

## COMPUTER-AIDED TELECOMMUNICATION FOR THE DEAF

A DEMONSTRATION PROJECT FUNDED BY THE DEPARTMENT OF HEALTH,  
EDUCATION AND WELFARE

RESEARCH AND DEVELOPMENT BY THE DEAF COMMUNITY CENTER,  
FRAMINGHAM, MASSACHUSETTS

- I. The purpose of the project was to research existing computer communication technology and to adapt this technology to the needs of the deaf community.
  - A. Objectives of the project were:
    1. an electronic message system
    2. a computer conferencing or teleconferencing system for group conferences
    3. data base services (news, weather, information banks such as consumer, medical, etc.)
    4. telephone-answering and telephone call making services for the deaf user (probably on a per-call basis)
    5. computer-aided instruction and games
    6. interaction with the hearing community
  - B. Specific objectives were formulated and met during the three years of the project.
    1. Year 1 Objectives and Results
      - a. An electronic mail system was selected (HERMES)
      - b. Equipment was purchased (Model 43 terminals).
      - c. Users were enrolled.
      - d. Instruction techniques were developed, instruction manuals were written.
      - e. Cost factors were studied and an appropriate user fee was established.
      - f. Services and data banks were established
      - g. Progress was made to develop a bridge between 8-level and 5-level (ASCII & BAUDOT) equipment

- h. The plan to place terminals in fire and police stations for emergency situations was not realistic so this aspect of the project was deleted.

2. Year II Objectives and Results

- a. Additional equipment was purchased (an Advent Screen, CRT terminals)
- b. Additional users were enrolled.
- c. New educational services were developed: ILIAD, LAN
- d. Deaf Communications Institute was incorporated.
- e. Hard copy vs soft copy terminals were investigated.
- f. Refinements of delivery and composition of information flow were made.
- g. Funds were not received for a computer facility.

3. Year III Objectives and Results

a. Objectives

- 1) To institutionalize DEAFNET
- 2) To determine the most cost-effective electronic mail system for DEAFNET
- 3) To begin plans to make DEAFNET economically self-sufficient
- 4) To enroll more users
- 5) To expand the data base and services

b. Results

- 1) The decision to change message systems from HERMES to TELEMAL was made for economic reasons. TELEMAL could be used during non-prime time resulting in a considerable savings to DEAFNET. The user fee could be reduced to an affordable level for many users and it offered a way to work towards self-sufficiency.

- 2) However, the change in message systems had a greater impact than had been expected. Users of the old system had great difficulty in adapting to TELEMAIL; many users discontinued the service. They liked the concept of computer-assisted communication; they were, however, uneasy with the new system for the following reasons:
  - a) They were limited to non-prime time (6pm - 7am; all day Saturday and Sunday)
  - b) They lost some of the features of HERMES which they valued: real-time connection, many editing and correcting capabilities, games and basic programming.
  - c) They became impatient with "working out the bugs" of TELEMAIL
- 3) Two of the services already developed (i.e. LAN and ILIAD) were felt to be useful tools for the classroom but because of "institutional resistance" they were not fully utilized. (See discussion on this subject.)

## II. BENEFITS TO THE DEAF COMMUNITY FROM THE PROJECT

- A. It has established a non-broadcast means of communication which the deaf can learn and find useful. It is not, at this time, cost-efficient for the average deaf individual.
- B. It has established a flow of information to and for the deaf person which is easily replicated throughout the country.
  1. Data banks: health, consumer news, etc.
  2. News, weather, sports, emergency information
  3. Cultural, social events, captioned movie listings
- C. It has stimulated new projects, new ways of learning for the deaf.
  1. The Deaf Independent, a newspaper for the deaf in Massachusetts
  2. ILIAD, Interactive Language Instruction Aid for the Deaf
  3. LAN, Language Adjusted News

- D. It facilitated the flow of information and communication to and from many deaf individuals and groups.
  - 1. Individual users and families
  - 2. Schools
  - 3. Deaf Clubs
  - 4. Deaf advocacy groups
  - 5. Service agencies for the deaf
  
- E. The research and development stage has formed the basis of a marketing strategy for a continuation of DEAFNET.
  - 1. Of the 39,000 deaf persons in Massachusetts and the 297,000 hearing impaired...we project 5% of this population are potential users of DEAFNET.
  - 2. The potential user will:
    - a) be a reader
    - b) have moderate to excellent language skills
    - c) display an interest in the world: current events, topical information
    - d) be social
    - e) want to learn
    - f) need to communicate easily (for social or business reasons)
    - g) be educated (at least a high school diploma)
  - 3. The potential user will want the following services in order of priority:
    - a) real time, person-to-person communication
    - b) message service
    - c) current topical information (news, weather, sports)
    - d) current event information (political, national news, international news)
    - e) data bank information services (consumer news, etc.)

4. The potential user is willing to pay a fee up to \$25.00 per month.
5. Figures to date indicate the service will cost \$25.00 per month per user. Costing figures need to be studied and determined more accurately and revised especially as technology changes.
6. The potential user will log on 8-10 hours per month.

### III. PROBLEMS DEAFNET HAS ENCOUNTERED

- A. Convincing the deaf population of the value of this means of communication has been difficult because:
  1. The deaf are resistant to change of any kind;
  2. The deaf have a poor background in the use of even simple forms of technology (the telephone, the radio, the television);
  3. The deaf often have a suspicious psychological makeup;
  4. The deaf lack the financial means to "experiment";
  5. There were many difficulties in scheduling installations;
  6. There was often poor communication between the deaf person and the equipment installer.
- B. Persuading the public of its obligation to make communication available in a mode which is accessible to hearing impaired citizens.
  1. Deafness is the "Invisible Handicap."
  2. There is a lack of effective deaf advocacy work.
  3. There is a lack of funding for public information programs.
- C. Institutional Resistance to using the system
  1. There is a lack of adequate staff at most agencies and schools to use DEAFNET effectively. The staff in social service agencies is often overworked/underpaid, changes frequently, and does not have the motivation to learn a new system of communication.
  2. The cost of using the system for the agency or school was often prohibitive due to the fact that they were required to use a business phone with a business rate.

3. A DEAFNET user would often tie up an agency phone, restricting in-coming and out-going calls.
  4. There were many difficulties in installing the equipment in a convenient, accessible place.
  5. There was a serious lack of DCC staffing to give adequate instruction, support and follow-up services to insure the adequate usage of DEAFNET by social service agencies and schools.
  6. There was not enough time in most school curriculums to teach the system to the students. However, in one school (EDCO, Newton, Massachusetts) one interested teacher spent many hours with 14 students learning the system. The students and teacher were so enthusiastic that there was rarely a time when the terminal was unused. The teacher felt that DEAFNET was an asset to her program. It complimented her social studies program, improved her students awareness of current events and gave them much needed practice in writing and reading skills.
- D. Costs. It is too early to determine if DEAFNET can become cost-effective.

#### IV. GENERAL COMMENTS

- A. The deaf population can and did learn this sophisticated system of communication.
- B. In order to insure DEAFNET's continuation, staffing should be increased. The additional staff members required are:
  1. A Marketing director
  2. A DEAFNET administrator
  3. A DEAFNET salesperson. This person should either be deaf or have a background in deafness and should have a solid background in communications technology.
- C. DEAFNET is not for every deaf person. See profile of a user.
- D. This communication tool would help many businesses and organizations to comply with the 504 regulations.
- E. This communication tool could open many jobs to the deaf and other handicapped individuals.

- F. The problems DEAFNET has encountered over the past three years are frustrating but not insurmountable.
- G. Electronic mail for the deaf has tremendous potential but it needs time to be developed, perhaps 10 years. We would like to be able to give the deaf the opportunity to benefit from this new technology but we feel that this will not happen without a continuing effort on our part.