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An Effective Course of Study
for Teaching Hearing-Impaired Children
TTY/TDD Skills

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May 1984

Introduction

Few hearing-impaired people have enough residual hearing to use the telephone with built-in amplifiers. Special equipment and instruction is necessary to compensate for the problems they have of communicating at a distance. Most of the hearing-impaired population rely on teleprinter equipment to supply information visually communicated via telephones. There are two common terms used to describe this equipment: TDD and TTY. TDD (Telecommunication Devices for the Deaf) and TTY (Teletypewriter) are devices which are used to type out messages. The message is converted, through an electronic coupling device, into impulses which are sent over the telephone wires to the receiver. The receiving person has a coupling device which reconverts the received impulses into signals which are visually displayed on a screen or a printout. In this paper, we will refer to TDD (Model: C-Phone), since this is the type of equipment used with our subjects.

History

Until telecommunication devices became available, most hearing-impaired people with little residual hearing and limited speaking abilities had to depend on the aid of a hearing person to make a phone call. In 1964, a profoundly

deaf physicist, Dr. Robert Weitbrecht developed a coupler making it possible to send and receive typed messages from one location to another through standard telephone lines. The procedure for placing a TDD call is as follows: an individual dials the number of another individual having the same type of equipment. The sending party places his receiver into the coupler and waits for the receiving party to answer. The receiving party who answers the call, puts his receiver in a similar coupler and begins to type. Simultaneously, the same words are printed or visually displayed on the other TDD. A hearing-impaired individual using this type of equipment can make and receive local and long distance phone calls with another individual having a TDD.

Presently, there are about fifteen manufacturers who make two or three different models. Special features available include, portability, paper printout, a screen, a memory bank for storing messages, and/or rental from the telephone company.

Purpose

The idea for our study was a spin-off of an Independent Study completed last year (1983). The author of the previous study found that the language used by her subjects was incoherent and inappropriate. The author concluded that the children did not understand that a TDD was used for communication purposes. The author also concluded that typing

interfered with the subject's conversations. Thus, with these problems in mind, we developed a course of study that would hopefully prevent these difficulties from occurring again.

The purpose of our study included five major goals. Our first goal was to teach three hearing-impaired children how to operate a TDD (C-Phone). Because TDD's are available to the hearing-impaired population, knowledge of the device and its proper use are necessary. Knowledge of its use will give the hearing-impaired a direct means of telephonic communication. Our second goal was to increase the children's communication skills when using a TDD. In two studies, Geoffrion cited some problems in the communication skills of hearing-impaired children when using the TDD. Although their messages were found to be understandable, the children seldom asked questions, seldom set the topic of conversation and rarely took an active role in maintaining the conversation. Thus, Geoffrion concluded that hearing-impaired students need some type of formal instruction in order to converse effectively on the TDD. Our third goal was to develop more fluency in the children's typing skills. We felt they needed practice in this area, so that typing would not interfere with their conversations. In other words, we wanted their typing to be more fluent so that they did not have to think about where to place their fingers, process what they read on the screen and formulate a response all at the same time.

Our fourth goal was to have each child place four phone calls independently. The four phone calls included an emergency phone call, an informational phone call, a friendly phone call and a reservation/appointment phone call. These are the four main types of calls that people place. Our final goal was to develop an effective course of study for teaching TDD skills to hearing-impaired children.

Subjects and Setting

The three orally educated deaf subjects who participated in the study were: B- 12 years old, K- 12 years old and C- 10 years old. All three attend Central Institute for the Deaf in St. Louis, Missouri, and are enrolled in the Upper School Level. Their language ability is at the upper end of the Grammatical Analysis of Elicited Language- Complex Sentence. They are able to understand and carry on a conversation using complex language.

B and K were chosen because they had participated in last year's independent study of communication skills using the TDD. It was our intent to see if their communication and typing skills could be improved upon by using a systematic approach to teaching TDD skills. C was chosen because she was a new subject who was unfamiliar with the TDD. Our intent here was to discover the difficulties which might arise in learning to communicate through the use of the TDD that would not be seen with the other two subjects who were familiar with using the TDD.

TDD sessions were scheduled twice a week, Tuesday and Thursday, for 45 minute periods (5:00-5:45). A total of 30 sessions were completed. A variety of meeting places were used depending on the objective of the session. Formal discussions about the TDD were held in the residential dormitory, while typing practice took place in the typing room of the school building. When the time came to practice communication skills using the TDD, the sessions were held in the dormitory, with a TDD placed on the first and second floors.

The subjects kept all their written and typed work in a folder marked TDD. At the conclusion of the sessions each child was given a TDD packet containing information on: parts of the TDD, common abbreviations and signals, procedures for placing and receiving a TDD call and different types of TDD's. This packet was designed for the students to use for future reference.

Procedure

This study was divided into three major areas: I. a general discussion of communication and the TDD, II. typing practice and III. using the TDD.

I. Discussion of Communication and the TDD

A total of six sessions were devoted to this area. First we talked about various methods hearing-impaired people could use to communicate with hearing and hearing-impaired people over a long distance. Included in this discussion were writing

a letter, asking a hearing person to place a phone call for a hearing-impaired person, the hearing-impaired person using a telephone coding system and a hearing-impaired person using a TDD. We talked about why the TDD is preferred over other methods of communication used over a long distance. The next session was spent discussing different places to call (e.g. hospital, parents, hotel, bus station, etc.) and the four types of calls a person can make (emergency, friendly call, reservation and information). Our next step was to practice the four types of calls in handwritten form. This was to show the children that TDD communication is a two-way process, a sender and a receiver. We felt this was a necessary concept for the children to understand before they used the TDD.

II. Typing Practice

A total of ten sessions were spent practicing typing skills. Our purpose was to increase their typing fluency so that typing would not interfere with their communication on the TDD. The four kinds of conversations were typed back and forth between teacher and subject and subject and subject in order to simulate a real TDD conversation. A variety of activities were used in order to elicit and practice appropriate responses and questions. For example, the teachers would think of pretend situations and ask the children questions. The children would type their answer and the teachers would check for appropriate responses. In another activity, the teachers

would again think of a pretend situation and the children had to type appropriate questions. In addition to practicing conversations, the subjects discussed and then typed the steps for placing and receiving a TDD call, and the different telephone signals and patterns.

III. Using the TDD

Before the children began to use the TDD, one session was devoted to reviewing the parts of the TDD, the different signals and patterns, the steps for making and receiving a call, places a person can call and different topics to discuss during a TDD call. The following session, the subjects took a test on what they learned during the semester.

The last twelve sessions were devoted to practicing and placing actual TDD calls. A majority of the sessions were spent practicing the four types of calls between subject and teacher. During the remaining sessions, each subject had to place four phone calls independently (emergency, reservation, information and friendly calls). The teachers used a checklist to rate their TDD communication skills.

Results and Conclusions

After completing our course of study, all three children could easily operate a TDD (C-Phone). We found that all three subjects typed appropriate responses to the sender's statements and questions. We did notice, though, during the typing sessions that the children rarely asked questions to continue a conversation during the pretend situations. They seldom

changed the topic of conversation. As a result of this finding, the teachers devoted more time discussing and practicing question asking skills and reviewed different topics the children could talk about. We found that some of their questions and statements gave more information than needed. For example, instead of asking "When is the party?", one subject typed "What day is the party? What time is the party?". Another example is when the children typed emergency phone calls. They tended to type more information than was actually necessary (e.g. Hello. My name is B. I live at 1211 Oak Street. My phone number is 874-1111. There is a robber in my house. He is stealing my jewelry. etc.). While their questions and statements were correct, most telephone calls tend to be more concise and to the point. Thus, we had the children practice making their statements more concise.

Language errors were expected, though, they did not interfere with the children's ability to make themselves understood. Their messages were coherent.

While a major portion of the study was a review for B and K (parts of the TDD, signals, how to make and receive a TDD call), the information presented was new to subject C. We feel subject C is an effective user of the TDD, though, she did not pick up the skills as fast as the other two subjects. We feel this is a result of her lack of experience with the TDD.

In conclusion, we feel that with a systematic approach to teaching TDD communication skills, hearing-impaired children

can become more effective users of the TDD. A structured approach gives the children practice in communicating on the TDD. We feel that there are some major areas that should be focused on during instruction. These areas include: discussing topics to talk about, who they can call, practice in typing and helping the children initiate questions and conversations.

Not only is the TDD a useful mode for communicating over a long distance, it can be used as part of a classroom curriculum for practicing language. Programs across the country have started to include the TDD as part of their school program for a dual purpose. First, it can be used to teach them how to operate a TDD and second it can be used as a means to practice language.

Course Of Study

Area: A general discussion of communication and TDD.
Goal: To increase communication skills.

Session 1

- A. Discuss different modes of communication deaf people use to communicate with other people.
 1. writing a letter
 2. having a hearing person make the phone call
 3. hearing-impaired person makes phone call by using a code system
 4. using a TTY/TDD

- B. Discuss the reasons why the TDD is a preferred communication mode by hearing-impaired people.
 1. don't need to rely on a hearing person
 2. able to talk to other hearing-impaired people
 3. permits spontaneous two-way conversation
 4. can be used by any hearing-impaired person regardless of the amount of residual hearing
 5. privacy

- C. Discuss why hearing-impaired people use the TDD.
1. to talk to family and friends
 2. to make appointments (doctor, dentist) and reservations (hotel, airplane, restaurant)
 3. to obtain information (weather, library, deaf community activities)
 4. for emergency phone calls (fire, police, hospital)

Session 2

- A. Discuss topics of conversation to engage in when talking to family and friends.
1. school
 2. trips
 3. upcoming events
 4. movies
 5. books
 6. dates
 7. family/friends
- B. Discuss the appropriate questions and responses the subjects would say about each topic.

Session 3-4

- A. Discuss the four types of phone calls.
1. friendly
 2. emergency
 3. reservations/appointments
 4. information

Goal: To practice placing four types of phone calls in handwritten form.

Session 5-9

- A. Practice making the four types of phone calls between subject and teacher in handwritten form.

Area: Increase typing fluency.

Session 10

- A. Subjects type appropriate questions to written responses on a teacher-made ditto.

Session 11

- A. Teacher sets up a situation and subjects required to initiate and carry on a conversation.
1. situation: slumber party, Christmas vacation

Goal: To become familiar with the parts of the TDD: signal patterns, codes, and procedures for placing and receiving a TDD call.

Session 12

A. Discuss procedure for placing a TDD call.

1. subjects type information which is to be placed in their TDD notebooks.

Session 13

A. Discuss procedure for receiving a TDD call.

1. subjects type this information, to be placed in their TDD notebooks.

Session 14

A. Discuss parts of the TDD.

1. signal light
2. monitor light
3. telephone
4. dial
5. coupler
6. keyboard
7. telephone receiver
8. telephone cord
9. screen
10. on/off switch

B. Discuss codes commonly used during TDD conversations.

1. GA: go ahead. Typed after each person has finished what they have to say.
2. SK: stop kill. Typed when one party is finished with the entire conversation. Both parties must type SK before hanging up.
3. HD: hold. Typed when one person must leave the conversation momentarily.

Session 15

A. Teacher sets up the entire situation, leaving a blank after each sentence for the subjects to fill in the missing signal codes (GA, SK, HD) on teacher-made ditto.

Session 16

A. Discuss telephone signal patterns.

1. monitor light: the light on the C-Phone that shows you the patterns for the different telephone rings.
2. dial tone: your telephone is working properly; the monitor light stays on continuously.
3. busy signal: someone is on the other telephone; the monitor light will flash on for 1 second and off for 1 second.
4. ringback signal: the telephone is ringing at the number you dialed; the monitor light will flash on for 1 second and off for 4 seconds.
5. ringing: someone is calling you; the monitor light will show the same pattern as the ringback signal.

Session 17

- A. Orally review the parts of TDD, signal patterns, codes, and procedures for placing and receiving a TDD call.

Session 18 (see appendix)

- A. Written test over material learned from session 1 - 16.

Area: Operating the TDD.

Goal: To independently make 4 types of phone calls using the TDD.

Session 19 - 24

- A. Practice the 4 types of phone calls between subject and teacher using the TDD.

1. friendly call
2. information call: weather, library, Contact
3. emergency call: hospital, fire, police
4. reservations: hotel, airport, dinner

*Obtain a portable TDD from local hearing aid dealer. Place a TDD in two different rooms/floors.

Session 25 - 30

- A. Subjects independently place 4 types of calls using the TDD.

1. subjects call a friend
2. subjects call the weather bureau, library, deaf messenger

3. calls between subject and teacher:
 - a. subject calls the police, fire, hospital
 - b. subject calls for reservations and/or appointments, hotel, dentist, airport
- B. Teacher evaluates subject's responses and questions using a checklist. (see appendix)
- C. Teacher and subjects organize TDD notebooks, which are to be used as future references.

APPENDIX

TDD TEST

Name _____ Date _____

1. Give 3 reasons why a hearing-impaired person would use a TDD.

- 1.
- 2.
- 3.

2. Give 3 ideas you would talk about on the TDD to your family or friends.

- 1.
- 2.
- 3.

3. Put these emergency TDD sentences in order.

_____ 818 South Euclid
_____ 535-1579
_____ help, my house is on fire
_____ This is _____

4. Circle the correct answer.

GA go ahead hold good-bye go away
SK hold start calling stop kill hello
HD good-bye go ahead hold hurry up

5. Match

GA _____ 1. when both people are finished talking, type this before hanging up.
SK _____ 2. type this when you are finished talking and it is the other person's turn to type.
HD _____ 3. type this when a person needs to leave the TDD for a minute.

6. Put these steps in order when you receive (or get) a TDD call.

_____ Hello. This is (name) .
_____ Turn on the TDD.
_____ The person who answers the telephone should type first.
_____ Pick up the phone and place the receiver in the coupler.
_____ If you have a signal lamp, it will flash when your phone is ringing. This means someone is trying to call you.

Appendix Cont'd

7. Matching.

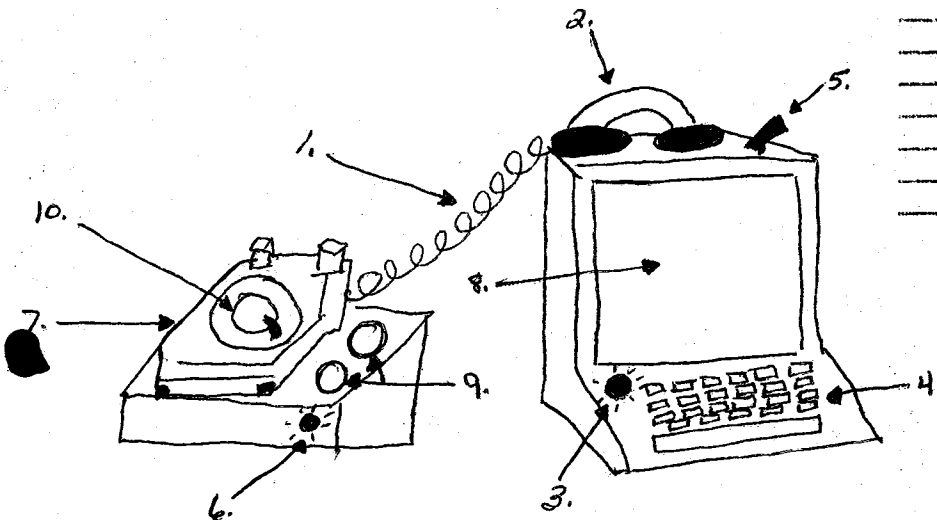
- | | |
|-----------------------|---|
| _____ monitor light | 1. Someone is calling. The monitor light will flash on 1 second and off 4 seconds. |
| _____ dial tone | 2. Your telephone is working right. The monitor light will stay on. |
| _____ busy signal | 3. The telephone is ringing at the number you dialed. The monitor light will flash on for 1 second and off for 4 seconds. |
| _____ ringback signal | 4. The light on the C-Phone that shows you the pattern for the different telephone signals. |
| _____ ringing | 5. Someone is on the other telephone. The monitor light will flash on for 1 second and off for 1 second. |

8. Put these steps in order when you make a TDD call.

- _____ Hang up the receiver.
- _____ Turn on the switch.
- _____ When both people type SK, press the clear key and turn the switch off.
- _____ Put the telephone receiver into the coupler.
- _____ Type: Hello, This is (name). May I talk to (name)? GA
- _____ Check the monitor light, it should be on.
- _____ The person you are calling will type first. When you see GA, it is your turn.
- _____ Dial the number.
- _____ Check the monitor light for the different flashing signals.

9. Matching.

- _____ signal light
- _____ monitor light
- _____ telephone
- _____ dial
- _____ coupler
- _____ keyboard
- _____ telephone receiver
- _____ telephone cord
- _____ screen
- _____ on/off switch



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