

## INTRODUCTION AND STATEMENT OF PROBLEM

### A. Introduction

The education of deaf students in Utah has been a controversial matter for many years. The problem of poor educational achievement has been involved with two different philosophies of educating these hearing-impaired youngsters. These two philosophies, along with their definitions, are as follows:

Oral Method, Oral-Aural Method. Pratt (1961) has defined the "exclusively oral approach" as ". . . speech, lip reading, reading and writing - assisted by auditory training and the usual educational aids used with hearing children - without the use of the manual alphabet or the sign language in the classroom or out of it."<sup>1</sup>

Denton (1972) has defined total communication as follows:

"By total communication is meant the right of a deaf child to learn to use all forms of communication available to develop language competence at the earliest possible age. This implies introduction to a reliable, receptive-expressive symbol system in the pre-school years between the ages of one and five. Total communication includes the full spectrum of language modes: child devised gestures, formal sign language, speech, speech reading, finger spelling, reading and writing. Every deaf child must have the opportunity to develop any remnant of residual hearing for the enhancement of speech and speech reading skills through the use of individual and/or high fidelity group amplification systems. The ultimate key to academic success appears to be reading comprehension skill."<sup>2</sup>

A major study was undertaken some years ago and, as a result, the State Board of Education adopted the following policy on December 28, 1970.

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<sup>1</sup> Pratt, G. Oral Education for Deaf Children. Washington, D. C.: A. G. Bell Association for the Deaf, Reprint Number 769, 1961, p. 1.

<sup>2</sup> Denton, D., Chapter V.: A Rationale for Total Communication. In Psycholinguistics and Total Communication: The State of the Art. Ed. T. O'Rourke, Washington, D. C.: American Annals of the Deaf, 1972, p. 53.

POLICY FOR THE UTAH SCHOOL FOR THE DEAF

During the fall of 1970, two committees conducted extensive study of the educational program of the Utah School for the Deaf. One committee was appointed by the State Board of Education upon recommendation of the Governor's Advisory Council; the second committee was subcommittee No. 4-Deaf, Blind, and Socio-Economic Handicapped - of the State Committee for Handicapped Children.

Both committees made oral presentations of their findings and recommendations to the State Board of Education on December 11, 1970. Additionally, written recommendations were submitted to the Board on behalf of the committees.

Recommendations tendered herewith are a composite of existing policy at the school and recommendations presented in writing from the two committees, as those recommendations could be harmonized.

It is recommended that the State Board of Education adopt as policy for the operation of the Utah School for the Deaf the following:

1. There shall be two distinct programs of instruction at the School (Oral and Total Communication); both programs shall be available to all students at the school at their election in accordance with school policy, throughout their years of attendance.
2. The superintendent of the School for the Deaf shall be responsible for delineating a formalized procedure for identification and placement of all students; such a procedure shall make provisions for transfer of students from one program to the other as the needs of a particular student direct. The procedure shall recognize the desirability of parent and student involvement in the determination of student direction, but the actual placement and transfer shall be the sole responsibility of the professional staff at the school and shall reflect professional ability in the diagnosis of student needs and prescription of student programs.
3. Continuous examination and evaluation of the program and of the results obtained therefrom shall be a responsibility of the Division of Research and Innovation of the State Board of Education in cooperation with the superintendent and staff at the school. Data obtained from evaluation shall be used by the superintendent of the school in re-directing programs and in recommending policy alteration to the State Board of Education. Periodic accreditation evaluation visits will be made to the school under the direction of the accreditation section of the State Board of Education.
4. The academic program at the school shall be closely aligned with the program in the public schools; faculty shall be selected and utilized for specific subjects and grade levels on the basis of their particular skills, interests, and professional preparation and in consideration of that which shall be most beneficial to students at the school.

5. Vocational training programs shall consist of prevocational, vocational preparation, and post-graduate work. The prevocational program shall be organized to prepare students for the more complex demands of vocational preparation; regular vocational programs shall be as comprehensive as the needs of students demand and limited resources permit; post-graduate work will be essentially for special students who are unable to profit from training at other schools because of communication or other limitations. The vocational training programs shall utilize the service and expertise of staff from the divisions of Vocational Education and Vocational Rehabilitation of the State Board of Education, for cooperative and placement programs to enable students to profit from these experiences.

6. The school shall develop full cooperation with the public elementary, secondary, and post-secondary schools of the state to the end that deaf students shall be better served. Such cooperation shall include but not be limited to attendance at public schools by deaf students in such programs as will bring benefit to them, use of special facilities that will encourage and serve deaf students more fully, interchange programs of special merit to promote greater understanding and association with hearing students.

7. The school shall, in cooperation with the staff of the State Board of Education and the State Division of Health, develop a program of early identification of children with impaired hearing and in cooperation with the respective staff of the two agencies provide programs for habilitation, education, and health treatment which will help the deaf child communicate more adequately and which will help the parent to aid the deaf child in his early education.

8. A program of orientation and education shall be initiated and developed for parents whose children are at the school. Such a program shall include orientation to different communicative methodologies of educating deaf children and alternatives that are available to the students at the Utah School for the Deaf.

9. Students in Oral and Total Communication programs conducted at the school and students who attend public schools shall be separated through the junior high school years; students at the high school level, residential or day school, shall not be separated socially.

10. The school shall operate an extension program in the state wherever there are sufficient students at a homogeneous level to justify a class. All off-campus classes for the deaf will be under the administration of the school. Classes for Oral and Total Communication programs shall not be conducted in the same facility. The State Board of Education shall annually set aside sufficient distribution units for allocation to school districts for programs of the deaf to enable the School for the Deaf to conduct the required extension classes.

11. A continuous study of the professional and support personnel needs to serve the deaf student shall be conducted by the Division of Instructional Support Services of the State Board of Education in cooperation with the school and the University of Utah. Factors to be included in the study are:

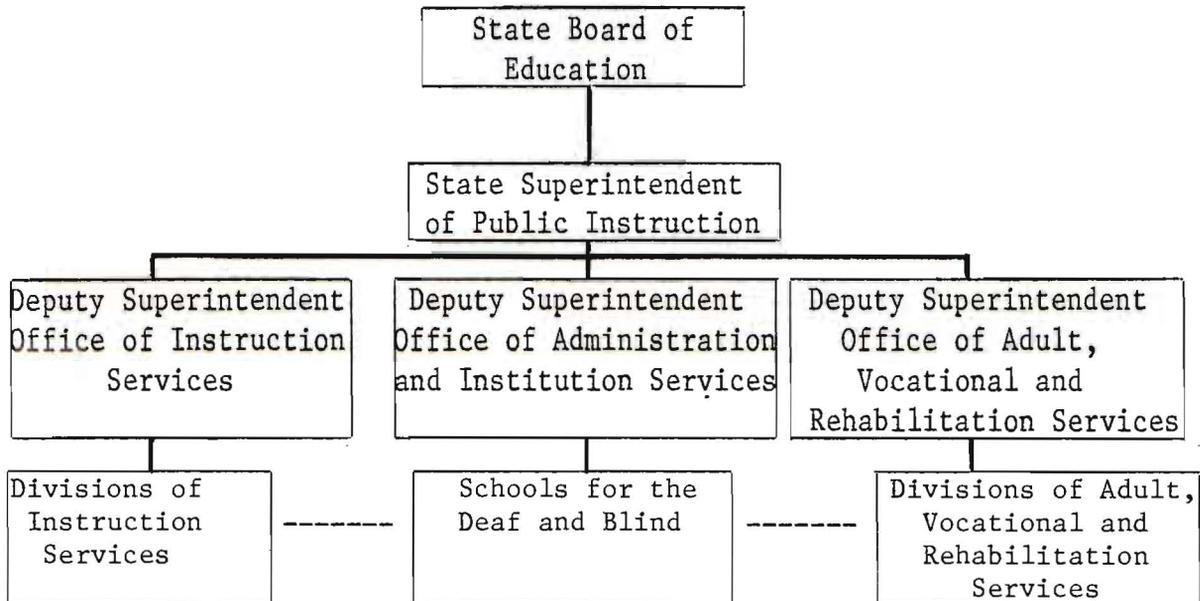
- a. Job categories needed, including aides, specialists, paraprofessional, and professional personnel.
- b. Curricula at the teacher training institutions necessary to train personnel for each of the required job categories.
- c. Certification and licensure standards necessary to properly credential each required job category.
- d. Vertical and horizontal mobility from one occupation to another.
- e. Reciprocity among states.

As a means of initiating this study program, the State Board of Education shall select a broadly based committee, consisting of membership drawn from teacher training institutions which prepare educational personnel to serve the deaf and other professional and lay groups, which shall within a period of not to exceed one year report to the Board its findings and recommendations. Additionally, the State Board of Education shall request the University of Utah, through the State Board of Higher Education, to conduct a study to determine if its curriculum is adequate to meet the professional and support personnel needs of the deaf community. The Board shall also request that the Study Committee and the University of Utah harmonize the two studies for greater affect and impact upon the School for the Deaf.

12. There shall be an in-service training program at the school, conducted on a continuous basis, under the direction of the Superintendent, which shall deal with methodologies employed and policies effected, designed primarily to develop within the faculty such cooperative endeavors as will best serve the deaf child.

13. Every effort shall be made by the administration at the school to effect harmony among the school patrons representing differing instructional methodologies. Periodic meetings shall be held for the membership of each group and combinations of the two for the purpose of defining commonalities that may be shared. The administration shall utilize the PTA and the Governor's Advisory Council to the extent possible in this endeavor.

14. The State Board of Education shall direct that the various divisions of the Office of the State Superintendent of Public Instruction shall provide consultative services to the school and extension classes under its direction, subject to the supervision of the administration of the school. The line and staff organization for the operation of the school shall be as follows:



15. The school shall continue to develop the capacity both in staff and facilities to serve the multiple-handicapped whose handicapping conditions include deafness. Continuous research and experimental programs shall be conducted for both Total Communication and Oral departments. (This policy is not intended to affect the study of the Deaf-Blind currently underway by a committee appointed by the State Board of Education.)

16. Relationships between faculty and students at the school shall reflect mutual respect for individuality and responsibilities of members of both groups. Students shall be subject to faculty direction and to all rules and regulations promulgated by the school in accordance with the basic policies described herein. The Superintendent of the School shall have authority to suspend students whose behavior is threatening to fellow students or which reflects disregard for the rules of the school. Such suspension shall specify conditions under which the student may return to the school and shall be stated to the student and to his parents or guardian. The superintendent is authorized to use law enforcement personnel to enforce order; use of corporal punishment by faculty is prohibited.

It should also be explained that the Utah Statutes established an Advisory Council, commonly referred to as the Governor's Advisory Council for the Schools for the Deaf and the Blind. Members of the Council are appointed by the Governor and their duties are to make recommendations to the school and to the Utah State Board of Education concerning education at the two schools. This Council has three open meetings each year, when

they invite groups and individuals to come and make recommendations concerning the two schools. It was this Council that participated in the study in cooperation with a special task force and made recommendations that resulted in the Board adopting the 1970 policy. The writer serves as Secretary to the Council.

There are many proponents of each philosophy of educating deaf students at the School for the Deaf, and many of these individuals believe that the philosophy they espouse should be the sole philosophy of the School. Most of the adult deaf community are proponents of "total communication." Within the last few years, they have learned the procedures to make their wants known, and it is partly due to their efforts that the study was conducted which eventually resulted in the policy now in force at the School.

The controversy between "oral" and "total communication" is nationwide but perhaps is more heated in Utah because of the teacher training program located at the University of Utah in Salt Lake City. The philosophy of this program for prospective teachers is oral, and they are proponents of "mainstreaming." Their influence is strong. Most of the parents of hearing-impaired children who support the oral philosophy are hearing persons.

#### B. The Problem

Dr. Walter D. Talbot, State Superintendent of Public Instruction, sent a letter to the writer with an excerpt as follows:

September 22, 1976      Memorandum

To:        Jay J. Campbell and Vaughn L. Hall

From:     Walter D. Talbot

"Would you undertake two studies:

1. How can we strengthen programs for the deaf? This would include programs at the school as well as in districts or provide alternatives to both.
2. Is there a gap between training at the School for the Blind and training for the Adult Blind? How can these programs be articulated better so they are mutually supportive and viable?

Your attention to these two matters would be appreciated."

This paper relates to number one above.

#### C. Sources of Data

Data were collected as follows:

1. Dr. David Nelson, Acting Director of the Planning Unit, was asked to summarize and analyze the evaluative research on communication methods used in educating the deaf.
2. Mrs. Nancy Abraham, Administrator of the Division of Internal Support Services was asked to visit deaf children in school districts to determine how well they were functioning in the regular program.
3. Dr. Maurice Barnett, Administrator, Division of Data Processing, was asked to interview a selected sample of parents to determine their recommendations.
4. Recommendations were solicited from every teacher and administrator at the School for the Deaf.
5. Recommendations were solicited from two national leaders in deaf education.
6. Dr. Robert G. Sanderson, Coordinator, Services to the Deaf, was asked to conduct two meetings - one in Ogden and the second in Salt Lake City, to determine the perceptions and recommendations from former students of the School for the Deaf.

7. Recommendations were selected from professional interpreters of the deaf.
8. Recommendations were solicited from professional counselors of the deaf.
9. Observations and subjective feelings of the writer were made.
10. A research study, headed by Dr. Richard Keene, Division of Research and Development, Utah State Board of Education, was requested and undertaken at the writer's request. This study has just been concluded and is included in this paper.

SUMMARY AND ANALYSIS OF EVALUATIVE RESEARCH ON  
COMMUNICATION METHODS USED IN EDUCATING THE DEAF

This section of the paper was prepared by Dr. David E. Nelson, Evaluation Specialist and Acting Director, Planning Unit, Utah State Board of Education. It is included in its entirety in this section of this study as submitted to the writer.

SUMMARY AND ANALYSIS OF EVALUATIVE RESEARCH ON  
COMMUNICATION METHODS USED IN EDUCATING THE DEAF

At the request of Associate Superintendent of Public Instruction, Dr. Jay J. Campbell, the Planning Unit of the Utah State Board of Education undertook a review and analysis of the literature bearing on the problem of differential effectiveness of methods of communication used in educating the deaf.

The purpose of this study was not to report a comprehensive review of literature of all research or evaluation studies pertaining to the characteristics and efficacy of instructional or communication strategies or developmental patterns of the deaf. Such reviews have been accomplished and reported in a variety of publications. Rather the purpose here was to examine a large collection of literature which might pertain to the issue of differential effectiveness of some major communication approaches (with emphasis on total communication and oral communication), and then to present whatever conclusions seem warranted from that review. Thus, while certain key studies will be reviewed at some length here, this treatment will be confined basically to studies which are relatively recent and may not have been reviewed elsewhere, or studies which have over-riding relevance to the issues at hand.

The approach used to accomplish this review and analysis included: an independent library search by the author, several computer based searches using the ERIC information retrieval system, as well as personal contacts with professional educators and rehabilitation personnel representing the two major points of view in regard to communication approaches for educating the deaf in the State of Utah.

One of the more striking things, stemming from the review of a great quantity of research and other documents produced bearing on the controversy over communications approaches for the deaf, is the abundance of emotional arguments, appeals to authority, and otherwise non-empirical arguments used to support the various methods. In most cases, where some form of empirical investigation has been accomplished, the studies are simplistic and fail to deal with the full range of complexities which characterize the problem.

In the review and analysis which follows, an attempt will be made to examine several categories of evaluative research which have relevance to the issue of the utility or effectiveness of various communication methods for educating the deaf. The categories to be examined are as follows:

- I. Studies Dealing with the Effects of Early Manual Communication.
- II. Studies Demonstrating the Effectiveness of the Total Communication Approach.
- III. Studies Demonstrating the Effectiveness of the Rochester Method.
- IV. Studies Demonstrating the Effectiveness of the Oral Communication Approach.
- V. Studies Which Have Failed to Demonstrate a Difference in the Impact of Different Communication Methods.
- VI. Summary of Recommendations.

As stated at the outset of this report, there will be no attempt to review exhaustively all relevant literature pertaining to this problem. Rather, the emphasis is on analytic review and, in some cases, studies will simply be cited as relating to a particular category. In other instances, and in particular in the case of recent important studies, a more detailed review of research will be presented.

The categorization of studies described above is not intended to imply that the matter of identifying appropriate communications approaches for educating any particular child or group of children, at any given level of deafness, is simply a matter of the selection of the communication technique which can demonstrate a superior track record in evaluative research. If any one point becomes exceedingly clear, after reviewing a considerable quantity of research in this area, it is that this area is one of tremendous complexity. Very few of the studies which will be referred to in this report begin to do justice to the complexity of the problem. Thus issues such as: How does a particular communication strategy interact with the level of deafness, age of onset of deafness, intelligence, and other individual differences are not well treated in this body of research. Thus, the problem is not a simple one of identifying the one most effective strategy for all deaf children. Unfortunately, many of the researchers in this area have accomplished studies which tend to reduce the problem to just that simplistic status. An attempt will be made to deal in greater detail with those studies showing more specificity and sensitivity to the complexities of the problem.

#### I. Studies Dealing with the Effects of Early Manual Communication

Basically during the 1960's and early 1970's, numerous studies were made of the effects on later academic achievement and intelligence of early exposure to manual communication in the home. These studies were made on a variety of different groups of deaf children. These studies, including those by Meadow (1968), Stuckless and Birch (1966), Brill (1970), Vernon and Koh (1970), and Denton (1965), among others, are reviewed in Education of the Hearing Impaired in Utah. (Utah State Board of Education, 1972). The typical procedure in this set of studies was to match children

of manually communicating deaf parents with deaf children of hearing parents and examine general ability and academic achievement outcomes at some later point during their schooling process. Most of the studies deal with young children. The results of the studies, almost invariably, indicated that the deaf children of manually communicating deaf parents achieved at levels significantly higher than did the deaf children of hearing parents. This was found to be the case for a variety of academic and general ability outcome areas.

One issue here is whether or not these studies address themselves to the issue of the superiority of one of the major communication strategies used in educating the deaf. Critics of these studies, including Nix (1975), argue that the studies cited above and several other similar studies were not really structured to test the efficacy of total communication as compared with oral communication, in particular. The most crucial aspects of Nix's criticisms relate to inappropriate control groups and the failure to control many of the systematic biases in this group of studies. Nix also points out that the studies tend to select children only from public residential schools for the deaf. Nix's criticisms of this group of studies, while probably overly concerned with academic precision, do hold in many instances. Studies like those in this category cannot be taken as definitive evidence for the superiority of total communication over other communications approaches. As a group, however, the evidence presented by the studies cannot be ignored.

Charro and Fletcher (1974) administered the Test of English As a Foreign Language (TOEFL) to thirteen deaf adolescents with hearing parents. Hearing loss for the total group was at least 65 decibels in the better ear.

Subjects in the hearing parent group were slightly older than those in the deaf parent group; however, I. Q. and hearing loss were essentially equivalent in the two groups.

Some of the more important results of the study showed that the deaf students with deaf parents scored significantly higher than did deaf students with hearing parents on the Paragraph Meaning and Language Subtest of the Stanford Achievement Test and on all subtests of the Test of English As a Foreign Language. The authors conclude:

From the present study and from Meadows (1968) earlier study, it seems probable that deaf children of deaf parents possess an understanding of English that is superior to that of deaf children of hearing parents. Whether or not early experience with sign language is the genesis of this superiority requires further investigation. The question of what kind of sign language the deaf child learns is also important. Early experience with American Sign Language, Signed English, Seeing Essential English, etc., may differentially affect later facility with English (p. 468).

Additional analysis demonstrated that for the children of deaf parents, English was a second language and for the children of hearing parents, it tended to be the first language acquired.

## II. Studies Demonstrating the Effectiveness of the Total Communications Approach

The group of studies just mentioned in category I provide supportive but hardly conclusive evidence relating to the effectiveness of the total communication or various manual communication approaches. The following studies are relatively recent and do deal more explicitly with demonstrations of the effectiveness of total communication on specific populations of deaf children. Because they have not been reviewed elsewhere, several of the more recent evaluative research studies will be reviewed at some length here. While these studies vary in scientific precision and approach,

they each demonstrate to different degrees the relative effectiveness of the total communications approach when contrasted with other methodologies. One of the weaker studies in this group, technically speaking, was accomplished by Furfey (1974). This study compared, through a rating procedure, the graduates of a Baltimore area oral school and graduates of an area total communication school. The rating procedure used was subjective, being based on expert judgments of the study staff, ranging from "no communication skills" to "excellent." This of course suggests the introduction of rater biases into the findings. Assuming this was not an overriding contaminating factor, the results demonstrate differences in favor of the "totally" educated students in their ability to communicate with other deaf people. No difference was observed in the ability of the two groups to communicate with other hearing individuals.

Moore, Weiss, and Goodwin (1974) accomplished a study dealing with the evaluation of seven pre-school programs for the deaf. The programs included several different educational philosophies and methodologies. The seven programs examined could all be classified as either (a) oral-aural, (b) Rochester Method, or (c) total communication. A total of 61 children were sampled from the seven different programs. All students were selected on several classification criteria including age, hearing loss of 70 dB's or greater, intellectual ability, and lack of other handicaps.

In respect to the impact of communication methodologies, the study concluded that, based on the Receptive Communication Scale, in the area of "person-to-person" communication, the least efficient mode was sound alone.

Performance on the Scale was observed to increase with the addition of communication components beyond just sound with the most effective combination being sound, speech, reading, finger spelling, and signs. It was also observed that:

"The teacher to child communication most frequently used is oral followed by combined and sign. Teachers are increasingly more consistent in following the expressed philosophy of a program in Oral-Aural, Rochester, or Total Communication. There are no pure programs. Teachers and programs which are committed to simultaneous oral-manual instruction frequently speak without signing or finger spelling. Conversely, teachers devoted to oral-only instruction tend to gesture to such an extent that mode can only be described as oral-gestural." (p. 7).

The investigators also observed that students enrolled only in oral instructional programs experienced restricted classroom communication and actually tended to develop inefficient gestural systems.

The study concluded that children who had been integrated into regular school situations or "mainstreamed" did not differ from children in residential schools in terms of intelligence, reading, arithmetic achievement or over-all communications abilities. The authors concluded that, "Mainstreamed students had better speech before they were placed in regular classrooms. Children do not speak better because they are integrated; they are integrated because they speak better."

Weiss, Goodwin, and Moores (1975) reported a further analysis of the same data base analyzed by Moores, et al (1974). The authors again concluded that:

"Results of the Receptive Communication Scale reveal a hierarchy of intelligibility across the modes of communication tested. The least efficient receptive mode was sound alone; performance improved with the addition of speech reading and further improvement was noted in the sound and speech reading plus finger spelling mode. The sound and speech reading plus sign language mode was proved to be the most efficient mode of receptive communication." (p. 131).

Characterizing their entire longitudinal study of the performance and intellectual characteristics of children, the authors note that:

"...there exists within programs a complex interaction among program emphasis, structure, orientation, and methodology; hence, it is this complex interaction rather than specification of any particular methodological approach to education which seems critical to success in school." (p. 133).

Brasel and Quigly (1975) have accomplished one of the most sophisticated pieces of evaluative research dealing with the efficacy of various communication methods in teaching the deaf. This study sought to overcome the methodological limitations of previous somewhat similar studies by attempting to control various environmental variables and thus accomplish a superior evaluation of the effects of communication methods on later syntactic ability. Examined were the syntactic language abilities of a sample of deaf children of different ages. Subjects were selected according to the language competence of their parents and the type of early language and communication environment their parents provided. Four groups of subjects were identified between the ages of 10 and 18.1 years. The groups, with 18 subjects each, were classified by whether parents were hearing or deaf, and further classified by the language ability of parents if they were deaf, as well as by the amount and intensity of oral pre-school training if the parents were hearing. The four groups were characterized as a manual English group, an average manual group and intensive oral group, and an average oral group. These classifications were based on the intensity and formality of early communication training.

The authors observed that: "The results showed significant superiority of the manual English groups over the two oral groups on five of the six major test structures of the Test of Syntactic Ability." In respect to academic achievement on the Stanford Achievement Test, the manual

English group was superior to the other three groups on all four subtests. This group was from one to four grades' equivalents ahead of any of the other groups with the average manual group ranking second.

In regard to an analysis of written language samples, the manual English group was observed to out-perform the average manual and the two oral groups, but the only significant difference was between the manual English and the average oral group.

The authors summarized their findings as follows:

"Regardless of differences between the growth curves across the age categories, the study found that there were significant differences between the manual and the oral groups on every test measure employed. This is most likely due to the early communication made possible by the use of manual communication, particularly where the form of manual communication used is manual English." (p. 131).

White and Stevenson (1975) examined the effects of total communication, manual communication, oral communication, and reading on the learning of factual information on a sample of residential school deaf children. This study sought to compare the basic modes of communication in an experimental context in respect to students from the Maryland School for the Deaf with a mean hearing loss greater than 65 dB's. WISC I. Q.'s were greater than 60 and students were between the ages of 11 and 19 years of age. A stratified random sample of 45 subjects was classified as to communication methods with the following categories: (a) total communication; (b) simultaneous communication; (c) manual communication (d) Rochester Method; (e) oral communication.

The major results from the study were summarized by the authors as follows:

"It was found that (1) all categorical sub-groups assimilated more information through reading; (2) all sub-groups assimilated more information through total and manual

communication than they did through oral communication; (3) there was no significant difference between manual and total communication (in the mode of communication leading to more learning) (4) bright, average, and low functioning deaf children do not differ from each other in their ability to assimilate information when it is presented orally; however, average and bright deaf children can assimilate significantly more information than their lower I. Q. peers when information is presented through total communication, manual communication, or reading." (p. 48).

Thus, the authors observed that "...instructing average and bright deaf students using a pure oral method would result in the assimilation of significantly much less information than they are capable of receiving."

A final study in this group was accomplished by Chasen and Zuckerman (1976). This study examined the effects on mathematics achievement, lip reading, general communication abilities, and parent and teacher impression of an oral and a total communication program in the New York City Public School for the Deaf. The samples of children selected were small, consisting of seven in a total communication class and eight in an oral class. All students were classified as profoundly deaf.

The authors concluded: "The total communication class improved significantly more than the oral class in mathematics, general communicative abilities and teacher impressions of communicative abilities, while both classes improved at the same rate on lip reading skills, reading, and parent impressions of communicative abilities."

This study obviously suffers from the small number of students who were tested as well as the fact that only one teacher was involved with each group. Thus, generalization becomes a very tenuous matter. The nature and direction of the findings, however, do support other larger studies tapping similar variables.

Four of the studies in this group of six, including those by Moores et al; Goodwin et al; Brasel and Quigley; and White and Stevenson, represent significant contributions to the evaluative literature in this area. They appear to be technically superior to previous studies and more relevant to the issue of the differential effectiveness of various communication methods. Basically what these and the other two studies reviewed demonstrate is that across situations and populations of deaf children, the addition of communication modalities to oral communication alone results in later superior achievement and skills.

### III. Studies Demonstrating the Effectiveness of the Rochester Method

Several studies in the literature deal with analysis of the effectiveness of the Rochester Method of combining oral approaches with finger spelling.

Quigley (1969) in his study, The Influence of Fingerspelling on the Development of Language, Communication, and Educational Achievement in Deaf Children reported both a follow-up study and an experimental study dealing with the effectiveness of the Rochester Method. The purpose of both studies was to "examine the effects of the use of combined speech and fingerspelling (the Rochester Method on the development of language, communication, and educational achievement in profoundly and prelingually deaf students.)"

The follow-up study included 200 children from six residential schools for deaf children. Three of these schools were using the Rochester Method, while the other three employed a total communication approach. The study demonstrated that students in the Rochester Method schools scored significantly higher than students in the total communication schools in

their (a) ability to read fingerspelling, (b) most measures of educational achievement, and (c) measures of written language ability. No significant differences were found between these two approaches in these schools on measures of (a) speech reading ability, and (b) speech intelligibility.

In the experimental portion of Quigley's research, 16 deaf children in a residential school who had been taught using the oral method were matched with 16 deaf children in controlling for the influence of extraneous variables. Results demonstrated that the children taught with the Rochester Method had significantly higher mean scores on measures of (a) ability to read fingerspelling, (b) five of seven measures of reading ability, (c) three of five measures of written language ability, and (d) one of two measures of speech reading ability.

Quigley concludes:

"The data from the experimental study show consistent and significant superiority of the experimental group on almost all of the measures used in the study. Not only did the experimental subjects exceed the comparison group on reading and written language ability, they also exhibited superiority in the measures of speech reading ability. It can be concluded that better results were achieved by the Rochester Method than by the oral method for the particular children and schools involved in the investigation." (p. 93).

Quigley (1969) in analyzing several studies on the effectiveness of the Rochester Method notes that:

". . . the results of the studies on fingerspelling indicate that when it is used appropriately in combination with good oral techniques it can be a useful tool in helping develop language and communication in the child who is deaf. It does not provide any panacea for his problems. It would also seem to be a grave disservice to children who are deaf to provide fingerspelling or some other form of manual as a substitute for oral communication. Fingerspelling, in instructing deaf children, should be a supplement to oral techniques and not a substitute for them." (p. 109).

Another fairly recent study by McClure (1975) provides much weaker evidence for the advocacy of the Rochester Method. This study, while not really testing the Rochester Method against any other discrete communication system did demonstrate that at the Florida School for the Deaf and Blind, the introduction of the Rochester Method of Fingerspelling resulted in achievement gains for students over levels which had previously been realized in a basically oral program. The major comparisons the study offered, however, were between achievement test scores in the Florida school ages 8 through 14 and national comparison samples of deaf students in residential and nonresidential settings. While the results did indicate higher level performance for the Florida students, the contribution of extraneous variables to the results clouded the results of the study.

Both the survey and experimental studies reported by Quigley are significant contributions to the evaluation research in the area of differential effectiveness of communication methods. It seems clear from Quigley's results that the Rochester Method, as described when used with deaf children from the populations tested, can have significant benefits.

#### IV. Studies Demonstrating the Effectiveness of the Oral Approach

Recent methodological sound investigations demonstrating the differential effectiveness of the oral-aural approach were not discovered in the literature. Other reviewers have also failed to discover such investigations. Several studies have, at one time or another, been offered as evidence for effectiveness of the oral approach, but each of these seems far less than convincing. Among those which have been cited at one time or another are: Pinter (1918); Hughes (1961); Quigley and Frisina (1961); Quigley, Jenne, and Phillips (1968); Kates (1972); Bentzen and Knudsen(1968);

and Lane (1976). These studies do not offer the same kind of comparative analysis of differential methods presented in the section dealing with the effectiveness of the Rochester Method or total communication.

Kates (1972), reported a study which examined the reading levels of students who had been in an oral residential program as contrasted with students in six residential schools, three of which were total communication and three Rochester Method schools. Results of the study showed reading levels nearly two grade equivalents higher for students in the oral residential school than for students in the combined total and Rochester schools. This study, however, did not effect enough control over contaminating factors such as equivalency of groups of students to be conclusive.

Lane (1976) reported a study which analyzed data from 731 deaf adults who had been enrolled at an oral residential institution between 1914 and 1969. The author concluded that success in oral education of the deaf could not be attributed to the age of onset of deafness, amount of residual hearing or superior intelligence. In analyzing academic achievement results for oral students on whom data was available, Lane points out that the performance of this group of orally educated students is in excess of figures compiled in national surveys of educational achievement of representative samples of deaf students. In terms of later schooling of students enrolled in this program, the author notes that:

"The encouraging evidence of academic success is that of the total population: 54.7% were integrated into schools of the hearing; 47.6% graduated from high schools for hearing children; and 37.5% enrolled in college, (24% in colleges for the hearing and 13.5% in colleges for the deaf)."

Lane also cites a variety of subjective evidence and testimonials of the students who have been involved in this program. Again, in the absence of necessary controls, we cannot draw conclusions about the relative effectiveness of the oral method from this study.

Bentzen and Knudsen (1968) report a follow-up study which is very similar to the Lane study. Their report deals with students educated in an oral program at the Vejle Oral School in Denmark. The study examined results from 71 former pupils, 59 of which had hearing losses of at least 60 dB's. The Bentzen study notes that slightly under half of this group are married at this point in time and that 14 of the school graduates have completed normal secondary education in technical and industrial schools without the assistance of interpreters. Further noted is the fact that few of the group have used hearing aides especially early in training. The authors note that:

"This circumstance clearly demonstrates the effectiveness of the oral method, as the educational program together with retaining the child in his own home must bear the major responsibility for the fact that these 59 deaf and severely hard of hearing children have learned to speak." (p. 131).

In summarizing their study, the authors conclude that:

"The follow-up survey indicates that, even without the use of a hearing aid until after the 7th year, the oral method is able to rehabilitate the language and speech defects of deaf and severely hard of hearing persons to such a degree that these individuals are able to get along among normal people in society." (p. 131).

An analysis of the empirical evidence offered for the oral approach suggests that the comparative effectiveness of this approach has not been demonstrated in a group of studies which are often cited as providing evidence for effectiveness. The two follow-up studies reviewed above do

suggest that certain types of benefits such as easy integration into the hearing society may accrue to students who have experienced an oral education and that these benefits seem to accrue across a fairly wide range of hearing loss. It must be concluded, however, that an empirical study using appropriate controls demonstrating the comparative effectiveness of the oral approach has not been accomplished, whereas the comparative effectiveness of manual and total communication has been demonstrated.

It should be noted here that many educators who are advocates of oral approaches base their positions not on comparative evaluative studies, such as has been the focus in this report, but rather on other grounds.

John and Howarth (1972) summarize this position:

"It is on evidence that an auditory means of communication is available to deaf children that the proponents of oral education base many of their arguments. The reasons advanced for preferring a particular communication system do not have to be founded on direct trial and comparison of teaching media; indeed as we have seen such comparisons are almost impossible to make since there are so few schools in which oral communication inside and out of the classroom, is consistently being maintained. However, valid arguments for placing deaf children in a consistently oral environment can be inferred from studies of auditory perception, the acoustic properties of speech and of general communication theory."

A variety of philosophical and value oriented arguments are also advanced for the use of oral communication as a primary means of teaching the deaf. Most of these relate to the fact that our society is basically a hearing society and that failure to facilitate integration into a hearing society using oral techniques causes severe cultural and psychological handicaps for the deaf. These types of arguments are further supported by reference to the complexity of the spoken language as contrasted with the possible information that can be conveyed in some manual communication system. John and Howarth summarize some of these arguments as follows:

"Spoken language contains information in parts of the spectrum which can be made audible to deaf children. It is argued that, if they learn to interpret this information, they can learn to communicate by speech, which is more efficient than other media. As a human being, a deaf child is biologically equipped to learn to speak; if he does so, his self-image and other people's image of him will be more human." (p. 1).

V. Studies Which Have Failed to Demonstrate a Difference in the Impact of Different Communication Methods

Several rather interesting recent studies have failed to demonstrate any difference in certain classes of educational outcomes and aptitudes based on exposure to different types of communications approaches. These studies will be summarized briefly here.

Sanderson (1974) examined the impact on General Aptitude Test Battery performance aptitudes (Motor Coordination, Finger Dexterity, and Manual Dexterity) of total communication and oral communication backgrounds of deaf students enrolled in Utah institutions for the deaf. The major results of this study demonstrated no differences between the performance aptitudes of the students from these two backgrounds on their later GATB scores.

More significantly, however, this study confirmed the findings of several other studies which had demonstrated marked differences between the verbal oriented sub-tests of the GATB, including Verbal and Numerical scores, and the performance aptitudes. The latter were demonstrated to be much higher in both the Sanderson study and an Oregon and Minnesota study.

In point of fact, there is likely little reason to hypothesize differential performance aptitudes for students in the different communications programs which were dealt with here. However, the consistent finding noted in the area of GATB performance aptitude averages suggests

areas of aptitude strength in the deaf population which should be capitalized on in job training and placement.

Goldstein, Delacroix, and Wells (1975) reported a follow-up study dealing with the characteristics of students enrolled in the Delgado academic and vocational education program for the deaf. The study sought to identify predictors of success in vocational education. In reference to communication methods background, the authors concluded:

"The student's ability to communicate orally or manually apparently has little influence on either his test scores during the program or success afterwards. Part of this lack of relationship was probably due to the finding that only one out of four students had an oral background." (p. 13).

The interesting aspect of this study is the emphasis on attempting to identify several classes of predictors including communication backgrounds and other individual differences and using these predictors in attempting to forecast both success in training and later success on the job. Studies of this nature have considerable potential for unlocking just what the key variables are in educating the deaf which may be related to later success in educational, occupational, and other settings.

Still another example of this type of analysis is provided by Andler (1970). In summing up a number of studies related to the Vocational Rehabilitation of the deaf the author notes that:

"The success of deaf persons in a wide variety of occupations, regardless of degree of hearing loss, indicates that other factors than deafness determine success or failure in vocational pursuits. A later age of onset of deafness was indicated in one study to be related to vocational achievement. It was pointed out that the normal early language development of persons who do not incur hearing loss until after the age of five or six, enables their education to proceed more along the lines observed in normally hearing persons." (p. 72).

While both of these examples of follow-up analysis present modest information, the approach taken would seem to have real value.

Bechmeyer (1976) has reported a study demonstrating that combined modes of communication do not produce better learning than using component modes singularly. His study was accomplished on a group of 22 deaf subjects with a mean age of 13 years 6 months, and who had profound hearing loss.

Based on the results of the Moores, et al, study (1974) reviewed earlier in this report, Beckmeyer attempted to determine which mode or combination of modes of communication including oral, sign language, finger spelling, oral-finger spelling, and oral-sign language were most effective in a teaching learning situation. Results showed there were no significant differences between the oral mode and sign language on a task calling for correct recall. Contrary to the conclusions reached by Moores, et al, Beckmeyer found that the combined modes were not superior to either oral or sign language modes but were superior to fingerspelling.

#### VI. Summary and Recommendations

A major conclusion which must be drawn from analysis of the evaluative research dealing with the effectiveness of various communication approaches in educating the deaf is that much potentially useful research has yet to be done. The evaluative research which does exist in this area covers a great range of technical precision from very crude to rather sophisticated. Very few studies can be characterized in the latter category. The following is a summarization of the conclusions drawn in the body of this report.

An analysis of studies dealing with the effects of early manual communication showed that for the profoundly deaf, these studies, as a group, provided some evidence of the overall effectiveness of manual and total communication approaches as contrasted with oral communication approaches. For the hearing handicapped students who are other than profoundly deaf, however, it was concluded that this group of studies does not in itself represent an empirical demonstration of the superiority of the manual or total communication approaches to educating the deaf.

Recent studies reporting results favorable to the use of manual and total communication approach were judged to be more relevant and sounder technically than some of the earlier work which had been reviewed. The major conclusion drawn from a review of several recent, methodologically sound, studies was that across situations and characteristics of deaf children, the addition of other communication modalities to oral communication alone results in later superior achievement and skills. This conclusion seems strengthened by the studies reviewed dealing with the effectiveness of the Rochester Method, although here the weight of the evidence suggested that the addition of fingerspelling to oral approaches alone was the key consideration in achieving educational outcomes superior to either the oral method or total communication.

The literature reviewed relating to the effectiveness of the oral-aural approach failed to disclose significant evaluative research documenting the effectiveness of this method. Several studies were reviewed which dealt with the utility of this approach in specific situations. These studies, however, lacked the scientific rigor necessary to make conclusions about the effectiveness of the oral approach as distinct from

other communication approaches. It was noted that many advocates of the oral approach reject the usefulness of empirical studies purporting to test the effectiveness of various communications methods for a variety of reasons. Thus, much of the support of this method is found in arguments based on philosophical or other value considerations, in analysis of the superiority of the spoken language as a communication medium, and the cultural stigma which may be attached to the use of manual communication approaches.

Based on this review analysis, the following recommendations seemed warranted:

- 1) The Office of the State Superintendent of Public Instruction should continue to review and analyze relevant literature relating to the effects of communication methods used in educating the deaf. Such review and analysis should be formalized on some regular basis and issued in the form of a report.
- 2) A continuing program of research on the effectiveness of Utah programs for the deaf should be encouraged. Relationships between student characteristics (such as degree of hearing loss), teacher characteristics (such as hearing ability and training), and classroom practices (such as mode of communication) should be initiated.
- 3) Evaluative research should be sought which attempts to identify and measure a large number of critical variables which may have a bearing on the effectiveness in using any particular communication method with any particular student. That is, there is a need to go beyond global evaluations and identify key student characteristics which are predictive of success if the student is enrolled in either a total communication, an oral communication, or some other program.
- 4) There is an obvious need to identify through research the links between assessments of deafness, personality characteristics and other individual differences and recommendations of a particular program for deaf students.

To summarize, at this point in time the selection of a particular communication method for educating any given deaf child seems to be more a matter of attitudes, values, and philosophical considerations than judgment based on scientific research. Although there are conflicting research findings, the weight of the empirical evidence suggests that with profoundly deaf children, methods using more than just oral communication are usually to be preferred. Other points of view would suggest that the oral approach used singularly has merit, but such suggestions are not based on firm scientific evidence. Nix (1975) stated the problem very well:

"The task facing the profession today is not to find a panacea for all children, but rather to work toward development of quality programming which includes alternative approaches and improved diagnostics for selecting the "best" educational alternative for each individual hearing-impaired child." (p. 494).

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