the lessons on the enjoyable-frustrating scale was 2, or relatively enjoyable.

No comments or suggestions were written on the parent record sheet.

In summary, Student C made progress on the lessons. He reduced the number of braille reading errors and improved his average reading time. The involvement person was generally the mother, and the average amount of time to complete a lesson was 10 minutes. Both the parent and student reactions on the parent

record sheet were on the positive end of the scale.

Student D Data

Student D was an eight year old third grade girl with a form of congenital muscular dystrophy. Her physical capabilities were limited, and she spent most of her travel time at school in a wheelchair. The achievement goal for Student D was to increase her leg strength so she could independently lift it upward off the ground.

Parent Interview Responses

Student D's mother attended both the pre-treatment and post-treatment interview sessions. In both interviews, the questions were identical for the first 8 questions. Questions 9 and 10 were added for the post-treatment interview. Also, two questions were spontaneously asked. Question 11 was asked during the pre-treatment interview and question 12 was asked during the post-treatment interview.

1. What is the average amount of time your child spends daily on homework?

2. How do you feel about having your child in the public school system?

3. How many days and how much time per day do you spend with your child doing school work at home?

4. What amount of time do each of the family members study with the child?

5. How do other family members react to you studying with the child?

6. Do you feel you are familiar with the goals of the IEP?

7. How does your child react to studying at home with family members?

8. How do you feel about studying with the child at home?

9. Do you feel burdened with the extra work of the home-tutoring program?

10. In the future, what kind of involvement program would you want? What role do you want me to fill?

11. Do you do leg lifts at home with the student now? (pre-treatment)

12. Do you feel informed enough about what is happening at school? (post-treatment)

Amount and frequency of studying, and involvement persons. During the pre-treatment interview, the mother stated that the student daily spends about 15 to 20 minutes on homework. The mother continued to report that she spent ten minutes at home studying with the student five days a week. As an only child, no other family members usually studied with her.

At the post-treatment interview, she reported that the average amount of time her child spent studying was between 45 minutes and 1 hour, and that the mother helped her daughter daily during the entire time. She also reported that she was the sole worker with the student.

Student, parent, and family member reaction to studying. At both the pre-treatment and post-treatment interviews, the mother was asked to indicate the student, parent, and family member reactions to Student D and the parent studying together. In the pre-treatment interview, the mother reported that Student D had an "If I have to do it, I have to do it" attitude about studying at home with family members. The mother reported that she didn't mind studying at home with Student D, but that there were some days when she'd "had it with kids." Student D's mother teaches primary students at the same school which the child attends. Other family members, however, were reported as being supportive.

During the post-treatment interview, the mother stated that Student D liked having someone with her when she was studying as home. Student D's mother, a teacher, reported that after being with kids all day, she was tired, but she didn't mind working with Student D. The mother also stated that no other family members have ever said anything about her studying with Student D.

In response to the question that asked if she felt burdened with the extra work of the involvement program, Student D's mother replied that she did have a lot to do, but that it was "OK" to do the extra work.

In the future, she preferred to discontinue the program, at least at this point. She mentioned that the lifting was no problem, and it didn't involve much work.

Public school placement reaction and IEP goal familiarity. Student D's mother responded to the questions regarding her feelings about the public school system and her familiarity with the IEP goals. During the pre-treatment interview, the mother reported that the public school setting was "fantastic" for her child. Student D's mother was familiar with the goals of the IEP. Among the goals included walking with the aid of the walker. At the time of the pre-treatment interview, Student D's mother stated that she sometimes did leg lifts at home.

At the post-treatment interview, she also replied that the public school system was "fantastic" for her child. Seeking the mother's feelings about the effectiveness of home-school communication, she stated that she was informed enough about her child's special program. She also reported that she was familiar with the goals of the IEP.

In summary, the responses at the parent interviews indicated an increase in the amount of studying time for Student D and the parent. However, the responses did not indicate a change in the involvement person, or in the student or parent reaction.

Pretest and Posttest Results

Student D's task for the pretest and the posttest was to independently lift her right leg 3 times while standing with her walker and wearing her locked leg braces. However, in both the pretest and the posttest, Student D was unable to lift her leg upward without assistance during the three attempts.

Consequently, no improvement was apparent based on the results of the tests. Her responses are charted in Table 5.

Table 5

Student D Pretest and Posttest Results

	Pretest	Posttest
Number of independent leg lifts	0	0
Total number of leg lifts	3	3

Lesson and Parent Record Sheet Data

Student D attempted the weekly home-tutoring lessons (Appendix J), and the results were tabulated (Table 6). The lessons increased the number of daily leg lifts each week until the number of lifts reached 10 each day. According to the parent record sheet, the student was never able to lift her leg independently. While standing with her walker in her locked braces, Student D always depended on the involvement person to help her lift her right leg upward.

The weekly assigned number of lifts was completed, on the average, in 8 minutes a week, or 2 minutes a session. When Student D's mother was the involvement person, the lifts never took more than 3 minutes for one session. However, Student D's

father took as much as 10 minutes to do the lifts. The times on the record sheet were not always recorded, so the weekly averages were based only on five weeks of data, and the individual sessions were based on all those recorded. On the average, the lessons were done on four different days, but for the majority of weeks, the lessons were performed only on three days.

Table 6

Student D Lesson Results

Week	Weekly number of independent leg lifts / Weekly number of leg lifts
1	0/11
2	0/40
3	0/49
4	0/48
5	0/68
6	0/70
7	0/70
8	0/60
9	0/70

The involvement person was recorded for each of the 35 leg-lifting sessions. Student D's mother and father were each the involvement person for 17 of the sessions. Student D's physical

therapist was the involvement person for the remaining session. The mother's involvement occurred in the beginning of the home-tutoring program, and the father was the only involvement person from the middle of the fifth week to the end of the program.

The difficulty level of the task, the child reaction, and the parent reaction were marked by the involvement person on the scales on the parent record sheet. The scales ranged from 1 to 5, with 1 being the most positive. On the parent record sheet, the average difficulty level of the task on the scale was 5, or frustrating. The child's reaction averaged 3, which was in the middle between enjoyable and frustrating. The average marking for the child's reaction along the stimulating-boring scale was 4, or relatively boring. The parent reaction on the enjoyable-frustrating scale was 5, or frustrating. The parent completed this section on six out of the nine parent record sheets, so the above responses were based on six sets of responses.

No additional comments were made by the parents on the weekly record sheets.

In summary, no improvements were seen in the results of the lessons of the parent-tutoring program. Although the parent record sheet showed an increase in the father's participation in the program, the participation wasn't directly related to the program; the mother's participation was restricted because of surgery. The parent and child reactions on the parent record

sheets were basically negative, even though the average lesson only took 2 minutes to complete.

Student A, B, C, and D Parent-Initiated Teacher Contact Data

The parent-initiated contacts were recorded during the 9-week pre-treatment period and during the 9-week parent-tutoring program.

Table 7

Parent-Initiated Contacts

	Pre-Treatment Period	Parent-Tutoring Program
Student A	1	2
Student B	21	17
Student C	0	0
Student D	29	17

The number of parent-initiated contacts was charted for all four students in Table 7. Student A's parents initiated one contact in the pre-treatment program and two contacts during the tutoring program. The parents of Student B initiated 21 contacts during the first 9 weeks, and 17 during the parent-tutoring

program. No parent-initiated contacts were recorded for Student C for either period. Student D's parents initiated 29 contacts during the pre-treatment period and 17 contacts during the parent-tutoring program.

Student A, B, C, and D Research Question Results

Question One

What were the positive effects of the home-tutoring program?

Students A, B, and C showed an improvement in the skills they studied in the parent-tutoring program. As measured by the teacher's own personal observation, the parent-teacher relationship became more comfortable for these three students, too. In addition, Student A's parent increased her knowledge of the IEP goals. The results did not indicate any positive effects for Student D.

Question Two

What were the negative effects of the home-tutoring program?

Student B and D responses on the parent record sheets indicated that the parent-tutoring program caused frustration for them. Student D also indicated that the program was boring. However, the results did not reveal any negative effects for Student A or C.

Question Three

Did the home-tutoring program increase achievement? In what specific areas?

Based on the results of the tests and the lessons, the home-tutoring program increased achievement for Student A, B, and C. Student A improved her ability to use money and tell time. Student B increased his speed and accuracy when brailling with a slate and stylus. Student C improved his braille reading speed and accuracy. However, the results did not indicate an improvement for Student D.

Question Four

Did the number of parent-initiated teacher contacts increase?

The number of parent-initiated contacts did not increase for any of the students.

Question Five

Did the involvement program burden the parents of the handicapped children?

None of the students' parents stated that they were burdened by the program. However, Student B's mother indicated that she would like for some elements of the program to change in the future. Also, Student D's mother stated that she "had a lot to do" and did not want the program to continue at this point.

Question Six

Did the parents become more involved in the goals of the child's IEP?

The results indicated that Student A's mother became more familiar with the IEP goals as she studied with the student. The other parents of the students were already aware of the goals of the IEP at the beginning of the program.

Question Seven

What amount of time did the parents spend in home-tutoring activities? At what frequency?

The amount of time and frequency of parent home-tutoring varied with each student. On the average, Student A spent 32 minutes on each lesson and worked on them one day a week. Student B, on the average, spent 26 minutes brailling each lesson, and generally worked on the lessons twice a week. On the average, Student C spent 10 minutes reading each braille lesson, and worked on them on the same day for the majority of lessons. Student D, on the average, spent 2 minutes a session on the lessons. On the average, the lessons were done on four different days, but for the majority of weeks, the lessons were performed only on three days.

Question Eight

Were both parents equally active participants in the program?

Both the parents of Students A and D were equally active in the program. However, Student D's father participated in the

program basically because the mother had had surgery and was unable to continue with the lessons. The mothers of Students B and C were the only parents involved in their child's program.

Question Nine

Did the type of handicap influence the degree of parental participation?

The results did not indicate a relationship between the type of handicap and the degree of parental participation. Each set of parents spent the time required to complete the lessons, even though the required time varied for each student.

Question Ten

How did the other non-involved family members respond to the participating family members giving additional attention to the child in the home-tutoring program?

The parents of Students A and D both indicated that the non-involved family members reacted positively. Student B's mother indicated that the student's brother felt that too much time was spent with him already. Also, Student C's mother stated that there was some sibling jealousy when she worked with the student.

CHAPTER V

Conclusions, Limitations, and Suggestions for Further Research

Conclusions

For the four students involved in this home-tutoring study, parent involvement had positive effects on the students and their families. Although Rutherford and Edgar (1979) indicated that the parents of handicapped children often don't have time for extra involvement activities at school, the results of this study showed that the majority of the students' parents were willing to continue the home-tutoring program.

This study also supported the findings of Rich et al. (1979) who stated that parent tutoring programs were linked to increased academic performance and led to continued parent participation. In the study, the parents whose students had an increase in achievement agreed to continue the program.

The length of time to complete the lessons was not a factor in determining the parents' willingness to continue the program. Student A's lessons took the greatest period of time to complete, and her parents wished to continue the program. Student D's lessons took the least amount of time to complete, and the mother requested to discontinue the program. However, the program's lack of success for Student D was compounded by several factors. The student's mother had major surgery during the program which

eliminated her participation in the lessons. The parents were also planning a serious operation for Student D which was an added stress for them. In addition to these reasons and the fact that Christmas by itself is a busy time, the mother really wanted her child to be successful and was frustrated by her failure to do so.

Croft (1979) stated that communication is the basic ingredient for initiating and continuing a parent involvement program. This descriptive study revealed that all of the parents felt informed enough about what was happening at school. This gives a good foundation on which to build and to continue the parent-tutoring program.

In the pre-treatment interview, the parents were asked questions regarding study time. Since they had not recorded data on this, their responses may have been overestimates or underestimates of the actual times spent with the students. Because the parents' memories may have been foggy for the interview, this caused a weakness in the study. However, the parent-tutoring program made the parents more aware of the actual studying times, so this was a strength of the study.

Some of the families consistently worked on the lessons the day before they were due. This fact supported using a deadline for those students, as they completed the lessons more effectively with one.

The program monitored the involvement people, the number of parent-initiated contacts, and the parental familiarity with the IEP goals. Basically, the same family members were the

involvement persons in the pre-treatment period and in the parent-tutoring program. The number of parent-initiated contacts showed little or no increase for all of the students. Only one of the parents became more familiar with the goals of the IEP.

Limitations

1. Lessons 15 and 16 were assigned over the Christmas holidays and the results were poor. Achievement scores may have been altered if the holidays had not interrupted the program.

2. The parent record sheets and lessons were not always turned in promptly.

3. The instructor had been ill during 4 days of the week the posttest was planned to be administered, and returned on the last day of the week. The tests were given on that day which was quite hectic as it was an exam day and the last day of the semester. Scheduling changes prohibited moving the test day. In addition, Student C had also been ill, and Student B's last day of classes was that day.

4. Student B's mother knew braille, but the father did not. The lesson design restricted the father's participation because Student B wanted his mother to dictate the paragraphs because of her knowledge of braille.

5. The oral interview responses were sometimes inconsistent because of the nature of the questions. Without referring to records, the parents' memories could have been foggy about studying times.

Suggestions for Further Research

Several areas of the parent-tutoring program need additional research.

Increased achievement was seen for three of the four students in this project. Further research could study the effects of a longer parent-tutoring program. All students could possibly show an improvement if the length of the study was increased.

Additional research would also be beneficial to assess the permanent effects of the program. The tutoring program may have temporary benefits, or it may show a lasting increase in achievement.

This study indicated that the program for the student with a motor handicap was the least successful. Further research on additional students with motor handicaps could reveal if this type of handicap influenced the results of the study.

The attitudes of the parents and students were sometimes negative about studying. A positive attitude workshop could be conducted for both the parents and the students before the home-tutoring program began. The research could then compare the effects of the positive program to a program without the positive attitude workshop.

In conclusion, this study indicated that an individualized home-tutoring program may be beneficial for some handicapped students and their families. However, limitations of this investigation make it premature to draw any firm conclusions. The results do indicate areas worthy of further research.

Appendix A

Weekly Parent Record Sheets

Weekly Parent Record Sheet for Students A, B, and C

Parents:

Please complete and return to school by _____.

Record the starting and finishing times and the involvement person(s) for each day.

	Fri.	Sat.	Sun.	Mon.	Tue.	Wed.	Thurs.
Starting Time							
Finishing Time							
Person(s) Involved							

Mark on the line as appropriate the following:

1. Difficulty level of task

--------------------*----------*----------*
1 2 3 4 5
Easy Frustrating

2. Child reaction

--------------------*----------*----------*
1 2 3 4 5
Enjoyable Frustrating

--------------------*----------*----------*
1 2 3 4 5
Stimulating Boring

3. Parent reaction

--------------------*----------*----------*
1 2 3 4 5
Enjoyable Frustrating

Comments or Suggestions: _____

_____

Thank you,
Sue Lewis

Weekly Parent Record Sheet for Student D

Parents:

Please complete and return to school by _____.
Record the starting and finishing times, the involvement person(s), and the number of leg lifts for each day.

	Fri.	Sat.	Sun.	Mon.	Tue.	Wed.	Thurs.
Starting Time							
Finishing Time							
Person(s) Involved							
# Unassisted ------ # Leg Lifts	----	----	----	----	----	----	-----

Mark on the line as appropriate the following:

1. Difficulty level of task

```
*----------*----------*----------*----------*
1          2          3          4          5
Easy                                    Frustrating
```

2. Child reaction

```
*----------*----------*----------*----------*
1          2          3          4          5
Enjoyable                               Frustrating

*----------*----------*----------*----------*
1          2          3          4          5
Stimulating                              Boring
```

3. Parent reaction

```
*----------*----------*----------*----------*
1          2          3          4          5
Enjoyable                               Frustrating
```

Comments or Suggestions: _____

_____

Thank you,
Sue Lewis

Appendix B

Letter to Parents with Studying Suggestions

Parents:

You may want to use some of the following points suggested by Karnes and Franke (1978) when working with your child:

1. Praise the child often for his efforts as well as his successes.

2. Remove as much auditory and visual stimuli as possible which might distract the child, such as toys, TV set on, other children playing in the same room, etc.

3. Do not take the child away from an activity he is enjoying to do a lesson.

4. Present the lesson when the child is wide awake, in a good frame of mind, and not hungry.

5. Never force a child to do or continue a lesson. The attention span and readiness to do a lesson will vary from child to child and from day to day with the same child. If the lessons are presented is an interesting and enthusiastic way with the child receiving praise and little criticism for his efforts, the child will learn to enjoy doing the learning activities. If lessons are too long, presented in a disinterested way, or marred by too much criticism the child will learn to dislike doing the learning activities.

6. Physical and verbal punishment or criticism inhibits learning. Criticism may not only be that which pertains to the child's performance of task, but may also be other comments like "Sit up straight. You didn't listen to me. Now listen," and other such comments stated in a reproving tone of voice. Facial expressions as well as what is said and tone of voice are important in building the child's self-confidence or destroying it.

7. Be flexible in your approach to the child. Adjust the lessons and the methods to fit the child's personality. Some children are passive, some very active, some "warm-up" slowly, others quickly to new situations, and so forth. Remember that you want the child to grow in self-confidence, learn how to learn, and enjoy learning.

8. When beginning the lesson, assemble all the materials.

9. Come to the activity with enthusiasm. If you are interested and eager the child will sense it. If you sound like you enjoy this time with him the child will more readily enjoy it, too.

Good Luck!

Sue Lewis

Appendix C

Student A Pretests, Posttests and Responses

Student A Oral Pretest

Money

1. Name and tell the value of the following coins.
   (actual coins presented)

   a. penny
   b. nickel
   c. dime
   d. quarter
   e. half-dollar

2. Count by ____ to 100.

   a. 5s
   b. 10s
   c. 10s starting with 5
   d. 25s
   e. 50s

3. Count the coins. (actual coins used)

   a. quarter, dime, 2 nickels, penny
   b. half-dollar, quarter, dime
   c. half-dollar, 2 quarters, dime
   d. 2 quarters, dime, 2 pennies
   e. quarter, dime, 2 nickels, 3 pennies

4. Write the amounts.

   a. twenty-two cents (two ways)
   b. four dollars and 15 cents
   c. eight dollars and 56 cents

5. a. If you buy 3 packs of gum at 32¢ a pack, what is the total cost?

   b. If you buy something for $3.92 and give the clerk $5.00, how much change will the clerk give you?

   c. If you go shopping and buy a pen for $1.00 and some paper for $.50, how much will you have left from $5.00?

Student A Oral Pretest

Time

1. Tell the correct time as shown on the clock. (paper clock used)

   a. 9:00
   b. 10:30
   c. 11:15
   d. 2:45

2. On a clock, set the correct time.

   a. 6:00
   b. 3:30
   c. 4:15
   d. 10:45

3. Count by 5s to 60.

4. Name the hands of the clock.

5a. How many minutes are in an hour?
 b. How many hours are in a day?
 c. How many seconds are in a minute?
 d. How many minutes are in a half hour?
 e. How many minutes are in a quarter of an hour?

6. Tell the time on the clock using before or after.

   a. 11:05 (after)
   b. 7:35 (before)
   c. 7:15 (after)
   d. 7:50 (before)

7. Read the following digital times on the face clock.

   a. (10:22)
   b. (9:54)
   c. (10:01)

8a. How many minutes are there from 7:00 to 8:30?
 b. How many minutes are there from 1:00 to 2:00?

9a. If it is 2:20, how long will it be until 3:00?
 b. If it is 2:45, how long will it be until 3:15?

10. Is it dark or light at these times?

   a. 1 p.m.
   b. 3 a.m.
   c. 8 a.m.
   d. 6 p.m.

Student A Oral Posttest

Money

1. Name and tell the value of the following coins.
   (actual coins presented)

   a. penny
   b. nickel
   c. dime
   d. quarter
   e. half-dollar

2. Count by ____ to 100.

   a. 5s
   b. 10s
   c. 10s starting with 5
   d. 25s
   e. 50s

3. Count the coins. (actual coins used)

   a. quarter, 2 dimes, penny
   b. 7 quarters
   c. 5 dollar bill, 4 half-dollars, 7 nickels
   d. half-dollar, quarter, nickel
   e. half-dollar, quarter, dime

4. Write the amounts.

   a. thirty-two cents
   b. one dollar and 75 cents
   c. six dollars and 35 cents

5. a. If you spent $.37 on a soda, how much change would you receive from $1.00?

   b. If you bought something for $.87, what would your change be from $1.00?

   c. You made 50 cookies to sell at 5¢ each, but ate 7 of them. How much money would you make if you sold all the remaining cookies?

   d. If you bought 3 packs of paper at $.62 each, what would be the total cost?

Student A Oral Posttest

Time

1. Tell the correct time as shown on the clock. (paper clock used)

   a. 10:00
   b. 12:30
   c. 6:15
   d. 1:45

2. On a clock, set the correct time.

   a. 7:00
   b. 3:30
   c. 2:15
   d. 10:45

3. Count by 5s to 60.

4. Name the hands of the clock.

5a. How many minutes are in a quarter of an hour?
 b. How many minutes are in a half hour?
 c. How many seconds are in a minute?
 d. How many minutes are in an hour?
 e. How many hours are in a day?

6. Tell the time on the clock using before or after.

   a. 11:05 (after)
   b. 1:50 (before)
   c. 6:45 (before)
   d. 7:42 (before)

7. Read the following digital times on the face clock.

   a. (7:33)
   b. (2:42)
   c. (9:02)

8a. How many minutes are there from 5:00 to 6:30?
 b. How many minutes are there from 7:00 to 8:00?

9a. If it is 1:20, how long will it be until 2:00?
 b. If it is 9:45, how long will it be until 10:15?

10. Is it dark or light at these times?

   a. 9 p.m.
   b. 8 a.m.
   c. 1 p.m.
   d. 11 p.m.

Student A Money Responses

Pretest	Posttest
1. a. penny 1¢	1. a. penny 1¢
b. nickel 5¢	b. nickel 5¢
c. dime 10¢	c. dime 10¢
d. quarter 25¢	d. quarter 25¢
e. dollar $1.00	e. half-dollar 50¢
2. a. 5,10,15,20,25,30,35,40 45,50,55,60,65,70,75 80,85,90,95,100	2. a. 5,10,15,20,25,30,35,40 45,50,55,60,65,70,75 80,85,90,95,100
b. 10,20,30,40,50,60 70,80,90,100	b. 10,20,30,40,50,60 70,80,90,100
c. 5,10,20,30,40,50,60 70,80,90,100	c. 5,15,25,35,45,55,65 75,85,95
d. 25,50,75,100	d. 25,50,75,100
e. 50,75,100	e. 50,75,100
3. a. $.50	3. a. $.46
b. $1.35	b. $1.75
c. $1.10	c. $6.35
d. $.62	d. $.80
e. $.48	e. $.85
4. a. 22¢, $.22	4. a. 32¢, $.32
b. $4.15	b. $1.75
c. $8.56	c. $6.35
5. a. 96¢	5. a. 63¢
b. $1.08	b. 13¢
c. $4.50	c. $2.15
	d. $1.86

Student A Time Responses

Pretest

1. a. 9:00
   b. 10:30
   c. 11:15
   d. 2:45

2. a. 
   b. 
   c. 
   d. 

3. 5,10,15,20,25,30
   35,40,45,50,55,60

4. a. second
   b. hour
   c. minute

5. a. 60
   b. 24
   c. 60
   d. 30
   e. no response

6. a. 10 minutes after 11
   b. 3 minutes before 7
   c. no response
   d. no response

7. a. 10:22
   b. 10:54
   c. 10:01

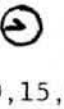
8. a. 90 minutes
   b. 60 minutes

9. a. 40 minutes
   b. 30 minutes

10. a. light
    b. dark
    c. light
    d. sometimes dark

Posttest

1. a. 10:00
   b. 12:30
   c. 6:15
   d. 1:45

2. a. 
   b. 
   c. 
   d. 

3. 5,10,15,20,25,30
   35,40,45,50,55,60

4. a. hour
   b. minute
   c. second

5. a. 15
   b. 30
   c. 60
   d. 60
   e. 24

6. a. 5 minutes after 10
   b. 50 minutes before 2
   c. 45 minutes before 7
   d. 42 minutes before 8

7. a. 7:33
   b. 2:42
   c. 9:02

8. a. 90 minutes
   b. 60 minutes

9. a. 35 minutes
   b. 60 minutes

10. a. dark
    b. light
    c. light
    d. dark

Appendix D

Student B Pretest and Posttest

Student B Pretest

Franklin Delano Roosevelt, President of the United States from 1933 to 1945, used radio very effectively. Roosevelt held informal talks called fireside chats. The talks did much to help Roosevelt gain support for his policies. Earlier Presidents, beginning with Woodrow Wilson in 1919, had spoken on radio. But Roosevelt was the first to fully understand the great force of the medium and the opportunity it provided for taking government policies directly to the people.

(World Book Encyclopedia, vol. 16, p. 88b)

Time: _____

Student B Posttest

Keystone of Arch Fitted as Thousands See Topping-Out Ceremonies

The ironworkers' traditional topping flag flew proudly today from the peek of the Gateway arch, marking completion of a job well done. Thousands of spectators watched as the final stainless steel section was hoisted smoothly to waiting workman visible at the opening 630 feet above ground. The national colors, placed on the final section by Boy Scouts, fluttered is a brisk breeze as the Scott Air Force Band played "The Star Spangled Banner."

(St. Louis Post Dispatch, Thursday, October 28, 1965, page 1)

Time: _____

Appendix E

Student C Pretest and Posttest

Student C Pretest

Franklin Delano Roosevelt, President of the United States from 1933 to 1945, used radio very effectively. Roosevelt held informal talks called fireside chats. The talks did much to help Roosevelt gain support for his policies. Earlier Presidents, beginning with Woodrow Wilson in 1919, had spoken on radio. But Roosevelt was the first to fully understand the great force of the medium and the opportunity it provided for taking government policies directly to the people.

(World Book Encyclopedia, vol. 16, p. 88b)

Time: _____

(The braille copy which follows this page is only a sample and not a replica of the copy used in the study. The paragraphs were brailled again to meet margin specifications. Consequently, the number of braille cells may differ.)

Student C Posttest

The ironworkers' traditional topping flag flew proudly today from the peek of the Gateway arch, marking completion of a job well done.

Thousands of spectators watched as the final stainless steel section was hoisted smoothly to waiting workman visible at the opening 630 feet above ground. The national colors, placed on the final section by Boy Scouts, fluttered is a brisk breeze as the Scott Air Force Band played "The Star Spangled Banner."

(St. Louis Post Dispatch, Thursday, October 28, 1965, page 1)

Time: _____

(The braille copy which follows this page is only a sample and not a replica of the copy used in the study. The paragraphs were brailled again to meet margin specifications. Consequently, the number of braille cells may differ.)

Appendix F

Student D Pretest and Posttest Results

Student D Pretest and Posttest Results

While standing in her locked braces, Student D's task was to independently lift her right leg upward off the ground.

	Pretest	Posttest
Number of independent leg lifts	0	0
Total number of leg lifts	3	3

Appendix G

Student A Sample Lessons

Student A Lessons

Student A Week 2 Assignments to Parents

Dear Parents:

Money

Please have Student A write the names of the coins on the four enclosed sheets on money identification. See how many she remembers without help.

Student A was having some difficulty counting by 10s when she started with 5, and counting by 50s. Please have her practice orally and then complete the worksheet on counting.

Time

Please explain to Student A how the hour and minute hands relate to time. (For examples; 7:00 - hour hand is on the seven and the minute hand is on the 12, 8:15 - hour hand is on the 8 and minute hand is on the 3, 11:40 - hour hand is between the 11 and the 12 and the minute hand is on the 8). Practice writing or saying times. Use the clock if needed.

Complete the enclosed worksheet on time.

Thanks!

Sue

Write the name and value of each coin in the blank next to it.

1. 

quarter twenty-five cents

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

11. 

12. 

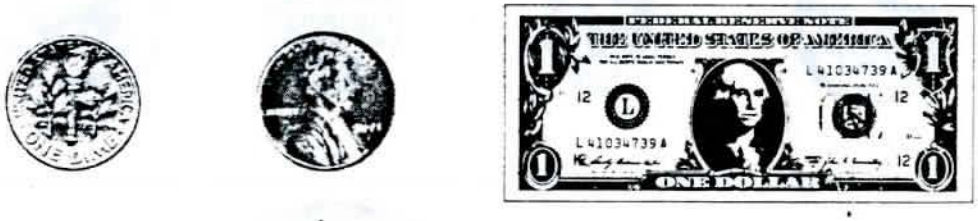
Write the name of each coin or bill in the blank below it.

1. 

half-dollar

2. 

3. 

4. 

5. 

6.



ONE DOLLAR

7.




1943


8.



THE UNITED STATES OF AMERICA
ONE
ONE DOLLAR


9.




10.



LIBERTY
IN GOD WE TRUST
1971

Fill in the blanks.

Count by 5s.

____, ____, ____, ____, ____, ____, ____, ____, ____, ____,

____, ____, ____, ____, ____, ____, ____, ____, ____, ____.

Count by 10s.

____, ____, ____, ____, ____, ____, ____, ____, ____, ____.

_5__, ____, ____, ____, ____, ____, ____, ____, ____, ____.

Count by 25s.

____, ____, ____, ____.

Count by 50s.

____, ____.

Circle the letter of the correct answer.

1. Which hand on the clock moves the fastest?

   a. hour hand
   b. minute hand
   c. second hand

2. Which hand moves the slowest?

   a. hour hand
   b. minute hand
   c. second hand

3. On a digital clock, which does the first number tell you?

   a. the hour
   b. the minutes
   c. the seconds

4. On a digital clock, which does the number after the colon tell you?

   a. the hour
   b. the minutes
   c. the seconds

5. If it is 7 o'clock, where is the minute hand?

   a. on the 7
   b. on the 6
   c. on the 12

6. If it is 9 o'clock, where is the hour hand?

   a. on the 12
   b. on the 8
   c. on the 9

Student A Week 4 Assignment to Parents

Dear Parents:

Money

Tell Student A different numbers of coins and bills and then have her give you the total. For example, say "5 quarters, 2 dimes, and 1 nickel." She should be able to give the total. She may need to use real money at first. After practicing several times, have Student A complete the first worksheet on money.

Using real money, if needed, ask Student A to tell you the number of each coin or bill that would be needed to make a certain amount. For example, if you gave her the amount, $4.35 and asked her how many quarters and how many nickels that would be, she should figure 17 quarters and 2 nickels. When she understands without using real money, please have her complete the remaining money worksheet.

Time

Student A is having difficulty with times like "20 minutes before 7" and "15 minutes before 2". Using a clock, show her how 6:40 is the same as 20 minutes before 7, and 15 minutes before 2 is the same as 1:45, etc. Let her know that we use "before" when the minute hand is past the 30, and that we count counterclockwise from the 12 instead of clockwise.

Please complete the worksheet on time.

Good Luck! Thanks!

Sue

Write in the blanks the total value of the money on the left.

1. 5 dollars, 1 quarter, and 2 dimes	$ 5.45
2. 3 half-dollars, 4 dimes, and 6 pennies	$__.___
3. 4 quarters, 8 nickels, and 3 pennies	$__.___
4. 20 dimes, 3 quarters, and 3 nickels	$__.___
5. 4 dollars, 2 half-dollars, and 1 dime	$__.___
6. 8 quarters, 4 nickels, and 15 pennies	$__.___
7. 7 dollars, 1 half-dollar, and 1 quarter	$__.___
8. 5 quarters, 4 dimes, and 3 nickels	$__.___
9. 6 dollars, 1 quarter, and 10 nickels	$__.___
10. 4 half-dollars, 2 dimes, and 2 nickels	$__.___
11. 8 dollars, 2 half-dollars, and 9 pennies	$__.___
12. 5 dollars, 4 half-dollars, and 7 nickels	$__.___
13. 30 dimes, 20 nickels, and 13 pennies	$__.___
14. 6 dollars, 2 quarters, 1 nickel, and 1 penny	$__.___
15. 8 half-dollars, 3 dimes, and 6 nickels	$__.___
16. 7 quarters, 1 half-dollar, and 7 pennies	$__.___
17. 5 half-dollars, 1 dime, 1 nickel, and 8 pennies	$__.___
18. 7 dollars, 5 quarters, and 5 nickels	$__.___
19. 3 dollars, 4 half-dollars, 4 quarters, and 10 pennies	$__.___
20. 9 dollars, 3 quarters, 2 dimes, and 4 pennies	$__.___

Fill in the blanks on the right with the number of coins or bills needed to make the amount on the left.

1. \$2.15 = 2 dollars, 1 dime, and 5 pennies
2. \$3.76 = ____ dollars, ____ quarters, and ____ penny
3. \$3.50 = ____ half-dollars
4. \$6.35 = ____ dollars and ____ nickels
5. \$5.83 = ____ dollars, ____ dimes, and ____ pennies
6. \$2.25 = ____ quarters
7. \$1.10 = ____ dimes
8. \$7.48 = ____ dollars, ____ dimes, and ____ pennies
9. \$4.56 = ____ dollars, ____ half-dollar, and ____ pennies
10. \$8.95 = ____ dollars, ____ quarters, and ____ nickels
11. \$5.07 = ____ dollars, ____ nickel, and ____ pennies
12. \$ .82 = ____ quarters, and ____ pennies
13. \$1.59 = ____ dimes, ____ nickel, and ____ pennies
14. \$6.22 = ____ dollars, ____ nickels, and ____ pennies
15. \$9.70 = ____ dollars, ____ quarters, and ____ dimes
16. \$7.45 = ____ half-dollars and ____ nickels
17. \$7.45 = ____ dollars, ____ quarter, and ____ dimes
18. \$3.33 = ____ dollars, ____ dimes, and ____ pennies
19. \$8.85 = ____ dollars, ____ quarters, and ____ nickels
20. \$9.19 = ____ dollars, ____ nickels, and ____ pennies

Match these.

10 minutes before 4	7:40
5 minutes before 11	11:45
3 minutes before 3	5:43
20 minutes before 8	6:35
6 minutes before 5	7:48
15 minutes before 12	3:50
17 minutes before 6	9:38
9 minutes before 2	2:57
25 minutes before 7	6:44
12 minutes before 8	12:46
20 minutes before 9	10:55
14 minutes before 1	1:51
22 minutes before 10	8:40
16 minutes before 7	4:54

Student A Week 7 Assignments to Parents

Dear Parents:

Money

Present different situations to Student A where she would be buying things in which change is given. For example, if you are buying a soda at school and you put 50¢ in the machine, how much change will you get back? (15¢) What coins would that be?

Play TIC TAC TOE and have Student A complete the worksheet.

Time

Please have Student A complete the worksheet.

Thanks!

Sue

TIC TAC TOE

Price 35¢	Price 45¢	Price 25¢
Pay with 40¢	Pay with 50¢	Pay with 50¢
Change? _____	Change? _____	Change? _____
Price 40¢	Price 15¢	Price 30¢
Pay with 50¢	Pay with 25¢	Pay with 50¢
Change? _____	Change? _____	Change? _____
Price 70¢	Price 23¢	Price 60¢
Pay with 75¢	Pay with 25¢	Pay with 75¢
Change? _____	Change? _____	Change? _____

Fill in the amount of change and 1 possible combination of coins the change could be.

Price	Pay with	Change	Coins
1. 35¢	50¢	15¢	1 dime and 1 nickel
2. 25¢	30¢	_____	_____
3. 40¢	50¢	_____	_____
4. 15¢	25¢	_____	_____
5. 60¢	75¢	_____	_____
6. 18¢	20¢	_____	_____
7. 19¢	25¢	_____	_____
8. 55¢	75¢	_____	_____
9. 38¢	40¢	_____	_____
10. 24¢	25¢	_____	_____
11. 28¢	50¢	_____	_____
12. 13¢	20¢	_____	_____
13. 42¢	50¢	_____	_____
14. 44¢	50¢	_____	_____

Write the digital times.

18 minutes before 12 _____

half past 11 _____

a quarter past 4 _____

a quarter to 10 _____

14 minutes before 5 _____

half past 6 _____

a quarter to 7 _____

a quarter past 1 _____

11 minutes to 3 _____

22 minutes after 8 _____

half past 2 _____

3 minutes before 9 _____

Appendix H

Student B Sample Lessons and Results

(Directions to parents for each week's lessons for Student B)

Parents:

Please have Student B braille this paragraph on the blank page given using his slate and stylus. Record the total time for this lesson at the end of the print-lesson page.

Thank you.

Sue

Lesson 1

Amateur radio is a popular hobby in which an individual operates his or her own radio station. Amateur radio is often called ham radio, and the operators are frequently referred to as hams. Hams can send radio messages by voice or by international Morse code to other radio amateurs throughout the world. Nearly a million people participate in amateur radio. Boys and girls younger than 7 years old have operated their own amateur radio stations.

(World Book Encyclopedia, vol. 16, p. 90)

Time: _____

Lesson 6

The Mayflower sailed from Plymouth, England, on Sept. 16, 1620 (Sept. 6, 1620, according to the calendar then in use), with 102 passengers. The ship reached Cape Cod 65 days later, and dropped anchor the next day, November 21 (November 11), off what is now Provincetown Harbor. It reached the present site of Plymouth, Mass., on December 26 (December 16), five days after a small party explored the site and decided to settle in Plymouth.

(World Book Encyclopedia, vol. 13, p. 261)

Time: _____

Lesson 18

Braille books are pressed from metal plates. The characters are stamped on both sides of the paper by a method called interpointing. Dots on one side of the page do not interfere with those printed on the other. In the early 1960's, some publishers began using computers to speed up production of braille books. A computer changes regular punched cards that have been prepared by a typist into cards punched with a braille code. A machine then automatically produces metal plates from braille-coded cards. By another new method, a vacuum braille former duplicates hand-transcribed braille pages on plastic sheets, which are then bound in volumes.

(World Book Encyclopedia, vol. 2, p. 458)

Time: _____

Student B Lesson Results

Lesson	Braille Total Cells	Cell Errors	Error Percentage	Total Braille Time (min)	Average Writing Time Per Cell (sec)
1	295	19	6.4%	33	6.7
2	264	17	6.4%	28	6.4
3	245	7	2.9%	19	4.7
4	361	5	1.4%	29	4.8
5	225	14	6.2%	23	6.1
6	310	9	2.9%	24	4.6
7	333	9	2.7%	30	5.4
8	340	4	1.2%	27	4.8
9	315	6	1.9%	22	4.2
10	333	11	3.3%	25	4.5
11	314	2	0.6%	27	5.2
12	305	12	3.9%	23	4.5
13	277	5	1.8%	21	4.5
14	416	12	2.9%	30	4.3
15	311	29	9.3%	23	4.4
16	329	11	3.3%	25	4.6
17	302	12	4.0%	21	4.2
18	397	5	1.3%	30	4.5

Appendix I

Student C Sample Lessons and Results

(Directions to parents for each week's lessons for Student C)

Parents:

Please have Student C read his braille copy of this to you. Mark any omissions, additions, or incorrect responses directly on the print copy. Record the total time for the lesson at the end of the print page.

Thank you.

Sue

Lesson 2

Uses of Amateur Radio

Hams have a long history of providing communications assistance in times of emergencies. Floods, fires, tornadoes, and hurricanes can interrupt telephone service and other common means of communication. Radio amateurs often have used their equipment during such disasters to reestablish vital communication links. This kind of voluntary work in emergencies has won hams the praise of governments around the world.

(World Book Encyclopedia, vol. 16, p. 90)

Time: _____

(The braille copy which follows this page is only a sample and not a replica of the copy used in the study. The paragraphs were brailled again to meet margin specifications. Consequently, the number of braille cells may differ.)

Lesson 7

Thanksgiving

The first New England Thanksgiving was celebrated less than a year after the Plymouth colonists had settled in the new land. The first dreadful winter in Massachusetts had killed nearly half of the members of the colony. But new hope grew up in the summer of 1621. The corn harvest brought rejoicing. Governor William Bradford decreed that a three-day feast be held. A Thanksgiving Day for the purpose of prayer as well as celebration was decreed by Governor Bradford for July 30, 1623.

(World Book Encyclopedia, vol. 19, p. 180)

Time: _____

(The braille copy which follows this page is only a sample and not a replica of the copy used in the study. The paragraphs were brailled again to meet margin specifications. Consequently, the number of braille cells may differ.)

Lesson 17

Louis Braille, (1809-1852), was a blind Frenchman who invented the braille system of printing and writing for the blind. Three years after his birth near Paris, an accident blinded him. He entered the National Institute for the Blind in Paris when he was 10. Braille was a good student, especially of science and music, and he became a church organist. He remained at the Institute as a teacher. There he developed his system of reading. It utilizes raised points or dots on paper for letters.

(World Book Encyclopedia, vol. 2, p. 458)

Time: _____

(The braille copy which follows this page is only a sample and not a replica of the copy used in the study. The paragraphs were brailled again to meet margin specifications. Consequently, the number of braille cells may differ.)

Student C Lesson Results

Lesson	Braille Total Cells	Cell Errors	Error Percentage	Total Reading Time (min)	Average Reading Time Per Cell (sec)
1	295	36	12.2%	12	2.4
2	284	52	18.3%	10	2.1
3	271	24	8.9%	9	2.0
4	387	27	7.0%	16	2.5
5	225	13	5.8%	7	1.9
6	310	18	5.8%	9	1.7
7	333	18	5.4%	9	1.6
8	340	6	1.8%	10	1.8
9	315	0	0.0%	8	1.5
10	333	8	2.4%	11	2.0
11	314	1	0.3%	8	1.5
12	305	6	2.0%	11	2.2
13	277	7	2.5%	8	1.7
14	435	1	0.2%	9	1.2
15	311	20	6.4%	11	2.1
16	329	8	2.4%	9	1.6
17	302	3	1.0%	7	1.4
18	397	6	1.5%	10	1.5

Appendix J

Student D Lessons

Student D Lessons

Week	Daily number of assigned leg lifts	Weekly number of assigned leg lifts
1	3	15
2	5	35
3	7	49
4	8	56
5	10	70
6	10	70
7	10	70
8	10	70
9	10	70

Prior to the first lesson, both Student D and her mother were given the same oral instructions about the leg lifts. Student D's task was to independently lift her right leg a specified number of times while standing with her walker and wearing her locked leg braces. The involvement person recorded the number of independent lifts and the total number of lifts on the parent record sheet.

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