THE DEVELOPMENT OF A LEARNING TAPE TO TEACH BLIND STUDENTS A BASIC FOOD PREPARATION SKILL

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1951

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
July, 1972

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PREFACE

The author wishes to express appreciation to the persons listed below and to many others not listed for their assistance in the development of the various facets of this investigation. To Dr. Elizabeth Hillier, thesis adviser, special acknowledgment is given for her assistance in the development of the thesis proposal as well as for her suggestions and encouragement throughout the study; to Dr. Florence McKinney and Dr. Ruth Pestle, special gratitude is given for their professional assistance, encouragement, and prompt action in reading the various parts of the study.

To the staff and students of the Oklahoma School for the Blind in Muskogee and to the blind OSU students who participated in the testing, the author gives special recognition. Without their help the study would not have been possible.

Also to be recognized are Miss Norma Simpson, Miss Sue Herndon, Mrs. Christine Salmon, Mrs. Pat Embrey, and Mrs. Judy Poole, who willingly gave their ideas and time in making the study a success.

The writer wishes to convey her appreciation to the Department of Home Economics Education for the teaching assistantship which helped to make her graduate work possible.

Appreciation must also be expressed to those graduate students and staff members who were of assistance in locating literature which could be used in the study.

Lastly, to her family, the author wishes to express a special kind of gratitude for their understanding, patience and help in keeping the home operational during the study.

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CHAPTER I

INTRODUCTION

Of the increasing number of blind in the United States, many are homemakers or potential homemakers. The ability to perform the tasks required of a homemaker does not come automatically with the title. Homemaking must be learned.

Learning to do tasks which require physical dexterity is not easy for the blind potential homemaker for several reasons. (a) Ninety percent of all that is learned is learned through sight (22) and she has no sight. (b) Family fears often prohibit her use of tools and equipment, especially those which might harm her. (c) She usually lives in a residential school where she may or may not have opportunities to perform some of the tasks that children in their own homes perform (32). (d) Teaching the blind can be very difficult.

Nevertheless, the American Association of Instructors for the Blind reports that blind girls usually marry, have families and "keep house" (26). It is, therefore, imperative that young blind women be taught homemaking skills before leaving school so that they can (a) conserve their resources, which may be limited, (b) do the things for their families that other homemakers do and (c) have pride in their homes and the products of their efforts. Any tool which might make this teaching easier could be of great assistance to those who teach the blind.

Statement of Problem

The purpose of this study was to develop and evaluate a learning tape for teaching a basic food preparation skill which blind students would need to perform as homemakers.

Background of Study

Historically, the education of the blind has been left to blind persons who mastered certain skills, then passed their knowledge on to other blind persons (27). In recent years, a great deal more emphasis has been placed on teaching the blind and visually handicapped. Part of the impetus for the movement came from the Vocational Education Amendments of 1968. One of the stipulations of those amendments was that ten percent of the annual vocational allotment for each state must be spent on education for handicapped persons, who because of their physical or mental condition, could not succeed without special educational assistance or a modified educational program (48). One of the groups of people who was to benefit from those allocations was the visually handicapped.

Although the money was available for the programs and there was widespread interest in them, some problems were encountered. There was a serious lack of trained teachers. Methods and materials to be used in the programs had not been developed (44).

If a sufficient number of teachers could have been provided to fill the available positions immediately, they could not have given the amount of time required to teach a blind student. O'Neill (37) said, "The (visually) handicapped need more individual attention than it is

possible for a teacher to give." A blind student sometimes requires ten times as much of the teacher's time as does the sighted student (52).

The problem, then, was to develop aids which teachers could use to provide them with more time to spend with students. One of the newest and highly acceptable methods was programmed or individualized instruction through the use of individualized learning packets. Programmed instruction would allow teachers to more effectively meet the needs of each student in the area in which he needed the most help (16). Programmed instruction would also allow every student to progress at his own rate of speed and stay with the study until he mastered it.

One of the major concerns of the author, while she was a teacher at the school for the blind, was that students who had already mastered a skill were forced to wait for others much of the time because each student required the assistance of the teacher. Blind students are not able to learn from observation, therefore each student must experience each task in totality if she is going to be able to learn it (6). Any materials which would reduce the need for individual teacher assistance and still accomplish the desired goals would help alleviate the strain on both the teacher and the pupil (52).

It is not possible for blind persons to use existing individualized packets because they can not read them. Some materials can be brailled, but reading brailled materials requires the use of the hands in both reading and performing tasks. A further problem in producing brailled materials is the weight and density of such materials.

As a search of the literature progressed, more and more evidence supporting the use of the tape recorder in teaching the blind was found (31, 5, 44). Tapes had been used primarily to record textbooks and to

record lessons for later reference. Schiff (43), in discussing the training of blind computer programmers, reported that tape recorders had been used in presenting the basic technology for the course.

If tape recorders could be used to record lessons which would aid blind students in learning technical and academic materials, it was felt they might also be instrumental in providing instructions which would allow blind students to learn skills in home economics. If they could be used in this manner, students could progress independently of the teacher, at varying levels and at various speeds during the same time period, leaving the teacher free to help those students who required additional help.

Objectives

1. To survey and examine the literature related to the problem.
2. To determine the content and the objectives of the lesson to be taught.
3. To develop a learning tape which:
   a. could be completed within a limited time period.
   b. would provide instructions which were detailed enough so that blind students could complete the lesson with little or no teacher assistance.
4. To determine the effectiveness of the tapes by evaluating the ability of blind students to follow the directions given and perform the skill being taught with little or no assistance.

Procedure

Step 1 Select the problem

A. Review related literature

B. Determine purposes and objectives of the study

Step 2 Develop the Lesson

A. Select subject matter

B. Perform the steps in the lesson

C. Write a script for the tape

D. Establish the validity of the script by:

a. testing with a sighted boy

b. submitting script to a panel of home economics experts

E. Revise the script and make the initial tape

Step 3 Pre-Test the Tape

A. Select a pre-test group composed of 3 blind OSU students

B. Pre-test the tape

C. Make revisions based on pre-test

D. Rewrite the script and make the final tape

Step 4 Test the tape

A. Obtain permission to use students at the Oklahoma School for the Blind in testing

B. Ask home economics teacher to select five students who meet the criteria established by the researcher

C. Develop an evaluation instrument

D. Test the tape

E. Analyze the findings

F. Make recommendations based on the findings

Assumptions

1. Blind persons can be taught homemaking skills through the use of detailed, step-by-step instructions.
2. The learning process may be facilitated for the blind if the hands are not required in both performing tasks and reading directions simultaneously.
3. Blind students can learn skills through taped instructions.
4. A tape can be made which requires little or no teacher assistance.

Definition of Terms

Blind Persons with central visual acuity of 20/200 or less in the better eye with correcting glasses (31).

Tactually Of or pertaining to the science of touch (Webster's dictionary).

Points of Reference Landmarks which provide a blind person with clues regarding his own position or the position of the materials he is using (40).

Stylus and Slate Equipment used by the blind to write braille manually (29).

Braille Writer An instrument much like a typewriter which prints in braille (29).

ADL (Activities of daily living) Those skills which must be learned (such as tying the shoes and brushing the teeth) in order to function independently.

Limitations

The study was limited to three blind college students in the pre-testing and to five blind students enrolled at the Oklahoma School for the Blind in evaluating. The students had no other physical or mental handicaps.

The study was further limited to a basic food skill which could be taught with the use of step-by-step instructions, and when taped, could be completed within a regular fifty minute class session.

Summary

In this chapter, a statement of the problem, the background and significance of the study, and other relevant information have been presented. In the following chapters the development of the study will be discussed.

CHAPTER II

LITERATURE REVIEW

The review of the literature concerns the numbers of blind in the United States; the major causes of blindness; the problems related to blindness; the attitudes of both the sighted and the blind toward blindness; a brief history of the general education of the blind; the types of educational institutions for the blind; the problems related to teaching the blind both general subject matter and home economics and some innovative methods used in teaching the blind (specifically the tape recorder).

Blindness in the United States

There were approximately 355,000 blind persons in the United States in 1964 (43). By 1969, the Rehabilitation Services Administration reported that the number had risen to 420,000 (27). Some of the rise in the number of blind can be attributed to the overall population increase. Genetic deficiencies passed on from generation to generation result in blindness for others; however, the major cause of blindness seems to be carelessness. Procrastination is one form of carelessness which results in blindness. Some serious eye problems can be detected only through regular eye check-ups, which large numbers of persons fail to have. According to an interview with an ophthalmologist, glaucoma, which is one of the leading causes of blindness, can be detected only

through an eye examination. There are no evident symptoms to the afflicted until it is too late to prevent further deterioration of the eyes. Congenital cataracts, detached retinas and hardening of the arteries produce blindness in other individuals.

Accidents may also result from carelessness and are another major cause of blindness. Approximately one thousand children per year lose their sight through accidents involving balls, stones, sticks, scissors, knives, whips, pea shooters, firecrackers and BB guns (42). Explosions, war, laboratory accidents, and some types of labor involving steel or wood splinters or welding have contributed their share to the rising number of blind also.

Although lack of sight impedes the ability of the blind to perform tasks as they are customarily performed, it does not mean that they must become dependent and helpless (20). William Howard Taft once said,

> Without thought we class them (the blind) all among the helpless and necessary objects of charity. We segregate them from the world at large. We put them in expensive asylums. We furnish them with food and clothing, and then with a sigh we consign them to a life of hibernation, of deadening monotony, of helpless and aimless existence in a windowless tomb. (42)

The blind do not want to become wards of society, neither do they want pity nor sympathy. They want help. Not every blind person can be helped to the point that he feels completely at home in his community, but then neither can every sighted person. "The goals of both are the same . . . the ability to live in and contribute to his environment" (43). It is very easy to do too much for the blind. "If we are to be able to serve them, we must spark their motivation, treat them as individuals . . ." (31) ". . . and develop their skills and self-reliance" (38).

Problems Related to Blindness

Blindness in Early Childhood

If the sighted are to be of help to the blind in developing skills and self-reliance, it is imperative that they understand some of the problems related to blindness. Problems begin with the birth of a blind child.

It is very difficult for most parents of a blind child to hide their disappointment and confusion at having created a child who is less than perfect (49). Feelings of guilt and uncertainty concerning how blind children develop may cause parents to overprotect the child. Overprotection is also related to the fear of the parent that the child may be retarded because he is unable to perform as quickly or as well as sighted children his same age. This fear is not an uncommon one. Almost twenty percent of the blind have one or more physical handicaps in addition to blindness. The major handicap cited is mental retardation (4). However, mental retardation may be mistaken for what is actually lack of opportunity to learn.

A blind child will usually attempt to accomplish as many tasks as he is encouraged to try; however, it takes time to encourage a child to learn. Many parents of a blind child feel it is easier to "do it for him," than it is to encourage him to learn to do it for himself. As a result, the child is never allowed to do the things that other children do. Consequently, he may be unable to perform the simple tasks of dressing or feeding himself when he enters school (32).

Fear that a child may be injured in trying to perform a task is of great concern to the parent of a blind child and may also result in

overprotection. It is hard to allow a child, who already has the problem of blindness, to experience even more problems, especially when they could be prevented.

A mother of a blind child said,

> I began to realize that her problems had not risen out of blindness, but out of our uncertainty . . . . It seems as though all we needed was confidence, patience to give her time and to let her grow past some of the difficult spots herself. (25)

Patience, understanding and extraordinary affection are necessary components in providing a "bright world" for a blind child (25).

At the other extreme are parents who force their child to present a superficially normal picture of development (32). Because the child senses the importance of his being like other children, he pretends that he can do the things other children do whether he really can or not.

Society is inclined to pity a blind child and consider him hopeless and unfortunate. If the parents of the child feel this way too, the child has no one to help him and his adjustment can be seriously damaged. A sound parent-child relationship is necessary to the healthy development of the child's personality. In general, each child needs to develop at his own rate of speed (32). He needs to experience as many things as possible in the security of his own home, and most important, he needs to be treated the same as other children despite his infirmity (18). As the child grows older, he faces different problems.

The Blind Adolescent

Two-thirds of the blind population become blind in late adolescence. In addition to the problems faced by all adolescents, the blind

teenager has some special problems. He learns braille more slowly than a child who has been blind since birth. He is likely to resist learning to perform tasks as the blind do them in the hope that his sight will be restored. Dates with the opposite sex can no longer be chosen because he "likes what he sees." Acquaintances must be made and dates chosen on the basis of personality preferences (32). Driving a car, which plays such an important part in the life of most adolescents, is not possible for the blind. Instead he must face the realization that he can not undertake driving. Natural curiosity concerning sex can not be satisfied by a quick look at an encyclopedia. Printed words or pictures have no meaning for the blind. His best source of information is touch, which in this case is not acceptable. The negative attitude of adults makes him feel guilty about his curiosity and he is left to form his own conclusions which may be entirely wrong (32).

Physical appearance is as important to the blind adolescent as it is to other teenagers. Since his eyes are usually deformed, this is his major concern. Plastic shells are available which completely cover the fronts of the eyes; however, it is not possible for some blind persons to wear them. If the shells cause a great deal of pain or if they shut out the small amount of light which an individual may have available, wearing them is usually discouraged (56). Blind students often rely on sighted friends to help in the selection of clothing, hair styles, make-up and the maintenance of personal cleanliness. Because many blind students are educated at a residential school, interaction with the sighted is usually very limited. The sighted friend may have to be a housemother or a teacher who may be "out of touch" with teenage fashion trends.

With adulthood just around the corner, the blind teenager must evaluate his skills and personality traits. Will he be able to get a job which will support him? Fitting and Buel (5) report that the blind have difficulties in securing and holding jobs. Will he be able to select a desirable mate? Choices are often limited to those of other blind students at the school. If he marries another blind person, will his children be blind (32)?

Good grooming, physical competency and easy mobility are necessary to success. "A blind child who is lacking in these assets is not only physically handicapped, but almost totally disabled socially" (52). Many problems faced by the blind arise from a lack of preparation to meet situations and from lack of possibilities for interaction with the sighted (20, 4, 32).

Blindness is certainly a cause for emotional distress which may manifest itself in the form of "blindisms." Some of the more common blindisms are swaying the body back and forth, poking the fingers into the eyes, manipulating the lips, ears or nose, walking with the eyes toward the ceiling, or constant movement of the fingers in a brushing manner as if to remove cobwebs. The blind usually abandon blindisms when they reach adolescence and want to be like others; however, blindisms can be carried over into adulthood. A blind person should be kindly and consistently reminded that he is practicing a blindism in the hope that he will correct it (32).

The Elderly and Recently Blinded

Although recently blinded individuals are unable to read braille, they have the advantage of visual memory. Visual memory fades through

the years, but it is an effective tool in initial training or retraining of the blind. Remembering the characteristics of a tree is much easier than trying to learn what a tree looks like through tactual observation. It is not always possible to observe tactually and it is a very slow process as opposed to a quick glance (42). Remembering the way a task was done, the way things look (such as colors and pieces of equipment) are a great help in the learning process of the recently blind.

Characteristics which are usually discernable among the recently blinded are grief and despair over the loss of sight; feelings of depression; excessive dependence; great loss of self-esteem; insecurity in new situations; great need for contact and human interaction; marked loss of autonomy; and guilt at being a burden (56).

The poignant hurt at being unable to reciprocate kindnesses lowers the self-esteem of the blind. In order to help him to improve his self-esteem he must first accept his disability and learn to live with it. He must not feel sorry for himself and he must not let others feel sorry for him. He must learn that "right ways" do not exist, but that through experimentation he will be able to determine what is right for him. He must not be afraid to try anything within the limits of his handicap. He must not be afraid to admit he can not do it, to ask for help, to fail and try again, and to develop new interests. Above all, he must learn to deal with curiosity and learn to accept kindness, attention and love (55). When all this is accomplished, the other problems gradually disappear.

Attitudes Toward Blindness

Once the blind individual accepts himself and his disability, he

does not feel that he is totally incapacitated. Neither is he usually unhappy (9). He occasionally wishes he could do the things that the sighted do, but for the most part, he just doesn't think about his blindness. On the other hand, the sighted have some very definite attitudes toward blindness. One of the major ones is attitude toward the ability of the blind. The degree of acceptance or rejection that people have toward the ability of the blind varies with each generation. However, all of the blind are forced into a stereotyped mold that is acceptable at a given time (20). It seems that there is no in-between.

The blind individual is regarded as either a "blind beggar" or a "blind genius." The blind beggar concept is that of a middle aged person, shuffling along, wearing dark glasses and shabby clothing, and carrying an accordian or other musical instrument, selling pencils on the street corner. Rather than fight overwhelming odds, he has surrendered to defeat and despondency. He knows no vocation, but he is blind, so nothing is expected of him (20). His ability to walk down the street unaided may be regarded with awe (9). The blind genius looks like everyone else. He does not wear dark glasses, shuffle when he walks, or carry a cane. He has learned to perform tasks as they are customarily performed by the rest of society, so he is acceptable (20).

This attitude of the sighted concerning the ability of the blind may be directly related to the concept of the importance of vision in the learning process. The importance of sight in the learning process can not be minimized, but neither can it be assumed that it is the only means by which to learn. "Sight is the most sophisticated of all our senses. Through our eyes we receive up to ninety percent of all our information about the world" (22). Without sight, an individual is

faced with a great handicap. He can not learn through visual imitation nor can he learn through observation. A great deal of the learning which takes place in early childhood is the result of imitation of what others do. When a blind child does not develop physical dexterity as quickly as the sighted child, it may be presumed that the blind child is retarded. In reality, his only problem is that he has nothing to imitate.

If the sighted feel that vision is the only means by which to learn, the only basis for reality and imagination, he may assume that the blind live in a world of pure fantasy and are incapable of learning at all. On the other hand, if he sees that it is possible to substitute the other senses in the learning process, he may accept the blind more readily (20).

The Sixth Sense

Most persons applaud the famous sixth sense of the blind; however, experts agree that the sixth sense must be developed through hard work. If indeed, the hearing, the sense of touch and the sense of smell do improve, they do not improve automatically to compensate for loss of sight. The senses must be trained to do what the blind person needs done. "Equally surprising feats could be performed by the sighted under similar necessity" (42). Since blindness does not insure increased sensitivity of the remaining senses, it is important that blind persons be trained in the development of the other senses.

> It would seem therefore, that those who want to be really useful to the blind person need to understand that to live is not only to see, but also to hear, to feel with the fingers as well as with the emotions, to sense, to shape, to manipulate, to converse, to think, to walk, to smell, and to taste. To

> people who see, the most conscious part of living is what they see. It is hard to help a blind person to feel essentially useful and worthy without being convinced and fully cognizant of the ways of living fully without sight. (32)

Mobility

Contrary to popular opinion, only five percent of the blind use guide dogs for independent travel. The dog gives them a fine sense of freedom and motion, but some blind persons are not able to move fast enough to keep up with the dog because of other physical handicaps (42).

It takes three months to train the dog and one month of intensive training to train the potential owner of the dog. If the pair are not able to establish excellent communication, the training is discontinued. The span of usefulness of the animal is eight years, after which another animal must be obtained (42). Rather than face the emotional crisis of giving up the animal after such close and constant companionship, most blind persons prefer the use of a cane.

The cane is an extension to the sense of touch (43). With it, the blind person can locate the edges of the sidewalk, ascend and descend stairs, detect obstacles in his path, and tell the world that he is blind. The white cane tells all who see it that the owner is blind. Although the cane is used both indoors and outdoors, indoor use is usually discontinued once the individual is oriented to his surroundings (42).

Employment

In general, employees refuse to hire the blind, asserting incompetence in the very areas where repeated success has been evidenced (46).

If jobs are secured, competition is ruled off limits and replaced by generosity, pity and sympathy. The blind resent these actions as patronizing (46). They want to prove themselves as worthwhile employees on the basis of what they can do. They do not want to be dependent on a society which often feels it is easier to keep the blind dependent than it is to train them to be self-sufficient. Real help for the blind comes, not through raising funds, but through integrating them into our society (9).

Education of the Blind

Integration of the blind into society has been greatly facilitated through education, but education of the blind has been very slow in its development. It was not until the eighteenth century that blind persons learned to read and write (42). Once in a while a solitary person who was extremely gifted found his way to fame, but for every one of the gifted, millions have dragged their weary way through life "illiterate, unwanted, jeered at, ignored or tormented" (42).

Most blind boys resorted to shaking their cups and begging for alms while blind girls become prostitutes. Some were locked in their room to prevent their wandering around and hurting themselves. Others were chained to the furniture. In many cases, this was done so that the family did not have to explain the presence of a blind individual to society. Many of the blind were disposed of in infancy because society accepted only the strong, the whole, and the healthy (42, 17).

Through the centuries, such blind persons as Homer, Handel, Milton, Louis Braille, Helen Keller and others have become familiar to most people. They, along with many sighted persons, have been responsible

for progress in the education of the blind. A blind singer named Maria Von Paradis was the inspiration for the first school for the blind. She was convinced that mass education for the blind was a possibility and she had devised several methods of teaching herself which she thought would be helpful to other blind persons. One of these methods was the pin-pricking of letters onto paper for reading by the blind. Although many of the blind could not use the method successfully, she was convinced that there must be some way that they could learn to read.

In 1764, a man named Hauy opened the first school for education of the blind in Paris. He had been influenced by several things, but foremost among them was a street scene which he witnessed. Ten blind men dressed in grotesque robes and dunce caps, and wearing asses ears and huge cardboard spectacles to emphasize their sightless eyes, were entertaining street crowds by playing stringed instruments in horrible discord. Hauy, appalled at the inhumanity of the whole thing, determined to teach the blind to be something other than an object of ridicule.

Hauy later met Maria Von Paradis, who further convinced him of the feasibility of teaching the blind. Hauy agreed that the first step was to teach the blind to communicate with the world by teaching them to read and write. Dissatisfied with the pin-pricking method of lettering, he developed relief lettering as a means of teaching the blind. The first method he used was the carving of letters on thin pieces of wood. The work was very tedious and time consuming. One day, one of his students discovered that he could read embossed print. Hauy quickly took the end of a pencil and rubbed many letters onto a piece of paper. By writing the letters backward on the back side of the paper and using a great deal of pressure, the paper could be turned over and the letters

would appear raised and in their regular form. The student was able to recognize all of the letters. This was the first really significant step in the general education of the blind (42).

Louis Braille was the next person to make a significantly worthwhile contribution to the education of the blind. Braille was blinded by an accident in his father's workshop when he was three. His father heard about the Paris School for the Blind, which Hauy had opened, and sent his son there to study. From the beginning, Braille was an astute student and he began to look for ways to make it easier and less time consuming for the blind to read. He heard about a point system of raised dots which was being used by an army officer named Charles Barbier. The system was used by the army to transmit messages at night. Raised dots were used to represent various symbols which could be read in the dark with the use of the fingertips.

Barbier had tried to sell his idea to the Paris School, but the headmaster tried it and was not satisfied with the results, even though raised dots proved much easier for the blind to interpret than raised continuous lines. Braille began to try to perfect Barbier's point system so that it could be used by the blind. The major problem was the amount of space required for writing the characters, which were six spaces tall. Braille welded two pieces of metal together and placed them over the characters, blotting out three spaces of dots and reducing the overall height to three spaces. He then devised a system of dots to represent the letters of the alphabet as well as the punctuation marks using different arrangement of the dots. For example: A ⠁ B ⠃ C ⠉ D etc. None of the dot arrangements was over three spaces tall.

Braille did not live to know the extent to which his method would be used in teaching the blind, but he gave full credit for his discovery to Barbier. Braille writing soon became the dominant factor in teaching the blind to read (42).

Today, less than twenty percent of the blind read braille effectively. Blindness is closely related to old age and many persons are living longer than ever before. When older persons become blind it is extremely difficult for them to learn to read braille. Fingertips have become insensitive through hard work; inflexibility of hands and fingers due to arthritis or rheumatism is in evidence, and there is always the hope that somehow the sight will be restored and there will be no need to learn braille. Still another reason is the sophisticated tools which are used today to present books, magazine and newspaper articles on records so that the blind can listen rather than read. Some of the most intelligent blind workers do not read braille, but depend on a reader to read materials for them (42); however, this may be due to the fact that many materials are not available in braille.

Education of the Blind in the United States

There were no schools for the blind in the United States until the 1830's when three schools opened almost simultaneously. The schools were located in New York, Boston, and Philadelphia. Samuel Gridley Howe was the leader of the educational movement in America. Howe made several trips to Europe to study curriculum and methods being used in schools for the blind there. He did not always agree with the techniques being used, but a composite of ideas from schools all over Europe became the basis for the development of the American schools.

From the beginning, physical activity, music, piano tuning, sewing, knitting, braiding, astronomy, philosophy, language and the common school courses were all a part of the curriculum. The essential factor in the American schools was preparation for life after the student left the school. By the 1880's, twelve hundred persons had gone through the American schools and only twenty-one had reverted to the almshouses (42). The public became interested in educating the blind once they had been shown the results of what could be accomplished.

Types of Educational Institutions for the Blind

The State Residential School

Today, almost every state has a residential school for the blind. The very nature of the handicap dictates that a blind child receive special schooling, usually provided by residential schools for the blind. Some students who live close to the school may attend as day students, but the majority of the students live in dormitories at the school. It is a very important function of the school to form a sympathetic partnership with the family of the blind child so that the parents will not feel that they have had to entirely surrender their responsibility (32).

When the child arrives at the school, he will be expected to learn very quickly to take care of his personal needs such as making his own bed, hanging his clothes so that he can find them in the closet and keeping track of his personal possessions. This is the beginning of teaching that is directed toward making him independent. Motor activity is vital to the process of self-care since the blind person has no

visual patterns to imitate (41). These tasks may be very difficult for the child who has never had the opportunity to do things for himself. In this case, the housemother may find it necessary to provide a great deal of encouragement. She may even have to push the child to fulfill his obligations. The housemother should try to simulate a family atmosphere for the blind child and see to his personal appearance and manners. She should also help him with homework and start preparing him for the problems he may encounter in the sighted world (18). The task of housemother is one of great responsibility.

Most blind children live at the institution a long time and miss the influence of the parent in the home, so the development of the personality depends far more on the teacher than in normal situations (30). If a teacher is to be a positive influence, her students must like and respect her. Robbins (41) says a teacher of the blind may be successful if she follows some basic rules. She must show the student that she likes him, that she is on his side. She must make sure that he receives enough guidance so that he will not experience prolonged frustration. She must see him realistically and make sure goals are within his capabilities. She must give approval and help to make activities satisfying. She must give him freedom to try new things, and she must realize that he must not be overprotected.

The teacher must never feel that her students are inferior even though they may take much longer to learn a task (30). She must be prepared for a great deal of absenteeism caused by operations, or illnesses, related to blindness. She should be aware that most of her students will be from two to three years behind those who are the same age in school (30). Reasons for this may be frequent absenteeism, or

parents, who, reluctant to send a young child to a residential school, keep him at home past the age of six.

The Public School

Forty percent of the ten thousand blind students are enrolled in public schools where they may or may not receive the additional help they need. Several plans have been tried to integrate these students into the schools. Two of the most effective plans are the Cooperative Plan and the Integrated Plan (32).

The Cooperative Plan is designed so that the blind child is assigned to a special room where a teacher of the blind is available to help him. He attends regular classes as much as possible, but the major portion of the responsibility for his learning rests on the shoulders of the teacher of the blind.

In the Integrated Plan, the blind child is enrolled in regular classes with a teacher available to help him in a resource room. The resource teacher helps the student when the regular teacher sees the need, but the regular teacher is primarily responsible for his learning.

Segregating the blind into different classes has been tried with little success. Children with handicaps do not want to be forced together with others of their kind, but wish to be integrated with regular school children (32). Advocates of these systems feel that the advantages of interaction and competition with the sighted far outweigh the disadvantages.

Learning at Home

Still another source of assistance in the education of the blind is the home teacher. The home teacher is usually most helpful in the rehabilitation of recently blinded individuals. Usually blind themselves, these teachers understand the problems related to blindness and can do an effective teaching job. A driver is hired to take the home teacher to the residence of clients, both men and women. The use of aids and appliances is often introduced to the blind through the home teacher.

In addition to her rehabilitative service to the blind, the home teacher also visits the homes of parents of blind babies in an effort to teach them to cope with the problems encountered in rearing a blind child (26).

Blind children who have additional handicaps which prevent school attendance may be taught by a "home bound teacher." Home bound teachers are usually regular teachers at a local school who spend a few hours of each day teaching those students who can not attend school. The teacher goes to the homes of these students and conducts regular class sessions.

Talking books provide educational opportunities as well as entertainment for the blind. Books, magazines and other materials are recorded, many times by volunteers, and sent to the homes of the blind. A record player is loaned to each client in order that the talking books might be heard. Every blind person is eligible to receive talking books at no cost (15).

Vocational Rehabilitation

Education for occupations was begun following World Wars I and II

when soldiers blinded in action began to return to their homes (42). Originally, the vocational programs had to concentrate on those blind persons who had dependent families and on older people who were more capable of benefiting from training programs. "However, during the past few years, there has been a growing need for training programs for the increasing numbers of graduates of regular high schools and capable non-graduates" (44).

In 1968, the vocational education amendments were passed. In order to meet the needs of all of the people, several stipulations were made. One of these was that ten percent of all of the annual vocational allotment for each state must be spent for programs for handicapped persons (48). The use of these funds allowed the establishment of vocational programs in schools for the handicapped. The Oklahoma School for the Blind presently offers Vocational Home Economics, Vocational Agriculture, and Distributive Education. All of these programs are aimed at education for a career. The music program at the school also provides for opportunities in the field of entertainment and the teaching of music.

Teaching Home Economics to the Blind

Home economics grew out of efforts to improve the standard of living for all people. A few years before the vocational education amendments were passed, home economists began a concentrated effort to be of assistance to the handicapped homemaker. Since that time a great deal of information has appeared, but the literature reveals little to help the blind homemaker.

Of the total number of blind persons in the United States, it is estimated that 80,000 are homemakers (27). Approximately one-third of these homemakers are in need of assistance in independent daily living (40). In addition, children still in school need training in home economics; blind boys and men need "bachelor survival" training; and recently blinded individuals need help in learning to accomplish daily household tasks in a different manner. Blind homemakers have the same problems as sighted homemakers. The only difference is that they must learn to solve them in a different way.

A Homemaking Manual for the Blind written by personnel of Western Michigan University (21) lists the following considerations in working with the blind:

The blind need more time to do things.

The blind must learn to proceed with tasks without fear of mishaps.

The blind must learn to substitute their other senses.

The blind must learn to organize.

The blind must learn to function as independent individuals.

The blind must learn personal safety procedures.

A discussion of time, safety and independence as they relate to the blind homemaker follows.

Time

"It has long been considered important to teach women without physical handicaps to conserve time and energy and make the most of each motion" (12). If it is important for the person without handicaps to conserve time and energy, it is doubly important for the blind

homemaker. Each task she does will take her considerably longer than her sighted counterpart. Some visually handicapped homemakers have required as long as two and one-half hours to prepare a meal, serve it, and clean up afterward (6). Bonnie Reidhar, Home Economist with the Arkansas Rehabilitative Services for the Blind, spends five minutes in explanation of how to thread a needle. Her client spends a few hours practice in doing it (40).

The blind homemaker learns more slowly because she must learn tactually. She must experience each learning project in totality if it is to be meaningful to her (6, 7). (She can not perceive the whole cake if she only gets to do the icing.) Morrison (36) says that equipment and materials must be observed tactually by the blind person before she can get a visual picture of what it is and how it works.

A further detriment to the blind homemaker is that her hands must be involved with reading directions and performing skills simultaneously. It is very hard for the sighted homemaker to realize how much more time would be required if she had to stop to wash her hands after each step before she could read the next step. It is also very hard to realize the amount of time required to pour a glass of water if it is necessary to locate the level of the liquid periodically in order to keep it from spilling over the top. Teams of blind and sighted homemakers working together, might be able to devise some procedures which would allow the blind homemaker to accomplish such tasks with less difficulty and in less time.

Location of equipment could conceivably take much longer if organization of equipment for convenience and the importance of always putting it back in the same place are not stressed. The blind homemaker may not

find equipment at all if she does not know exactly where it is placed. Ample time should be given the blind student (whether in school or at home) to locate all of the equipment and its placement before instruction is begun (36, 7).

Another time saver for the blind is the provision of a point of reference which will tell her where she is in relation to other things. One of the most acceptable methods has been the use of the positions of the hands on the clock. Twelve o'clock means straight ahead, three o'clock means to the right and nine o'clock means to the left. By using this means she may be directed without the necessity of locating an object with which she is familiar in order to tell where she is. She may utilize her other senses and identify her position by the ticking of the clock, the hum of the refrigerator or the thump of the washing machine. Projections can be friends when they serve as an identifying mark for the blind person. Differences in floor covering might tell her where she is in relation to the rest of the house (43).

Preventative measures designed to eliminate accidents before they can happen are also time savers. A plate placed under the utensil used in measuring a liquid may prevent spillage onto the counter and the floor, thus saving the time which would be required to clean both.

Safety

Personal safety is understandably of concern to blind persons. Half-open doors are a particular hazard (43). Fire, heat from ovens and burners, hot utensils and equipment, sharp knives and many other things are hazardous to the sighted, but they can be disasterous to the blind person who is unable to anticipate the problem because she is

unable to see it. Safety must be taught daily with the teaching of skills to provide enough security to allow the blind person to attempt a dangerous task and have the confidence to try it again and again until she has mastered it. One fear that is common among blind persons just learning to cook is the fear of placing a pan on a hot burner. This can be eliminated by placing the pan on the burner, then lighting the burner (21). Many solutions to problems are just as simple; however, solutions are not easy if one has no past experience on which to rely and is unable to observe the way others solve the problem.

Fears of mishaps or failures are often alleviated by the assurance that other persons have mishaps and make mistakes also. If a blind person never sees the mistakes that others make, she may believe that she is the only one who ever makes mistakes. Anticipation of what might happen before it does also helps to prevent failures and accidents. Many times the simplest solution is merely an acquaintance with the equipment or materials that will be used. For example, some of the fear of the oven might be avoided by allowing the student to open the oven and touch the sides and feel the location of the racks while the oven is still cold (3). Another time, it might be telling the student, in advance, that she might spill some of the liquid she is measuring, with the assurance that most blind persons do spill things until they have had an opportunity to practice.

Independence

Independence for the blind person is encouraged by all educational leaders of the blind. Independence is vital for the blind homemaker. If she can not put what she has learned in the classroom to work for

her, in her own home, she sinks back into dependency. Confidence in her ability to perform tasks and practice in problem solving and decision making help to promote independence. Unless she has learned to function on her own, she can be totally helpless when she has no one of whom she can ask questions and when directions are not printed so that she can read them. In the face of such situations, the independent blind homemaker would be able to alter past experiences to meet present needs or she would be able to make use of other resources which might be available to her.

More important, every individual needs to feel that she is of worth and value as an individual. Crawford (13) says, "Everyone needs to feel he has made some contribution to the world around him." If the blind homemaker is forced to be dependent, she feels guilty because she is a burden to her family; she feels sorry for herself because she is unable to do the things that other people do; and she feels very insecure in new situations (56).

If she <u>can</u> perform independently, she will also save money. If she can not function in the capacity of homemaker, some one will have to be hired or a family member must assume the responsibility. If this happens, the budget may deteriorate, tensions may mount at home because jobs go undone, and the homemaker will feel that she is useless because she can not contribute to the welfare of her family (11).

Any new mastery, however small, provides a feeling of satisfaction, elevates the self-esteem of the individual and brings her closer to independence (56). In addition, motivation to do other things often results from a small successful experience (40). The student who learns to peel a potato in the classroom may go home and prepare potatoes for

her family. When she learns to thread the sewing machine, she will probably be anxious to try a seam. Confidence in ability to perform tasks will, in most cases, provide the necessary security to allow the blind homemaker to successfully manage her own home.

The Home Economist and the Blind

If home economists are going to attempt to provide help for the blind, as they have for other handicapped homemakers, they must work with the blind in developing techniques, they must understand the problems of the blind, and they must learn to make the necessary adaptations for blind homemakers (26). One of the newest efforts in this direction has been supported and emphasized by A. June Bricker, the State Extension Home Economist in Maryland (26). She is attempting to explain the importance of the Extension Home Economist in rehabilitation of the visually handicapped. The nature of the work of the extension person allows her to work with the visually handicapped on an individual basis in familiar surroundings, which some authorities believe is most important in the rehabilitation process. Working in her own home eliminates the necessity to learn techniques in one setting, then transfer the knowledge to her own situation, which may be very different. In actually working with blind homemakers, sighted homemakers will be able to determine the problems which they encounter and work out solutions which can be used in teaching the blind everywhere.

Blindness is considered a liability, not an asset, and the blind homemaker must be extremely capable to compensate (13). Virginia Trotter, Dean and Director of the School of Home Economics at the University of Nebraska believes that it is vitally important that home

economists initiate research which will lead to the development of new techniques and procedures to be used in teaching the blind which will allow them to become capable (27).

The Use of Independent Learning in Teaching the Blind

The development of new techniques for teaching the blind is not only the concern of home economists, but of educators of the blind in all areas. One of the newest techniques that has been investigated is that of independent learning.

There are several reasons why independent learning seems desirable. There are approximately 240,000 blind persons who are in need of some kind of training (39). The overall shortage of teachers has reduced the number available for teaching the blind. The problem has been further accentuated by expanding services for greater numbers of blind persons, recruiting personnel interested in the training of the blind, and by the serious shortage of sophisticated learning materials (39). As previously stated, a blind student requires about ten times as much individual help as does the sighted student; therefore,

> . . . any learning procedure, either involving the activity of the teacher, or the use of new materials that would reduce the time needed for individual instruction and still accomplish the desired aims would help alleviate the strains . . . (39)

As early as 1961, educators of the blind began to investigate instructional procedures other than traditional teaching methods to aid both the student and the teacher (35). The first study was an attempt to teach braille through the use of programmed materials. In 1963, Coffey did studies in teaching mathematics and English in almost the

same manner (51). These studies showed that blind students learn in essentially the same manner as the sighted and that programmed instruction is as desirable for the blind as it is for the sighted (11). Morin (35) feels that self-instruction is valuable to the blind student because he becomes actively involved in the learning process, he can start at the point where learning is most meaningful, he can evaluate his own progress in terms of his responses, and he can progress as fast or as slowly as he is individually capable. Although this particular form of help is desirable and useful in teaching the blind, educators who have worked closely with the various studies feel that maximum achievement can be reached only if programs are written specifically for the blind or are properly modified for their use (11, 39, 35, 51).

Several problems arise when trying to adapt materials developed for the sighted. Some of the devices used in teaching have proven too difficult for the blind to use. In 1967, the Department of Health Education and Welfare conducted a study in which blind students were required to listen to programmed materials on tape. Responses were to be taped on another tape recorder within a three second interval. The students became very frustrated with the operation of two machines. They were unable to remember which button to push, and in trying to operate the machinery, fell behind and were unable to finish within the allotted time. Others simply refused to go on (52).

Reproducing materials in braille is prohibitive because of the amount of space required to write braille and the weight of braille paper. Instructions requiring 315 pages in print would require over 1,000 pages in braille (52), and would be so bulky that several volumes would be required.

Braille is written by an individual with a stylus and slate or a braille writer. The stylus is an instrument similar to an ice pick, but with a shorter handle and a blunter end. The slate fits over the paper and locks into place. It has an open space down the center which allows the writer to make straight lines and to keep the lines separated so that she can read them. There is approximately one and one-half inches between lines. This space between lines is one of the reasons that braille writing takes much more space (29).

Braille is written on heavy paper so that the dots are not so easily depressed when storing several pages and also to prevent holes being made in the paper rather than raised dots. Heavier paper takes more space also. Space is a very real problem in most schools. It would probably be impossible to store many individualized packets which had been reproduced in braille.

An alternative to braille presentation is audio presentations. Audio presentations have proven superior to braille presentations in some cases. Such presentations do not usually take the blind student as long to complete and the slow reader, especially, benefits from them (51). Students have the advantage of replaying materials again and again if they need to do so. However, studies conducted by the Department of Health Education and Welfare (52), Coffey (11), and Morin (35) all indicate that the method of response should be as simple as possible so that the student does not become confused in the mechanics of responding.

Taped lessons have been criticized also. The most prevalent criticism has been that they may "tax the retentive powers to the extent that the comprehension is seriously impaired" (19). Critics feel that a

student will retain more of what he reads if he can underline material as he reads and refer back to it when reviewing rather than trying to listen carefully enough to retain all of what is being said. Another criticism is that the student has no opportunity to ask questions as they arise. However, the effectiveness of the tape would probably be greater when working with the blind (19), who are unable to read materials because they are not available in braille. To date, no data on attitudes and effectiveness of taped lessons as a learning device has been gathered (19).

If taped lessons are used as a teaching device, they should be evaluated according to the following criteria:

Good quality tape has been used.

There is no background noise.

The lecturer's voice is well modulated and he has a smooth and conversational delivery.

Stops which garble words have been avoided (19).

Tape Recorders and Independent Learning

Audio presentations are made with tape recorders. Either reel-to-reel or cassette recorders could be used in audio presentations. For use with the blind, the cassette seems more desirable than the reel-to-reel. One of the criteria for selection of any instructional media is that the media be durable and packaged for ease of movement to the media center. The media should also be practical in terms of the budget and it should justify its cost (23). The cassette is lightweight so that it is easily transported. It is smaller than the reel-to-reel and less complicated to operate (5). Another important advantage is that the

cassette is available free of charge to the blind through Libraries for the Blind (15).

The cassette is very popular with persons of all ages; it is relatively inexpensive compared to other instructional media; being easily transported it can be used almost anywhere. There is no complicated threading of the machine (5). Operation requires only the orientation to the different buttons to push for the desired performance. For these reasons, the cassette should be an especially useful instrument in the preparation of audio materials for the blind.

Tapes

Good tape of known quality is more important to good recording with cassettes than with reel tapes. A good tape will not stretch, it will be strong, and it will probably be silicone treated (10).

Most tapes come in sizes referred to as C-30, C-60, C-90, and C-120. These numbers indicate the recording time which can be obtained from a tape. A C-60 will provide sixty minutes of total recording time, thirty minutes on each side of the tape. The dimensions of each tape cassette are the same, so additional recording time is obtained by including more tape within the cassette. This is accomplished by using thinner tape. Thus, a C-120 tape is extremely thin. It will wrinkle or break more easily than stronger tape. For general use, a sixty minute tape (C-60) is recommended (10). C-60 tapes should cost about seventy-five cents each. More expensive tapes are not practical for classroom use (19).

Storing of Tapes

Completed tapes can be stored in a relatively small space. The tapes can be brailled for quick and easy identification. Magnets erase tapes; therefore, tapes should not be stored near movie projectors which often contain magnets in the amplifiers (47). Refrigerators, large TV or radio receivers and other motors can create a magnetic field which damages tapes. Tapes should be stored where the temperature is cool and the humidity is moderate (47).

Use of Tapes

Tapes can be used many times by simply playing over existing material. They can be easily duplicated if more than one student needs to use them at one time. Further uses of tapes might be to test individual progress of students, to record lessons for students who were absent from class, to provide instruction when the teacher must be out of the classroom, as well as to allow the student to spend as much time as he needs to master specific skills. Tapes can not take the place of the teacher, but they can serve as a supplement to teaching. "With planning and much initial work, the tape recorder can be another arm, another voice or another ear for any teacher" (57). The tape recorder can extend effectiveness in any subject area and is limited only by the time required to make the tapes.

Summary

Chapter II has included a study of the literature concerning the problems related to blindness, attitudes toward blindness, and problems

related to the education of the blind. Additional information relative to techniques used in teaching blind students individually has been discussed with specific reference to the advantages and disadvantages of taped instruction as a means of teaching.

Chapter III will present the development of taped instructions for teaching blind students how to measure ingredients.

CHAPTER III

DEVELOPMENT OF THE TAPE

This study had two major purposes. The first was to develop a tape to be used in teaching a basic homemaking skill to blind students. A second purpose was to test the effectiveness of the taped instruction by determining how well blind students understood and followed instructions given on this tape during a testing period.

This chapter deals with the selection of the subject matter, behavioral objectives of the lesson, and the methods used in the development of the tape.

Subject Matter Selection

Two criteria were used in the selection of the material to be included in the tape. The first criterion was that the subject matter to be taught should be a basic homemaking skill which was needed by many students. The second was that the skill to be presented on one tape must fit into a limited time period.

When deciding on the subject matter, accurate measurement was found basic to good cooking (1, 45, 14). In earlier times, it was necessary for a cook to devise her own measuring tools since there were no standard measures available. She had to draw a line down the center of a full spoon to find a half (1), and she learned through trial and error to guage a "pinch," butter the size of an egg, and three saucers full.

Such measures allowed for a great deal of variation in products depending on the size of the egg and how high one heaped the saucer (14). Today's cook is more fortunate, The experimenting has already been done for her. She need not experience repeated failures during the time she is learning to estimate what is meant by a "pinch." Standard equipment has been developed and recipes are tested using the standard equipment. She can be sure of a good product every time if she, too, uses standard equipment and measures accurately.

Standard measures are accurate because they are the same every time (14). Standards are determined by the amount of material contained when the measure is leveled with a knife or spatula (24, 14). The most accurate measure is by weight, but this type of measurement is seldom used in the United States except in quantity cookery (14). The most common measures are by volume (gallon, quart, pint, or cup), by weight (pounds or ounces) and by unit (number) (45).

If sub-standard products result when using standard measures, it may be due to inaccurate measurement. Some food ingredients, such as shortening, are hard to handle, especially for the blind. Some such as water and shortening are difficult to measure by volume. Problems such as these may cause even experienced cooks to estimate rather than measure accurately. In a recent study done by General Mills, one hundred fifty homemakers used four different kinds of cups to measure water. Ninety-two to ninety-seven percent of them measured inaccurately. Six to nine percent of the homemakers over-measured while eighty-four percent under-measured (33).

When experienced homemakers are making errors in measuring ingredients, after much practice, it can probably be assumed that a blind

student, without any experience and the inability to use her eyes as a gauge, will certainly make errors also. Since inaccurate measurement results in sub-standard products, it follows that blind students who measure inaccurately will produce sub-standard products. Failures contribute little to self-esteem, neither do they contribute to the budget nor the problem of time. Consequently, efforts to teach a blind student to measure accurately should contribute to her success in cooking. It was, therefore, decided that measurement of ingredients was the basic food preparation skill, which was the first criterion for selection of the material to be taped. Plans for presenting this material to the blind were then considered.

Teaching the Blind to Measure Accurately

Any student must practice if she is to become adept at any job. The blind student must practice more because she has nothing to imitate. Many frustrations may be experienced in learning a simple task. Adaptations to methods and to equipment and repeated practice can make accurate measuring of ingredients easier for the blind student.

Dry measuring cups are easier for the blind person to use in measuring liquid ingredients because she can tell when the liquid reaches the top and spills over (6). The only way the blind person can judge the level of the liquid in a liquid measuring cup is to place her finger over the rim of the cup with the tip touching the same level as the line on the outside of the cup (21). Lines can be placed on the inside of the cup with nail polish, but since the only thing she has to rely on is her sense of touch, she still faces the problem of stopping at the exact time the liquid touches the end of her finger. If the temperature

of the water is almost the same as the body temperature, this is not always possible to judge.

The minimum permissable deviation from the United States standard to be accurate is .40 ounces per cup (53). The capacities of liquid and dry measuring cups are exactly the same, eight ounces or 11.8 mls (2, 53); therefore, either type measuring cup could be used successfully.

Inaccuracy may occur when liquid is lost in transportation from one place to another. After the liquid is measured, the blind student may place it into a larger receptacle for ease in carrying, or the hand placed over the top of the cup will act as a leveler for carrying short distances (21).

Shortening is difficult to measure, but it is easier if the blind student uses a dry measuring cup. The same problems in measuring liquids would also be encountered in measuring shortening by the water displacement method. Some homemakers use this method, but most current cookbooks recommend packing the shortening tightly into the cup. A cup that can be packed level full is the most convenient kind to use (33). If the cup has had water in it prior to its use for measuring shortening, the shortening will come out of the cup with greater ease.

Through her experiences as a teacher at the Oklahoma School for the Blind, the author herself made several observations. Most measuring equipment can be used in the same manner by the blind as by the sighted. However, identification and location of equipment may be difficult unless students are given time to familiarize themselves with both. Sets of measuring cups and spoons should be left nested together in one place rather than hung on the wall separately. This makes it easier to identify the one which is needed.

Because the blind person tends to tip measuring equipment toward the item to be measured, she should be encouraged to leave the equipment placed on a flat surface. It is easier for the blind to dip ingredients than it is for them to pour (21). Vinegar, vanilla and other liquids might be kept in a wide mouthed container so that the spoon can be dipped into the ingredient rather than trying to pour the ingredient into a spoon. A mediseptic measure which is used in measuring a teaspoon of medicine has been used successfully by some blind homemakers in measuring such ingredients. The blind student should also be encouraged to dip her spoon into brown sugar, baking powder, salt, and similar ingredients, rather than trying to pour them into her measure.

Difficulty in leveling will be encountered unless specific directions for placement of the spatula on both sides of the cup are given. The tip of the spatula will fall into the cup and remove part of the ingredients or one side will be left high while the other is level.

Precautions should be taken to prevent spills by placing a container under the measuring equipment, especially when measuring a liquid. This will prevent unnecessary clean-up as well as loss of ingredients.

Unless a blind student is told to dig "deeply" into ingredients, she has a tendency to only scrape the surface or she may make a series of "jabs" into the ingredient and not get any at all into the measure or onto the spatula. Great difficulty is experienced in trying to "chase down" flour on a flat surface with a spoon. It is much easier to sift directly into the measure when possible.

Packing brown sugar or shortening into a cup may also result in a series of "jabs" with the end of the spatula or spoon unless careful

directions are given. The directions must include which side of the spoon or spatula to use. Difficulty is experienced in trying to clean the shortening from the spatula or the measuring cup. It is also to be expected that the work area will not remain as clean for the blind student as it will for a sighted student who is able to see what she is doing.

Doing a job in an easier way which results in the use of less time and energy or both is called "work simplification" (28). Work simplification is at least as important to the blind as it is to the sighted and probably more important. The blind homemaker wants to do all the things for her family that any other homemaker does, but her time and energy are limited. Work simplification principles can save her much time and work. If she can develop work centers and learn where ingredients and tools should be located in order to save her time and steps, she can adapt these work simplifcation principles to her own situation. A good location for the mixing center is between the sink and refrigerator (28) and near the stove. Practice in returning equipment to its place after use will provide knowledge in proper placement for convenience as well as for ease in locating it again.

Other work simplification techniques suggested by Bratton (8) which apply to measuring ingredients are:

Avoid allowing too much clutter to collect in the work area.

Avoid unnecessary clean-up by using tools as many times as possible.

Avoid developing bad habits which result from not knowing what to do next.

Replace items to their former place as they are used.

The blind student must be taught to do these things in the course of her every day training if they are to become an integral part of her work habits that are applied subconsciously and constantly. Transference of ideas from one area of the house to others should also be encouraged.

Since measuring of ingredients is a basic homemaking skill which all students need to learn in order to cook successfully and since it will fit into a limited time period (the lesson could be stopped after measuring only one ingredient if the student were unable to finish more than that) it was chosen as the subject matter for the tape.

Development of the Lesson

It was decided that four ingredients would be measured in a dry type measuring cup. The same cup would be used with each ingredient to emphasize the importance of using as little equipment as possible to avoid confusion in locating equipment as well as to save time in clean-up. To introduce different measuring techniques, flour, brown sugar, water and shortening were chosen as the ingredients to be measured.

During the course of the lesson, the student would:

Measure one cup of flour by sifting the flour directly into the measuring cup and leveling with a metal spatula.

Measure one cup of brown sugar by packing the sugar into the cup and leveling with a metal spatula.

Measure one cup of water by pouring the water into a dry measuring cup until the water spills over the top of the cup. A nine inch plastic coated plate will be used to catch the excess of all ingredients measured.

Practice two ways which might be used in moving a full cup of liquid.

Measure one cup of shortening by packing the shortening into the measuring cup with a rubber spatula. The cup will be leveled with a metal spatula.

Recognize a level cup of each of the four ingredients selected to be measured by tactual observation.

Practice good management by using waxed paper under the work area to catch spills and speed up clean-up and by returning tools and ingredients to their original positions when finished with each step. This practice will allow the blind person to locate equipment and ingredients readily and prevent unnecessary spills which might result from a cluttered work area.

Use as few tools as possible to shorten clean-up time and to aid in quick identification of tools.

Clean shortening from a metal spatula, a rubber spatula, and a measuring cup.

Practice decision making throughout the lesson in determining whether there is enough flour in the cup, a full measure of shortening in the cup, etc.

Use the measuring spoons to measure one ingredient of the blind person's own choosing.

Subject matter and objectives of the lesson having been determined, the second criterion, the development of taped instructions which would fit into a limited time period, was begun.

Writing the Script

After deciding the skills to be taught, the next step was to write a script that could later become the tape (Appendix A). The author performed the skills to be taped and wrote directions as she experienced each step. An effort was made to try and anticipate classroom problems and precautions were taken to provide for various classroom situations. For example, the water was to be poured back into the pitcher rather than into the sink in the event that the kitchen used in testing did not have a sink near the testing area. A spoon was used in getting the brown sugar to avoid confusion if the sugar was kept in the box in which it was purchased rather than a wide mouth container.

One of the problems which the author had observed while working with the blind was that some of them had a tendency to "dig into" one side of the cup when leveling. The problem seemed to arise when the spatula was not touching both sides of the cup; therefore, the directions in the tape were designed to eliminate the problem by making sure that the spatula touched both sides of the cup.

Praise and encouragement were given as reinforcement when possible. If it was felt that the student might be having difficulty, such comments were withheld.

Understanding the directions being given was imperative to the ability of the student to perform the task; therefore, an effort was made to use terminology and vocabulary which would be familiar to the student. If there was doubt that a word might be misunderstood, it was eliminated from the script and another, more familiar, word was substituted. Superfluous words were eliminated also in the interest of

clarity.

Precise verbal descriptions were employed to aid in quick location of tools and ingredients. These descriptions included positioning of equipment with the point of reference being the hands on the clock. For example, "The metal spatula is at the 3:00 o'clock position on the right side of your mixing area" was used rather than "The metal spatula is in the mixing area in front of you."

Explaining exactly what was to be done was often difficult. One of the major difficulties was in explaining the positioning of the metal spatula for leveling the cup. The "thin" sides, the "flat" sides, the "sharp" edges, the "wide" edges and "vertically" were some of the terms considered. Only after the pre-testing was clarification achieved (Appendix A). In general, "Be specific and use as few words as possible" seemed the most appropriate rule. Further clarification was achieved by repeating the names of the tools and the ingredients to be used rather than using such terms as "it," "that" and "those."

Instructions for procedures which were used several times in the lesson were repeated at least once. After the repetition, the student was told that in the future the procedure would be named rather than explained. It seemed important to avoid belittling the ability of the student to remember through continual repetition. Further considerations were the time involved in repetition and in providing the student with a sense of achievement when a task could be completed without instruction.

In writing the script, contractions were used when they would have been used in normal conversation. Abbreviations were not used because it was found that the reader had a tendency to hesitate or stumble over

them when making the tape.

Steps were broken logically. No attempt was made at making the steps the same length. Short sentences were found easier to read, but long sentences could be broken with dots or dashes which indicated a time lapse between words or sentences. More dots were used when the pause was to be a long one. Underlining and capitalizing words in the script which were to be emphasized helped the reader to give the proper emphasis when taping.

A Test of the Script

By a Sighted Boy

When the original script was completed, it was tested by a fourteen year old sighted boy. It was found that the student had not always been given instructions as to what to do with equipment when he had finished using it; consequently, he was left holding it in his hand when the next step was given. Revisions were made to include an additional step, "Put the tools back in their original positions."

It was also discovered that a pie pan, used in the original directions, interfered with the use of the left hand in steadying the cup. A paper plate was substituted. The plate presented no barriers to the use of the hands and it was also easier to use in returning ingredients to the canisters.

By a Panel of Home Economics Experts

When these revisions had been made, the script was presented to a panel of judges composed of three home economics instructors (two in

Home Economics Education and one in Home Management) and a communications person in home economics. Further revisions were suggested, primarily in the form of rewording for greater clarification. These suggestions were incorporated into the final script.

Placing the Script on Tape

Once the script was completed, it was read several times in order that it would be very familiar to the author. Experimentation with voice inflections and the length of pauses was also conducted.

A time was selected for taping when there would be relatively little noise and no interruptions. Since fluorescent lights often cause a "hum" on tape, a room was selected which contained no such lights.

The microphone was placed in the microphone stand on a chair beside the recorder. The recorder was placed on an upholstered chair to prevent vibrations which could be picked up on the microphone. The author sat facing draperies with her mouth approximately ten inches from the microphone. The script was placed on the right side of the microphone. As each page was read, it was dropped to the floor. Although the floor was carpeted in this instance, the microphone would probably not pick up the sound of the page falling on a bare floor. Caution was taken to prevent moving the head to see where pages fell so that the sound was at the same volume constantly.

The volume was set at five. Playback was at about two, but this allowed for the volume to be adjusted up or down to fit the needs of the individual student. The tape was not stopped between steps, but a ten second interval between steps allowed time for the student to start and stop the tape. Since the first few inches of the tape is clear, no

sound can be recorded on that portion of the tape; therefore, a period of fifteen to twenty seconds was allowed before beginning to speak.

Efforts were made to read the script as if actually speaking to the student. In order to do this, it was necessary that the reader be relaxed and comfortable. Practice sessions made it easier for the author to read comfortably. Points considered in taping are included in Appendix C.

Pre-Testing the Tape

When the tape was completed, a search of the OSU campus was made to locate blind students to pre-test it. Since it is not possible to obtain names of handicapped persons from the Department of Institutions, Social and Rehabilitative Services, this search was conducted, primarily by watching for blind students on campus and asking them if they would be willing to participate in the pre-test. Three students were contacted and agreed to participate.

Each student was tested individually. A testing area was set up in advance of the testing. As each person came to the testing area, she was asked if she could operate the tape recorder and if she could identify the equipment to be used. The author then explained the purpose of the tape. No directions were given other than those given in the tape itself; however, questions were encouraged if the directions seemed unclear.

All three persons finished the lesson without difficulty. Only one suggestion was made relating to the positioning of the metal spatula. Instead of "Hold the spatula with the thin sides up and down as if you were going to cut with it," the tape was revised so the statement became

"Hold the spatula so that the thin sides are up and down toward the ceiling and the floor as if you were going to cut with it" (Appendix A). It was also decided that the tape was too long to allow completion in a regular class session, so instructions for the use of the measuring spoons was eliminated from the final tape. A further discovery was that a damp cloth and paper towels should be provided for wiping the hands during the lesson. When the necessary revisions had been determined, the script was rewritten and the final tape was made.

Because the author had been a teacher at the School for the Blind and directed the ADL (Activities of Daily Living) program, she had come to know most of the students. Also, it was decided that she should make the tape that the students would use in the hope that they would be more at ease with a voice they already knew. Procedures used in making the first tape were used also in making the final tape.

Summary

After reviewing the literature and consulting with a panel of home economics experts, a script to instruct blind students how to measure ingredients was developed and put onto a tape. By following the taped instructions, the student was to use a dry cup measure with four different ingredients. Each ingredient required application of the same skill and the principles of accuracy, but in a different manner. The ingredients were flour, brown sugar, water, and shortening. Before the tape was used as an instructional method, it was tested by a sighted boy, read by a panel of home economics experts and pre-tested by three blind students at OSU with whom the researcher had become acquainted. Following the pre-test, the script was revised to include the suggested

changes and the final tape was made.

In the next chapter, procedures used in testing will be discussed and presented. Each case represents the reaction of a different blind student to the use of the tape in a classroom learning situation. An evaluation of the ability of each student to follow the directions on the tape is also presented as part of each case study.

CHAPTER IV

TESTING THE TAPE

This chapter discusses the second major purpose of the study, which was testing the tape. Criteria for selection of the final test group and the method used in testing are described.

Also included in this chapter are a description of the instrument used in data collection and five case studies used in presenting the findings of the study. A comparison of the cases to indicate differences in student performance is made.

The Final Test Group

When the problem for the study had been selected, the superintendent and the homemaking teacher at the Oklahoma School for the Blind were contacted to determine whether students in the school could be utilized in testing the tape. Permission was granted by the Director of Institutions, Social and Rehabilitative Services for the state of Oklahoma.

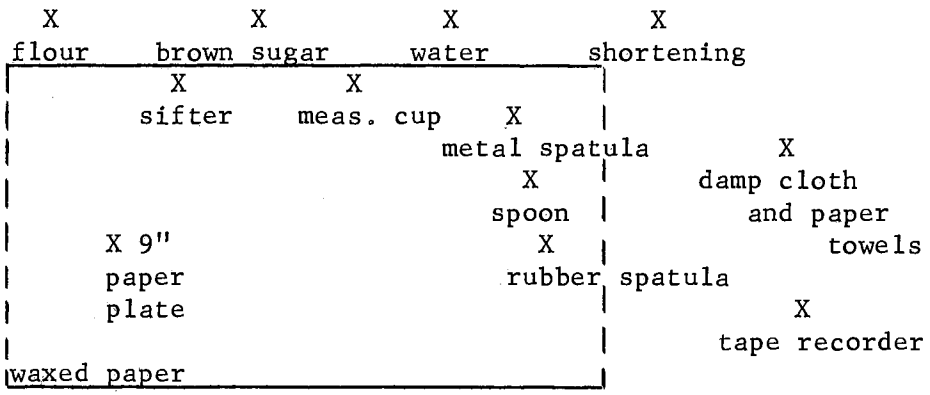
Once the final tape had been completed (script for this tape is in Appendix A), it was taken to the School for the Blind. In advance of the visit, five students who met the criteria of (a) total blindness with (b) no other physical or mental handicaps, (c) who were familiar with measuring equipment and (d) who had not achieved proficiency in measuring ingredients used in food preparation were selected by the home economics teacher at the school to test the tape.

The five students tested had been blind since birth. They were from seventeen to nineteen years of age and had been at the School for the Blind twelve to thirteen years. Four of the students had had very little homemaking experience in the home while one of the students had had "some." All were familiar with the operation of a tape recorder, but none had ever tried to follow taped step-by-step directions. All of the students tested were girls.

Method Used in Testing

Permission was granted by the principal for the students to come to the foods laboratory in a regular sequence missing whatever class they usually attended at that time. One hour was allotted for each student; however, only fifty minutes were available when allowances were made for the student to get to and from classes. Students were tested individually in order that the researcher could make the necessary observations and suggest changes and revisions to be utilized in the making of future tapes.

As each student arrived, she was instructed to go to the northeast kitchen where the equipment and the tape recorder were laid out in the following manner:



The tape recorder buttons had been covered with saran wrap to prevent ingredients getting into the mechanism.

The student was asked to turn the tape recorder on, listen to enough of the tape to be able to adjust the sound to meet her needs, then rewind the tape to the starting point. Recognizing the degree to which blind students may be dependent on the teacher, it was explained that the tape was to be used only as an aid to the teacher and not to replace her. The final instructions given were (a) to listen carefully to the instructions, (b) to stop the tape while performing tasks and (c) to rewind and replay the tape or ask the researcher for assistance if the directions were not clear.

Collection of Data

Because the sample was small, the case study method was selected as a means of presenting the findings. The cases presented in this study are not necessarily a representative sample of the ability of blind students to use taped instructions in the performance of homemaking skills.

The method of recording information used in the case studies is shown in Appendix B. Briefly this included the following:

A. Interview with regular teacher prior to testing to ascertain her:

1. estimate of the ability of the student in the performance of homemaking skills as observed in regular classwork.
2. judgment of the attitude of the student toward learning homemaking skills.

B. Interview with the student following the testing to determine:
   1. age.
   2. period of time she had been blind.
   3. number of years at the School for the Blind.
   4. an estimate of the amount of homemaking experience she had had in her home.
   5. past experience in following step-by-step instructions.
   6. attitude toward learning by the use of taped instructions.

C. Observation during testing to determine:
   1. number of steps which required teacher assistance.
   2. number of steps which required replay of the tape.
   3. number of steps which required no assistance.
   4. number of steps completed without stopping the tape.
   5. student attitude toward assistance.
   6. types of changes which might be made in the tape (Appendix B).

Case Studies

In the block at the beginning of each study, a brief summary of the individual case is presented. The summary includes the age of the student; her degree of blindness; the period of time she had been at the school for the blind; the amount of homemaking experiences she had in the home; her ability to perform homemaking skills and her attitude toward learning new skills; the number of steps she completed without teacher assistance; the time required to complete the lesson; and her attitude toward the use of taped instruction. Following the summary are

the problems encountered by the student in completing the lesson and finally, the attitude of the student toward learning by tape.

Student A

Student A was seventeen years old and had been totally blind since birth. She had been a student at the Oklahoma School for the Blind for twelve years. She felt that she had had little homemaking experience in her home and her teacher classed her as slightly below average in the performance of homemaking skills. The teacher also stated that the student displayed no eagerness to learn new skills; although no reluctance nor apprehension was noted in testing the tape. The student completed 24 of 26 steps without teacher assistance and finished in 40 minutes. Her reaction to the tape was entirely positive.

Although the student completed twenty-four of the twenty-six steps in the lesson without assistance, she did not follow the directions in one step. The directions asked that the student insert the spatula inside the cup, then follow the contour of the cup to loosen the shortening from the sides. The student merely inserted the spatula into the cup and pushed the shortening out without loosening it first. This meant extra scraping on her part to get the remainder of the shortening from the cup.

Teacher assistance was required in two steps, leveling the cup and scraping the shortening from the spatula. The student felt her problem in leveling the cup resulted from the fact that she performs some tasks with her right hand and others with her left hand. Leveling the cup was one of the things she did with her left hand and the directions were for a right handed person. When the researcher saw that the student was having difficulty, and had determined the probable cause, the directions were changed to substitute the right hand for the left hand. No other difficulty was evidenced. Future "leveling of the cup" was done using the left hand instead of the right and vice versa.

The other step which required teacher assistance was the cleaning of the spatula. Difficulties arose, seemingly, from a reluctance, on the part of the student, to push the spatula tightly against the edge of

the shortening can and also from her apparent desire to place the spatula against the inside of the can vertically rather than scraping it across the edge of the can. Some teacher assistance was given in these areas although the student did not ask for help. When the researcher could determine that the student might not be able to complete the task if she continued to use the method she was using, assistance was offered. There was no reluctance on the part of this student in accepting suggestions. She made a conscious effort to repeat the task in exactly the same manner that the researcher had suggested when she was directed to level another ingredient or to scrape the spatula.

Dipping flour from the canister presented a minor problem for this student in that she dipped very small amounts. She seemed reluctant to push down on the cup hard enough to get a good amount of flour into the cup. This was not a serious problem, but one which might cause her to take longer to fill the sifter. Another thing which caused temporary difficulty was determining which side of the spatula the shortening was on so it could be scraped off. A suggestion was made by the researcher following the lesson that the weight of the shortening on one side of the spatula might serve as an indicator in the future.

Questions asked on the tape such as "Did you spill a little?" were answered aloud by the student. In this case, the answer was "Sure did." The only reluctance evidenced by this student in completing the lesson was in measuring the shortening. Other students, also, disliked getting the shortening on their hands.

Student reaction to the tape was very enthusiastic. She said she felt as though she knew exactly what to do next and that she had a great feeling of accomplishment and independence. She further stated, "It

forced me to make some decisions for myself. I had to decide if the flour sifter was full enough, whether the cup was level and whether I had enough shortening on the spatula or brown sugar in the spoon."

Student B

Student B was the twin sister of Student A. She, too, had been blind all of her life and had received all of her formal education at the Oklahoma School for the Blind. The parents of these girls were professional people. Since both were gone from home much of the time, very little homemaking experience had been possible in the home. In her first encounter with the student two years before, the researcher had felt she was a little shy and uncertain in unfamiliar situations. It appeared that she relied on her sister to take the initiative and direct the actions of both girls. In talking with the teacher, it was determined that the girl performed homemaking tasks with an average amount of ability and that she was eager to learn new skills. Although she had never followed step-by-step directions, the student completed the lesson in 40 minutes. Twenty-two of 26 steps were completed without teacher assistance.

Some apprehension was apparent when this student asked another student if the researcher would "talk" to her during the testing time. The other student, who had already completed the testing, replied, "All of the time." When the testing began, the comment was made, "Now I know what she meant when she said you would talk to me all of the time."

Replay of the directions was required only one time when the student was unable to finish before the directions "Stop the tape" had been given. Directions for the final portion of the step were replayed to avoid omission of an important instruction. A reluctance to dip deeply into the flour canister to obtain a good amount in the cup was noted with this student also. Since she and her sister were the only students to display this characteristic, it could have been related to some experience in the home.

When directed to pack the brown sugar with the "bottom" side of the spoon, the student was uncertain about which was the bottom side. Her first efforts were made with the tip of the spoon. The researcher intervened and showed her which part of the spoon to use. No other problems were encountered in this step.

In setting up the test, it has been found that the only pitcher available for measuring the water had a very small mouth. Since the sink was very near the testing area, it was suggested that students pour the water into the sink rather than back into the pitcher as directed in the tape. This student wanted to try to pour the water back into the pitcher, which she was allowed to do. Some of the water was spilled because it had to be poured slowly due to the size of the mouth of the pitcher. Once the first one-fourth inch had been poured from the cup, pouring became easier and the step was completed without further incidence.

Cleaning the spatula used in measuring the shortening proved to be very difficult for this student. Very gentle pressure on the spatula prevented her removing the shortening all at once. Several strokes were necessary to remove small amounts of shortening. Another difficulty seemed to be the positioning of the spatula for cleaning. Only the very tip of the spatula was being cleaned. Teacher assistance was given although it was not requested. The student seemed unaware that she was having difficulty, possibly because she was not familiar with the method being used. She was very responsive to suggestions, but fell back into her original habits each time the shortening was scraped into the cup or shortening can.

Some difficulty was also experienced in getting shortening from the cup. Placing the spatula next to the inside edge of the cup seemed difficult for the student. She did not understand that the spatula was to be vertical to the side of the cup. The researcher explained the position of the spatula by asking that the student "stand it on its end."

This prevented further difficulty in following the contour of the cup to remove the shortening.

Following the completion of the lesson, the student was asked how she felt about the experience. She admitted that she had been a little "scared" at first, but liked it after she got started. She felt the greatest contribution that learning in this manner could make to her personally, as well as to other blind students, would be that of not having to wait for teacher assistance. She also said that very often an inexperienced girl was paired with an experienced girl in the foods laboratory. In her opinion, the inexperienced girl was at a distinct disadvantage because the experienced girl would go ahead with tasks so the lesson could be completed before the period ended. "My partner didn't get an opportunity to learn to do lots of things just because there wasn't time to teach her. If we could all work by ourselves, we could stay with a job until we learned to do it and all of us could be doing a different thing," stated the student.

Student C

It was feared that a hearing loss might prevent this student from participating in the testing; however, she was able to turn the volume up so that she could hear the instructions easily. From the beginning, she expressed her pleasure with the tape in outspoken comments such as "This is neat, I like it." The student was eighteen years old and had been blind all of her life. Although she had been a student at the School for the Blind since starting to school, her situation was different than other students tested. She was a day student while other students were residents at the school. Despite the fact that she lived at home, she felt that her homemaking experiences in the home were extremely limited. The home economics teacher felt that this student had average ability in homemaking, but that she was eager to learn homemaking skills. Following directions in the performance of a skill was a new experience for this student also; however, she completed 23 of the 26 steps in the lesson without teacher assistance or replay, in a total of 41 minutes.

Eagerness to learn was displayed by this student continuously throughout the lesson. It was almost as though a new door had been opened to her. It may be that her hearing loss had prevented her knowing what was being said in some regular class sessions.

Strict attention was paid to directions given and the student tried to follow the instructions exactly. She replayed only one step when there was apparently some doubt in her mind, then she very meticulously performed that step.

Two steps required teacher assistance, but one of these was the fault of the researcher. As mentioned before, when other students had measured the water, it was poured into the sink rather than back into the pitcher. When this student did not quite fill the cup, the researcher asked that a little more be poured into the cup. The student tried again, but all of the water was gone. The water in the pitcher was replaced and the step was completed according to instructions.

The other step which required teacher assistance was scraping the shortening from the spatula. Like another student, this student tried

to hold the spatula vertically to the inside of the cup to clean it. Once the student had been shown how to hold the spatula and drag it across the cup, she experienced no further difficulty. Assistance was accepted very well.

Only two steps were completed without stopping the tape. One of these was replacing the tools and ingredients in their original positions after the instructions had been given several times in previous steps. The other was filling the cup with brown sugar. Once she began to fill the cup, the student continued until it was full, then started the tape again, only to find that the step had been completed. It was felt, by the researcher, that the student worked quickly enough to have gone ahead several times, but that she was trying to do exactly as she had been told to do in the beginning.

Several times throughout the tape, the student smiled at compliments or encouragement given. When the last step, "You're all finished . . . except for the fun part," was given, she anticipated the next statement and said "Wash the dishes." She laughed aloud at the concluding statement, "Happy cooking and for the last time STOP THE TAPE."

When asked how she felt about taping as a means of learning, the student replied that she enjoyed the relaxed atmosphere and not having to feel rushed to catch up with other students. "I wouldn't want anything changed. I <u>enjoyed</u> every minute of it," was her final statement.

Student D

Being the first to test the tape may have accounted for the extremely nervous condition of this student when she began. Anxiety seemed to stem from a fear of inability to perform as directed. As the lesson progressed, the researcher sometimes chatted with the student while she performed steps in an effort to relieve the tension. Relaxation was gradual, but definite. By step 11, the student had seemingly relaxed completely and her performance showed a definite improvement from that point. Total blindness since birth had made it necessary for Student D to receive all of her formal education at the School for the Blind. When she went home for vacations or for the summer months, she had little opportunity to do homemaking tasks in her home. Experience outside the classroom at the school was limited because of the residential setting. Despite her inexperience in the performance of homemaking skills, her teacher felt that she was above average and showed a definite interest in learning new skills. Since this student was nineteen, it might have been expected that she finish more quickly than the younger girls, but this was not the case. The student required 45 minutes to complete the lesson, the longest time of any student, and performed only 20 of the 26 steps without assistance.

Evidence of the uncertainty and nervousness sensed prior to the testing was noted when the student asked the researcher on three different occasions what she should do next. Each time the same explanation was made, "I think the tape will tell you as soon as you push the button." This information was given humorously and may have helped to relax the student. Having worked with her before, the researcher had some insight as to how to handle the situation.

The first problem encountered was in understanding that the cup was to be dipped into the flour canister. When the directions were replayed, the student was able to determine how to proceed with the directions. Not enough flour was placed into the sifter to fill the cup the first time; however, the student was able to dip the sifter into the canister in order to get enough flour to finish filling the cup. If the sifter had been a large one that would not have fit into the canister, it might have been necessary to start again. It would have been interesting to see how the student would have handled such a situation.

In leveling the cup, the directions given were to "pull the spatula toward you." This student was holding the spatula in such a position that to "pull toward you" was merely to withdraw the spatula as in slicing. Teacher assistance was given when it was evident that the student was experiencing frustration. Instructions given at this point were to "pull the spatula toward your left hand, then push away." Changing the tape to read thus might be desirable for some students.

No resentment was evident when assistance was given, but there was concern that the performance was not as good as it might have been. Reassurance was given by telling the student that everyone makes mistakes until they have had an opportunity to learn and that in this case the directions could have been faulty.

The side of the spoon was used the first time the brown sugar was packed. When this method seemed unsatisfactory, the student used her own initiative in determining that she was not using the bottom of the spoon, but the side. From that point, she used the spoon as directed and completed the step satisfactorily.

Replay of the tape for the second time occurred when the student inadvertently stopped the tape before she was directed to do so. Directions were replayed to be sure that all of the instructions had been received.

Teacher assistance was necessary in measuring the shortening. Minor difficulty was experienced in getting the shortening onto the spatula and again in packing the shortening into the cup with the rubber spatula. The student was instructed to hold the spatula flat, to pull the spatula across the edge of the cup, then to pack the shortening into the cup with the tip of the spatula. In this instance, the tape

would have been more effective, possibly, had the directions been given slowly so that the student could have completed each step while the tape was running.

Teacher assistance, reinforcement and reassurance seemed very important to this student. Her insecurity was reflected in her response to the tape at the end of the testing time when she said, "I would much rather learn by myself. I am embarrassed when I make mistakes in front of others. I try to laugh about it because that's about all you can do, but it really hurts inside." Despite the difficulties she had in completing the lesson, the student felt that the tape would be a very good way for her to learn because she could learn independently.

Student E

Experience in her home was possibly instrumental in providing this student with above average skill in the performance of home-making tasks. It may have been responsible also for her eagerness to learn home economics and home economics related skills. She was the only student who had had some experience in her home and she was more adept than other students tested in completing the lesson. Student E was eighteen years old and had been at the School for the Blind thirteen of those eighteen years. She had been totally blind all of her life. Although the experience of performing a skill through the use of step-by-step instructions was a new one, this student performed 25 of 26 steps without teacher assistance or re-play of the tape. She completed the lesson in 35 minutes, the shortest time of any student.

No teacher assistance was needed by this student at any time during the testing period. Only one replay of the tape was necessary and then only to make sure the directions in determining the amount of flour in the cup before leveling were understood.

Student reaction was evidenced throughout the tape as she answered questions asked and either smiled or laughed at comments made. She too, laughed at the statement, "For the last time, STOP THE TAPE." At one point the following comment was made, "It's really weird to hear your voice on the tape and know that you are sitting right here in the room with me." Learning by tape, in the opinion of the student, would be very good, especially in learning a new skill. "I had done some of this before, but I didn't have any trouble understanding what was to be done and I tried to do it that way," she said. Confidence, assurance and a sense of adventure were evidenced by this student.

A Comparison of Cases

Table I is a comparison of the students who tested the tape in which the mean averages for each category are compiled. The time allowed for completion of the lesson was 50 minutes. The mean time for

all students was 40.2 minutes with the greatest time being 45 minutes and the least time being 35 minutes. The first objective of the study (that the lesson could be completed in a regular 50-minute class session) was, therefore met.

TABLE I

COMPARISON OF STUDENT PERFORMANCE IN TESTING

Type of Performance	Student					Mean
	A	B	C	D	E	
Steps without assistance	24	22	23	20	25	22.8
Steps with assistance	2	3	2	3	0	2.0
Steps with replay	0	1	1	3	1	1.2
Steps without "Stop the tape"	5	3	2	5	6	4.2
Minutes required	40	40	41	45	35	40.2

The second objective of the study was that the student be able to complete the lesson with minimal teacher assistance. The mean of the number of steps completed without assistance was 22.8 of a total of 26 steps, which indicates that students were able to meet the second objective.

It was further determined that students do not work at the same rate of speed and that some need more teacher assistance than others.

Instructions on tapes may need to be changed to meet individual needs of the student. As this study indicated, ambidexterous students need special instructions, as do students who may hold equipment in a slightly different manner than other students. Teachers in the regular classroom would need to adjust the instructions to meet the needs of such students.

It was felt, by this researcher, that the apprehension experienced by some of the students was related to the "testing" situation rather than the tape itself. However, it would seem that reassurance of the student within the taped lesson might be an important factor to consider in making future tapes.

Factors Related to Performance

Since the students tested had had approximately the same amount of homemaking experience in school, it was felt that experience in the home probably had a definite relationship to the ability of the student to perform in the classroom. However, it was not felt that experience in the home was necessary for the student to be able to follow taped instructions. This conclusion was based on the fact that only one of the five students tested felt that she had had some experience in homemaking in her home and all five students were able to complete the lesson satisfactorily.

Some habits may have been established by the student which have direct relationship to her ability to follow taped instructions. For example, Students A and B had difficulty getting flour into the cup. These habits could be problems in any classroom learning situation, and therefore, could not be considered problems related only to taped

instruction.

Types of Assistance Required

Only those steps which presented a problem to at least one student are represented in the following table (Table II). All other steps were completed without difficulty. Problems which were solved by the student without assistance are not represented.

TABLE II

TYPES OF ASSISTANCE REQUIRED BY STUDENTS IN TESTING

Type of Problem	Student					Total Times Problem Encountered
	A	B	C	D	E	
Leveling cup	1			1		2
Measuring water			1			1
Cleaning spatulas	1	1	1	1		4
Packing shortening				1		1
Identification of equipment parts		1				1
Positioning of spatula		1		1		2
Total problems of individual student	2	3	2	4	0	

Students who required teacher assistance experienced the same problems. The major one was cleaning the shortening from the spatula. Two students had minor difficulty in leveling the cup. It was felt by this researcher that a class session to explain the parts of the equipment (bottom, flat side, etc.) and to establish the methods which would be used in the lesson would greatly facilitate the completion of each step. A demonstration in which each student had an opportunity to observe each step tactually could also be of great benefit.

Since students did not ask for teacher assistance, even when they sometimes needed help, it would seem that they were either trying very hard to perform independently or that they were unaware that they were having difficulty. In either instance, the teacher would need to be available during the testing time to determine the kinds of problems a student might be having and provide the necessary assistance.

During the testing time, it was also discovered that all students tended to perform some steps without stopping the tape. This was not expected by the researcher and was recorded only by the number of times it occurred. Steps usually performed without stopping the tape seemed to be replacing tools and ingredients to their original positions after the initial instructions to do so. The greatest number completed without stopping the tape was six and the smallest number was two. The researcher felt that some students could have completed more steps had they not been trying to follow the directions given at the beginning of the lesson in which they were told to listen to the directions, then perform the step. Steps which could be completed without stopping the tape could shorten the time required for the lesson.

Student Attitude Toward Tapes

The effectiveness of any learning innovation is greatly dependent on student attitude toward and acceptance of that innovation. All who tested the tape reacted favorably to learning by tape. Verbal comments of the students were interpreted in the following way:

(a) There was no embarrassment when mistakes were made.

(b) There was no need for teacher assistance.

(c) Each student had an equal opportunity to learn.

(d) There was no need to rush to keep up with the rest of the class.

(e) There were opportunities to make decisions.

Summary

This chapter has dealt with the testing of the tape and a presentation of five case studies which show the problems encountered by the students in completing the lesson. In general, these problems were in cleaning the spatulas and in leveling the cup. A comparison of student performance has also been presented.

The next chapter will include a summary of the study, the conclusions made by the researcher and recommendations for further use of tapes in teaching the blind.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was (a) to develop a learning tape for use with blind home economics students, which could be completed within a fifty minute class session and (b) to test the tape to determine whether students could follow the directions with minimal teacher assistance.

The study began by establishing the subject matter and the behavioral objectives of the lesson. The lesson chosen was to measure flour, brown sugar, water and shortening in the same dry measuring cup. The researcher then performed each step to be included in the lesson and developed the instructions to be used in a step-by-step script. When the script was written it was tested by a fourteen year old sighted boy. Some discrepancies were noted and the script was revised before it was presented to a panel of home economics educators. The revisions suggested by this group were included in the final writing of the script.

The script was then placed on a tape which was tested by three blind students on the Oklahoma State University campus. Revisions suggested by the test group were incorporated into the script and tape which were used in the final testing.

When the final tape had been made, it was tested by five blind home economics students at the Oklahoma School for the Blind. Revisions made in the script before taping and after pre-testing, no doubt,

contributed to the success of the tape.

Conclusions

The five blind students who tested the tape completed the lesson in less than fifty minutes and with little teacher assistance. The mean time for completion was 40.2 minutes and 22.8 of the 26 steps in the lesson were completed without teacher assistance or replay of the tape. Therefore, the researcher concluded that some blind students can follow taped instructions in the performance of homemaking skills.

As previously stated, pre-testing the tapes was probably a major factor in their success in the classroom. However, it may not be possible for teachers to test tapes as extensively as they were tested for this study. The researcher feels that the review of the literature to determine the methods which have proven successful in teaching the blind, the performance of each step personally as the script was written, pre-testing with one student before taping, and the opinions of other teachers of home economics concerning the wording and content of the script were of great benefit to her in making the tape. Of primary importance in any learning is that the student understands what is being taught. Testing the script with one blind student may well provide the choice of words which will clarify the meaning for other students. If this can be accomplished through the pre-testing of the script, it may not be necessary for other home economists to read the script.

Some methods were developed by the researcher in the writing of a script which were not found in the literature. These are listed below as well as indicated by an asterisk in Appendix C.

(a) Explain exactly what is to be done. It helps to perform the

steps to be included in the lesson and write the directions as the steps are accomplished.

(b) Break the steps logically. Do not attempt to make all of the steps the same length.

(c) A ten second interval between steps in taping will allow ample time for the student to start and stop the tape. Continuous taping without stops helps to eliminate "garbled words."

(d) Capitalize or underline the words in the script which are to receive special emphasis.

(e) Anticipate possible occurrences before the student experiences them. For example, if one feels reasonably sure that the student may spill some of the ingredients in measuring, such expressions as "Did you spill a little?" may alleviate the stress that the student feels when discovering that she has spilled some.

(f) Use positions on the clock to indicate positioning of equipment.

(g) Don't leave the student holding equipment when directions for the next step are given.

(h) Use praise and encouragement when possible.

Some adjustment in the script for a tape may need to be made to meet individual student needs. However, such changes should be few and might be in the form of oral instruction rather than changes in the script.

It would seem that more specific instructions concerning the positioning of the spatulas in working with the shortening might strengthen this particular lesson, since most of the problems encountered by the student seemed to arise in this area. Problems might be

overcome by participation in a demonstration before attempting the taped lesson; the purpose of the demonstration being to review the parts of the equipment to be used and to give the student an opportunity to observe methods tactually.

Taped instructions are not intended to replace the teacher, but merely to give her more time to work with individual students when a problem is detected. Caution should be exercised to prevent either the student or the teacher becoming too dependent upon the use of tapes.

Teachers may need to assume responsibility for identification of problems since students may not be aware that a problem exists. Taped instructions should promote independence in the student and allow her to work as quickly as she is, individually, capable. However, the teacher must be sure that the student does not continually practice wrong methods unknowingly.

Experience in the home seemed to affect the ability of the student to perform the tasks required in the lesson. However, it was not felt that such experience was necessary to the completion of the lesson. It would seem that opportunities to learn in the home might make it possible for the student to perform tasks with less assistance.

In addition to the evaluation of individual performance by the researcher, each student was asked to verbally express her attitude toward the use of taped instructions. In every instance, responses were extremely favorable.

Recommendations

As a result of the pilot study conducted by this researcher, it seems evident that some blind students can follow taped instructions.

Based on the above mentioned conclusions, the following recommendations are made.

1. Since it was not possible in this study to measure the learning which takes place when using tapes, it is recommended that additional tapes be made to:

   (a) determine the number of repetitions required by most students when using tapes before they are able to master a task.

   (b) determine whether a student becomes so dependent upon the use of the taped instructions that she is unable to perform the task independently and without the tape.

   (c) determine whether techniques used in the tape establish habits and methods which can be used by the student in performing other tasks or the same task in another learning situation.

   (d) compare students learning through regular classroom instruction with those learning by tape to determine how well students have learned, and the number of students who have learned satisfactorily.

   (e) determine teacher availability to assist students when using tapes and when not using tapes.

   (f) determine whether all students are able to learn through taped instruction. If not, what are the characteristics of those who can and those who can not?

2. A series of tapes, each building upon the other, is recommended to determine the effect upon learning rate when another experience is anticipated.

3. Since some blind students have little opportunity to make decisions independently, it is further recommended that tests be conducted to determine whether the ability of the student to make decisions is enhanced through the use of tapes.

4. Tapes to teach other areas of homemaking are recommended. Some suggestions might be:

(a) directions for threading the sewing machine.

(b) directions for different sewing techniques.

(c) directions for washing dishes.

(d) directions for table service and setting.

(e) directions for care and use of a variety of household appliance items.

5. Testing to determine what kinds of steps could be accomplished without stopping the tape is recommended for use in making future tapes.

6. Establishment of techniques which could be used in making tapes for testing or in make-up lessons is recommended for possible further classroom use.

7. Testing of tapes with recently blinded adults is recommended to determine differences in attitude and learning ability which might make possible the use of tapes in teaching this group.

8. Testing with students, other than the blind, who might have physical or learning disabilities to determine whether tapes might facilitate their learning of home economics skills, is recommended.

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APPENDIX A

MATERIALS PERTINENT TO THE TAPED LESSON

FORMAT FOR TAPES

Introduction:

An explanation of what will be done in the lesson and for what reason.

Orientation:

Terminology and methodology explained.

Equipment:

Materials needed by the student to complete the lesson.

Technique:

Step-by-step directions for completion of the task.

Adapted from: A Step By Step Guide to Personal Management for Blind Persons.

STEPS IN THE TAPE

Step 1...Put on apron and hair net.

Steps 2 and 3...Locate tools and ingredients.

Step 4...Place sifter in plate and move flour canister to edge of waxed paper.

Step 5...Place flour into sifter.

Step 6...Sift flour into cup.

Step 7...Check level of flour. Put remaining flour back into canister.

Step 8...Level cup.

Step 9...Check work.

Step 10...Return flour to canister and canister to original position.

Step 11...Move brown sugar to edge of paper.

Step 12...Spoon sugar into cup.

Step 13...Fill cup.

Step 14...Level cup.

Step 15...Return brown sugar to container and container to original position.

Step 16...Return tools to original positions.

Step 17...Measure water.

Step 18...Practice moving filled cup. Pour water back into pitcher.

Step 19...Return tools and ingredients to original positions. Move shortening to edge of paper.

Step 20...Place shortening into cup using rubber spatula.

Step 21...Pack shortening.

Step 22...Level cup. Return excess to shortening can.

Step 23...Loosen shortening from edges of cup.

Step 24...Return shortening to can.

Step 25...Check cup for any remaining shortening.

Step 26...Return tools and ingredients to original positions.

Step 27...Wash dishes.

SCRIPT FOR THE TAPE

This tape is about measuring. It includes directions for measuring shortening, flour, brown sugar and water.

None of us is ever able to learn to do things quickly and accurately if we only have one try. With this tape you may practice as many times as you wish and without the necessity of your teacher's presence. Since there is no way to tell how long you might need to finish each step, the tape has been developed so that you may STOP THE TAPE while you complete each step. As soon as each step is completed, push the start button and you will hear directions for the next step. You need not rush, but do move from step to step without hesitation. In other words, don't leave me here waiting to continue while you go down the hall to talk to your boy friend. Are you ready? Then here is..... Step 1....Just to the right of your tape recorder, you will find an apron and a hair net. Please put them on. STOP THE TAPE.

Now you are ready for Step 2....Examine the area directly in front of you. You will find a piece of waxed paper and setting on the paper, a nine inch plastic coated plate.

Step 3....The ingredients you will be measuring are located to the back of your mixing area behind the plate and the waxed paper. If you will touch each ingredient as I say its name, it will help you to remember where it is located. The flour is to the left side of your mixing area at about the 11:00 o'clock position.... Did you find it? Good....The brown sugar is next to the flour on the right....then the pitcher of water....and finally the shortening. Let's follow the same procedure in

locating the measuring tools. The cup, sifter, spoon and spatulas are located to the right side of your mixing area beginning at the 12:00 o'clock position. They are placed in the order that they will be used. Try and remember their location so that you can find them easily when you get ready to use them. At 12:00 o'clock, there is a flour sifter for sifting the flour....Did you locate it? Fine....At 1:00 o'clock, there is a measuring cup which we will use for measuring ingredients. The next tool is a metal spatula which we will use for leveling ingredients. At 3:00 o'clock, there is a spoon for dipping brown sugar....then a rubber spatula for use in measuring the shortening. From this point on, unless you are told to do otherwise, please listen to the complete directions for each step before you begin. When the directions are completed, you will be told to STOP THE TAPE. After you have stopped the tape, you may begin the next step. If you get stuck, you may rewind the tape and replay the directions. It is better to rewind a little at a time so you don't go too far back toward the beginning of the tape. When you have completed each step, and are ready to go on, push the START button and the next directions will be given. Ready.....!

Step 4....Listen carefully....In this step there are only two directions for you to follow. Place the sifter in the center of the plate in front of you. Move the flour canister to the upper portion of your waxed paper so that it's completely surrounded by waxed paper on all sides. You may want it touching the plate. STOP THE TAPE.

Step 5....That wasn't hard was it? Now, take the lid off the flour canister and place it on the counter to the left of your work area. Using the measuring cup, which is located at about the 1:00 o'clock

position to the right of your work area, dip the flour from the canister and put it in the sifter. Your sifter should be almost full even though you may not use all of the flour. STOP THE TAPE.

Step 6....Now, switch the cup to your left hand and pick up the sifter with your right hand. Place the cup in the plate where the sifter was. Hold the sifter directly over the cup and sift until you feel the flour begin to pile up on top of the cup. STOP THE TAPE.

Step 7....Hold your hand out flat and lower it gently to the top of the cup.....Be careful not to pack the flour into the cup. Do you have a nice little mound of flour on top of the cup? Good....If not, sift a little more, then turn the sifter upside down over the flour canister and pour the flour remaining in the sifter back into the canister. Tap the side of the sifter to make sure all of the flour falls out, then put the sifter where it was when you began (at 12:00 o'clock). STOP THE TAPE.

Step 8....In this step we are going to "level" the cup which means remove the excess flour above the top edge of the cup. To level we will pull the metal spatula across the top of the cup. Now locate your metal spatula (at the 2:00 o'clock position) and hold it so that the thin edges are up and down toward the ceiling and the floor, as if you were going to cut with the edge. With your left hand, locate your cup, turn the handle so that it is pointing toward the right side and place your thumb and forefinger opposite each other on the top edge of the cup. Let the bottom edge of the spatula rest on your hand, making sure that it touches both your thumb and your finger. Let's try that. Just leave

your tape running.....Now, slide your left hand down the side of the cup until you feel the spatula touch the top of the cup....Continue sliding your hand down until it is completely below the edge of the cup. Pull the spatula toward you across the top of the cup until you feel it fall off the edge of the cup. Lift the spatula straight up and replace it on top of the cup, then push it away from you until you feel it fall off the opposite side of the cup. Guess what happens! You remove the mound and have a level cup. STOP THE TAPE.

Step 9....Examine your results by laying your hand gently across the top of the cup. If you detect any high places where the flour is higher than it is in others, you will want to level again....making sure that the spatula touches both sides of the top of the cup so that you don't dig out some of the flour. When you finish, place the spatula back in its original position. STOP THE TAPE.

Step 10....When you have no high places, you have successfully measured a dry ingredient. Congratulations. You can do the same kind of thing in measuring white sugar, rice or most other kinds of dry ingredients and using any size measure. Next, we will measure <u>brown sugar</u>. We will use the same cup that you have used for the flour. Just pour the flour from the cup back into the canister. Set the cup to one side and pour whatever flour is in the plate into the canister also. Tap the plate gently to make sure all of the flour falls out. Return the plate to its original position and place the cup back on the plate. Replace the lid on the canister and put the canister back where you found it....at the left side of your work area. STOP THE TAPE.

Step 11....The only difference you will encounter in measuring brown sugar is that it must be packed into the cup. Move the brown sugar container from its position next to the flour onto the edge of the waxed paper as you did the flour canister. Now, locate the spoon (at the 3:00 o'clock position) so that you can spoon the brown sugar into the cup. STOP THE TAPE.

Step 12....With your left hand steadying the sugar container, dip your spoon into the container and push down until you feel that your spoon will be filled with sugar when you bring it up. Place the sugar into the cup and mash it down with the bottom side of your spoon, steadying the cup with your left hand. STOP THE TAPE.

Step 13....Continue until you fill the cup completely and have a little mound of sugar on top of the cup as you did with the flour. STOP THE TAPE.

Step 14....Once again, hold your hand flat and place it over the top of the cup. You should have the sugar piled above the edge of the cup. Now level the cup in the very same manner as you did the flour. Place the spatula on top of your hand so that it touches both your forefinger and thumb. Lower your hand until the spatula touches the cup. Pull toward you, then push away. In the future, this procedure will be referred to only as "level your cup." STOP THE TAPE.

Step 15....You have successfully completed your assignment. If you aren't completely satisfied, you may practice another time until you feel really competent. No one is able to perform flawlessly the first time. Before we measure the water, we need to put the brown sugar back

into the container. A container with a wide mouth has been selected so that you may just pour the contents of the cup and the plate back into the container as you did the flour. STOP THE TAPE.

Step 16....Don't worry if you spilled a little. You can clean it up when you have finished the lesson. Now, return all of your tools to their original positions....cup on plate in the center of the waxed paper, spoon at 3:00 o'clock, and brown sugar container to the right of the flour canister. Be sure you put the lid back on the brown sugar container to keep the moisture from escaping. When brown sugar dries out and becomes hard, it is difficult to measure. STOP THE TAPE.

Step 17....We have two items left to measure....water and shortening. Let's measure the water first because enough water will remain in the cup so that the shortening will not stick to the cup. If shortening doesn't stick to the cup it will come out of the cup easily after we measure it. Leave the cup setting in the plate. Place your left hand around the top of the cup to steady it and also to give you a guide for pouring. Locate the pitcher of water with your right hand and hold the handle firmly. Bring the pitcher to the cup. Tip the pitcher of water forward slowly until the lip rests very gently on the edge of the cup... too much weight on the cup will cause it to tip over. Now, slowly raise the bottom of the pitcher into the air so the liquid pours slowly into the cup. Stop pouring when you feel the liquid begin to spill over the top of the cup....remember that you have a plate underneath to catch the spills, so it is no problem if a little does go over the side. STOP THE TAPE and try this method.

Step 18....Did it work? If you have already learned another method to pour which is easier for you to use, then use it. There are several ways to do anything and I want you to use the one that suits you best. Now that you have the water measured, I'm sure you're wondering how you would move it if you needed to. There are two ways. Don't actually lift the cup, but practice doing what I tell you as I explain the two methods most commonly used. First, place your entire hand over the top of the cup. Let your fingers fall where they will....Now you could pick up the cup and your hand would serve as a leveler to prevent spills. If you don't think you could do that, you could get a larger container.... maybe a small bowl, hold it close to the edge of the cup and quickly tip the cup toward the bowl allowing the contents to pour into the bowl. Now you have a larger container and less danger of spillage. Today, since you will not be using the water, you may practice picking the cup up by placing your hand over the top and letting your fingers fall where they may. Now, pick up the cup and pour the water back into the pitcher. It doesn't matter that the water spills over your fingers. Pour any water that is on the plate back into the pitcher also. STOP THE TAPE.

Step 19....Did you spill a little? Don't worry about it. We can clean it up later. Only one more thing to do. Just think, you have learned to measure two dry ingredients and a liquid already. Now we will measure shortening. Again return all of the utensils to their original positions. STOP THE TAPE.

Step 20....Now move the shortening to the edge of the waxed paper. Pick up your <u>rubber</u> spatula to the right side of your mixing area and dip it into the shortening can. Notice I have asked you to use the rubber

spatula. Dig in deeply so that you can get a good amount on the spatula. Then, holding the cup steady with your left hand, scrape the spatula against the inside edge of the cup so the shortening falls into the cup. STOP THE TAPE.

Step 21....Pack the shortening into the cup with the spatula. Continue until you have filled the cup. Occasionally turn your spatula over and clean the opposite side of it. STOP THE TAPE.

Step 22....If you have filled the cup to just above the top....as you did with the brown sugar, level the top with your metal spatula using the same procedure as we used for the flour and sugar. The excess shortening will stick to the spatula. You will want to return it to the shortening can, so scrape your metal spatula across the edge of the shortening can until the spatula is relatively clean. Be sure you do both sides. STOP THE TAPE.

Step 23....All you have left to do is to remove the shortening from the cup with the rubber spatula. Insert the spatula along the inside of the cup, then follow the contour of the cup with the spatula until you can feel the shortening is free from the inside of the cup. STOP THE TAPE.

Step 24....Since our tape is about measuring, we are going to return the shortening to the can. If you were making a cake you would put the shortening into a bowl. But you would use the same procedure to be sure you got all the shortening from the cup. Let's go on with our instructions about dumping the cup of shortening. Now pick up the cup, place it over the shortening can and turn it upside down. Use the spatula to push the shortening out of the cup into the can. STOP THE TAPE.

Step 25....Now scrape the spatula across the bottom of the cup several times to make sure all of the shortening is loosened from there also. Place the spatula tightly against the inside edge of the shortening container and pull toward you so that you scrape the shortening into the container. Turn the spatula over and repeat the process. STOP THE TAPE.

Step 26....Replace the shortening container where it was next to the water. STOP THE TAPE.

Step 27....You're all finished...except the fun part...washing the dishes. Isn't that a dirty trick? But you really don't have much to wash. There's only a spoon, a cup, and two spatulas. When you have washed the dishes, please return them to the place where you found them so that you or some other student may use them in the same way that you did this time. Thank you for listening. HAPPY COOKING and for the last time, STOP THE TAPE.

APPENDIX B

EVALUATION

CASE STUDY FORMAT

_____ Age of Student _____ Mental ability (low, average, high)

_____ Degree of blindness (legal, total)

_____ Number of years of blindness

_____ Number of years at the School for the Blind

_____ Homemaking experience in school (number of years)

_____ Homemaking experience at home (some, much, little)

_____ Student is familiar with the operation of a tape recorder (yes, no)

TEACHER EVALUATION OF STUDENT

_____ Above average, average, below average in mastery of homemaking skills

_____ Displays eagerness to learn new skills (yes, no)

STUDENT REACTION TO THE TAPE

Good

Bad

EVALUATION OF TAPE

Step No.	Followed Directions With No Assistance	Replayed Directions	Teacher Assistance	Kinds and Types of Assistance Required--Suggested Changes
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Step No.	Followed Directions With No Assistance	Replayed Directions	Teacher Assistance	Kinds and Types of Assistance Required--Suggested Changes
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Steps for which no assistance was required _____ Steps for which replay of tape was required _____

Steps for which teacher assistance was required _____ Time required _____

APPENDIX C

GUIDELINES DEVELOPED FOR MAKING TAPES

GUIDELINES DEVELOPED FOR MAKING TAPES

(Adapted from: "Tips on Taping" and "Reaching and Teaching Families by Radio and Tape Recordings." Those indicated by * have been contributed by the researcher.

Writing a Script

*1. Explain exactly what you want done. It helps to do the job yourself and write the steps as you go.

2. Use terminology and vocabulary familiar to students.

3. Be sure and identify equipment, ingredients, etc. Use words such as it, that, those and similar words very sparingly.

4. Use precise verbal descriptions. Say "The knife is a few inches in front of your left hand," rather than "The knife is in front of you."

5. Be specific. Eliminate unnecessary words.

*6. Break steps logically. Some will be longer than others. Short sentences are easier to read, but long sentences may be broken with dots or dashes which indicate a time lapse between words or sentences. Longer series of dots indicate longer time lapses.

*7. Capitalize or underline words which need special emphasis when writing the script.

8. Use contractions when you would usually use them.

9. In general, avoid abbreviations. Abbreviations may mean something else to the listener and the reader tends to stumble over them in reading the script.

*10. Anticipate possible occurrences before the student experiences them.

*11. Use clock positions to indicate positioning of equipment.

12. Repeat locations and instructions that are used several times in the lesson at least once.

*13. Don't leave the student holding equipment.

*14. Use praise and encouragement when possible.

Making a Tape

1. Learn the operational procedure for the tape recorder.

2. Pre-read the material to be taped.

3. Make the tape with the sound at about 5 on recorders which have markings from 1 to 10. Playback will usually be about 2, but this allows for playing to larger groups.

4. The first few inches of tape in cassettes is clear tape. No sound can be recorded. It is best to wait 10-12 seconds before beginning to speak. Sixty seconds may be required if the tapes are to be duplicated.

5. Read facing drapery or other soft, absorbent material. Flat, hard surfaces reflect sound.

6. Do not hold the microphone. If possible, stand it on a short stack of books on a separate table. This will prevent sounds from the recorder's motor reaching the tape. It may help to put a large bath towel or pad under the recorder to eliminate vibration.

7. The microphone should be 8-12 inches from the mouth when recording. If the voice sounds hollow or distant, you are too far away. If the voice sounds raspy and puffs of air are intelligible on such sounds as "f" and "d," you are too close.

8. Avoid stops which tend to garble words. Instead, make a continuous taping allowing about 10 seconds between steps for starting and stopping the tape.

9. No more than thirty minutes of recording should be attempted without a break. A tired voice will sound tired on tape.

10. If you mispronounce a word, erase it and pronounce it correctly. It is easier to erase to the nearest pause and begin again from there.

11. Be relaxed and read in your normal tone of voice.

12. Use body English if it relaxes you.

13. Strive for:
    a. color and variety in the voice
    b. "Flow".....avoid being choppy
    c. warmth, friendliness, more intimacy than you feel is needed
    d. authority....sound as if you know what you are talking about
    e. elimination of extraneous noises
    f. intimacy....pretend the student is just across the table from you

14. When you play back your sample, the volume should need to be turned down several points for easy listening.

Storing the Tapes

1. Magnets erase tapes. Avoid contact with electronic devices. Most 16 mm movie projectors contain magnets in the amplifiers. Tapes could be damaged if stored in the same area as projectors. Refrigerators, large TV or radio receivers and other motors create a magnetic field which damages tapes.

2. Tapes should be stored where the temperature is cool and the humidity is moderate.

VITA

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