

# ARA NEWSLETTER

February, 1968 Urbana, Illinois

VOLUME I NUMBER II

Academy of Rehabilitative Audiology

## OFFICERS

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## EDITOR-NEWSLETTER

Francis L. Nasca  
Speech & Hearing Clinic  
University of Illinois  
Champaign, Illinois

## SUMMARY OF MEETING

The Second Annual Meeting of the Academy of Rehabilitative Audiology was held on the evening of October 31, 1967 at the Illinois Eye and Ear Infirmary. Dr. James A. Sonnega, Psychiatrist at the Hawthorne Center, Northville, Michigan spoke to the group. His topic was, "Communication Pragmatics: Psychiatric Contributions to the Rehabilitation of Children with Hearing Problems." A Panel of Discussants--Bruce Siegenthaler, Bruce Graham, John O'Neill and June Miller reacted to his presentation.

Dr. Sonnega's presentation was quite stimulating in that he was uniquely qualified for this discussion having received his Bachelor's and Master's Degrees in Speech Pathology at the University of Michigan.

A Business Meeting followed. The Minutes of that Meeting will appear in the next issue of this Newsletter.

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Send in your reports of research in progress, clinical innovations, letters to the Editor, Theses abstracts. We need them. We are supposed to communicate about Rehabilitative Audiology. Don't let us down!

Address your contributions to:

Francis L. Nasca, Ph.D.  
Speech and Hearing Clinic  
University of Illinois  
601 E. John Street  
Champaign, Illinois 61820

\* \* \*

THE FOUNDING ELEVEN - - - PLUS FOUR

Biographical Sketches

Francis X. Blair  
Associate Professor of  
Exceptional Education  
University of Wisconsin  
Milwaukee, Wisconsin

This program was one of the original six funded by the U.S. Office of Education in the area of learning disabilities (1964).

EDUCATIONAL HISTORY

- University of New Hampshire, B.A., 1949
- Northwestern University, M.A. 1951
- Northwestern University, Ph.D. 1955

PUBLICATIONS

- "The Visual Memory of Deaf and Hearing Children", American Annals of the Deaf, 102 (1957).
- "The Temporary Enrollment of Hard of Hearing Children in Educational Programs for the Deaf", Volta Review, 59 (1957).
- "Some Preliminary Data Regarding Criteria for Classifying Children with Aphasia", Proceedings, Wisconsin Educational Research Association, October, 1962.
- "The Auditory Dimensions of Language Disorders in Children" (with Richard Merklein), unpublished research paper, School for Research on Language Disorders, University of Wisconsin-Milwaukee, 1963.
- "An Investigation of Unusual Learning Difficulties Among Deaf Children", multilithed, distributed by Bureau for Handicapped Children, Madison, Wisconsin, 1964.
- "Problems in the Habilitation of Aural Deficiency (Auditory Learning Disorders)", Aural Rehabilitation of the Acoustically Handicapped, Proceedings of Conference, Contract VRA 66-41, Michigan State University Press, 1966.
- "The Auditory Memory Span of Children with Language Disorders Under Varying Conditions of Response", (With Miss S. Safer, in preparation).

PROFESSIONAL EXPERIENCE

- 1953-1956 - Audiologist and Educational Programmer, Pennsylvania Department of Public Instruction.
- 1956-1960 - Assistant Professor of Speech and Hearing, Kent State University.
- 1960-1961 - Assistant Professor of Audiology, Vanderbilt University.
- 1961 to present - Assistant-Associate Professor, University of Wisconsin-Milwaukee.

Present Responsibilities

Director, Special Learning Disabilities Laboratory, the University of Wisconsin-Milwaukee. This is a program for children having a variety of learning disorders involving verbal language, visuo-motor function, reading and writing. It consists of special classes enrolling 27 children and a clinical program of 15 children.

Mary Rose Costello  
Department of Otology  
Henry Ford Hospital  
Detroit, Michigan

Dr. Blair is also coordinator of the teacher training program associated with the Laboratory.

EDUCATIONAL HISTORY

Washington University (Central Institute for the Deaf), B.S., Education of Deaf and Speech Correction  
 Northwestern University, M.A. and Ph.D., Audiology

PROFESSIONAL EXPERIENCE

1939-1953 - Atlanta Speech School, Executive Director  
 1948-1953 - Emory University, Lecturer  
 1954-1956 - Northwestern University, Lecturer (summer)  
 1956 to present - Henry Ford Hospital, Associate, Otolaryngology  
 1958 - Wayne State University, Lecturer  
 1966 to present - Wayne State University, Director of Doctoral Dissertations  
 1964 to present - Social Rehabilitative Services, Member Sensory Study Section

PUBLICATIONS

"Helping the Hearing Handicapped to Achieve Better Articulation", Henry Ford Hospital Bulletin, 1957, 5, #173, 84-87.  
 "Language Development through Speechreading", Volta Review, 1958, 60, 257-259, 272.  
 "Results with Chisels in Stapes Mobilization", The Laryngoscope LXVIII #4, 726, 740, co-author with Schuknecht, H. S., and Graham, A. B. 1959.  
 "Responses to Distorted Speech of Children with Severe Articulation Disorders", Journal of Auditory Research 3:133-40, 1963.  
 "Language Impairment in Children Associated with Abnormal Auditory Adaptation", Symposium on Sensorineural Hearing Loss, 1967 with Dr. McGee, Dr. Graham: Editor.

John J. O'Neill, Director Speech and Hearing Clinic  
 University of Illinois  
 Champaign, Illinois

EDUCATIONAL HISTORY

Ohio State University, B.S. Education, 1947  
 Ohio State University, Ph.D., Speech Science and Clinical Psychology, 1951

PROFESSIONAL EXPERIENCE

1949-1959 - The Ohio State University, Assistant and Associate Professor.  
 1955-1959 - Ohio State University School of Medicine, Assistant Professor.  
 1959 to present - Professor and Director of Speech and Hearing Clinic.  
 Summer  
 1953-1954 - U.S. Naval School of Aviation Medicine, Research Associate.  
 1955-1959 - Ohio State University Research Foundation, Research Associate.

PUBLICATIONS

Articles in: Archives of Otolaryngology, Central States Speech Journal, Hearing News, Journal of the Acoustical Society, JSHD, JSHR, Laryngoscope, and Speech Monographs.

BOOKS

Visual Communication for the Hard of Hearing, Prentice-Hall, 1961 (co-author).  
The Hard of Hearing, Prentice-Hall, 1964.  
Applied Audiometry, Dodd-Mead, 1966 (co-author).

Jack Rosen, Ph.D., Executive Director  
 New Orleans Speech and Hearing Center  
 1636 Toledano Street  
 New Orleans, Louisiana

EDUCATIONAL HISTORY

College of the City of New York School of Technology (Evening), 1930-1936.  
 Major: Chemical Engineering.  
 U.S.N. Radio Material School, Naval Research Laboratory, 1943. Electronics.  
 Stanford University, A.B., Psychology, 1951.  
 Stanford University, M.A., Speech Pathology and Audiology, 1953.  
 Stanford University, Ph.D. Speech Pathology and Audiology, 1962.

PROFESSIONAL EXPERIENCE

1950-1952 - Counselor, Study Skills and Remedial Reading, Stanford Counseling and Testing Center.  
 1952-1956 - Audiologist and Research Director, San Francisco Hearing and Speech Center.  
 1952-1956 - Consultant, Mt. Zion Hospital (San Francisco) Pediatric Neuro-psychiatric team.  
 1956-1959 - Assistant Professor, Western Reserve University.  
 1956-1959 - Director of Clinical Audiology, Cleveland Hearing and Speech Center.  
 1957-1959 - Consultant, Golden Age Centers and Montefiore Home (Cleveland).  
 1959 to present - Executive Director, New Orleans Speech and Hearing Center.  
 1959 to present - Assistant Professor, Tulane University.  
 Summer 1964 - Visiting Lecturer, University of Colorado.

Currently - Consultant: Louisiana State Department of Health, Louisiana Division of Vocational Rehabilitation, Cleft Palate-Cleft Lip team of Louisiana Handicapped Childrens Services, Delgado College, Delgado Vocational Rehabilitation Center.

AFFILIATIONS

American Speech and Hearing Association (currently member of Committee on Continuing Education) CCC SP, CCC A.  
 Louisiana Speech and Hearing Association (two terms as La. Delegate to HSD).  
 National Association of Hearing and Speech Agencies (Board of Directors and Executive Committee).  
 Acoustical Society of America.  
 A.G. Bell Association for the Deaf.  
 Gerontological Society.  
 National Rehabilitation Association, Louisiana Rehabilitation Ass'n.  
 La. Department of Education Advisory Committee on Rehabilitation Facilities.  
 International Society of Audiology.  
 Social Welfare Planning Council, Greater New Orleans Area (Chmn., Professional Advisory Committee; Vice-Chmn., Executives Roundtable).  
 A.A.A.S.; A.A.U.P.  
 Academy of Rehabilitative Audiology (Board of Directors; Chmn., Membership).

PUBLICATIONS AND PAPERS

'Functional' deafness in children and adults, Proceedings of the Joint Conference on Audiology, Stanford University, 1953.  
 Invited Discussant: Goodhill, Brockman and Rehman, The Electro-Audiogram: experiences with objective skin resistance audiometry, Trans. Pacific Coast Oto-Ophthalmol. Soc., 1953.  
 Psychogalvanic audiometry, unpubl. Master's Thesis, Stanford Univ., 1953.

Variations in the auditory disorders of the Rh child, JSHD, 1956.

The place of GSR audiometry in work with young children, Volta Review, 1956.

Fallacies in hearing screening testing of exceptional children, unpubl. paper, International Council for Exceptional Children, 1958.

The community speech and hearing center as a representative of the profession, Asha, 1961.

Phoneme identification in sensorineural deafness, unpubl. doctoral dissertation, Stanford University, 1962.

The renaissance--from AHS to NAHSA, Hearing and Speech News, 1966.

Distortions in the training of audiologists, Asha, 1967.

Others on hearing aid selection, GSR audiometry, brain-injured children, differential diagnosis, applied research, language delays, etc.

1. Was the recommended hearing aid purchased?
2. If the client purchased no hearing aid, what was the reason for this decision?
3. If the client purchased other than the recommended aid, what was the reason for this decision?
4. Was the client satisfied with the service received at the Speech and Hearing Clinic?
5. Was the client satisfied with the service received from the hearing aid dealer?
6. Is the client receiving the benefits that were expected with amplification?
7. Did the client feel that he was adequately counseled at the Speech and Hearing Clinic?

The study will indicate the answers to the seven questions as well as consider a discussion of these answers. The 119 clients were divided into three age groups for comparison: (1) Ages 16 to 64; (2) Ages 65 and above; (3) All ages. Preliminary analyses indicates the following information:

(see table on next page)

RESEARCH PROJECT UNDERWAY

Dr. Jerome G. Alpiner  
Florence Berman, M.A.  
University of Denver

The study underway will attempt to discover what, if any, significant relationship exists between the ability to perform visual-spatial tasks, as measured by the Minnesota Paper Form Board Test, and the ability to speechread as measured by the Utley film, "How Well Can You Read Lips?"

STUDIES IN PROGRESS

JEROME G. ALPINER  
University of Denver

CLIENT OPINION OF CLINICAL  
HEARING AID EVALUATIONS

A study is now being completed regarding the opinions of 119 clients seen for hearing aid evaluations in three university Speech and Hearing Clinics. The purpose of this study is to gain some insight into clinical hearing aid evaluations from the client's point of view. These clients were questioned one year after a hearing aid was recommended; the following seven questions were utilized in this investigation:

ALPINER - cont'd from Client Opinion of Clinical Hearing Aid Evaluations

GROUP	No.	Purchased recommended Aid	Purchased No Aid	Purchased Another Aid
All ages	119	91 (76.5%)	16 (13.5%)	12 (10%)
65	58	47 (81%)	4 (7%)	7 (12%)
16-64	61	44 (72%)	12 (20%)	5 (8%)

Investigation by Reid indicated no relationship between intelligence, grade status, mental age, or training in speechreading. O'Neill and Davidson have indicated that no relationship exists between visual memory span, level or aspiration, intelligence, or reading comprehension, and ability in speechreading. They did indicate, however, that a relationship may exist between the recognition of form patterns and speechreading ability. Simmons discovered significant relationship between the Wechsler Bellevue subtests of Digit Symbol, Picture Arrangement, and Block Design, and two speechreading tests.

The current hypothesis is that a significant relationship exists between the ability to perform visual-spatial tests as measured by the Minnesota Paper Form Board Test, and the ability to speechread as measured by the Utley speechreading test, "How Well Can You Read Lips?"

Forty college freshmen, selected at random from freshmen speech classes, were given the Utley film in groups of eight, four seated six feet from the screen, and four seated nine feet from the screen the optimal viewing distance established by previous research. Following this the Minnesota Paper Form Board Test was administered to the students in groups. A statistical treatment of the data is currently underway

to discover if any significant correlation exists between the scores on the Utley film and the scores on the Paper Form test.

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Mark Ross

William Arnold

Recently, the authors became interested in what we call the "semantics of deafness." It is our contention that the public and many professionals view, or deal with, the phenomenon of a hearing impairment as a polar concept, i.e., either one is deaf or not, and that the treatment a child receives frequently is a function of the label which is applied to him rather than the state of his residual hearing. A paper enlarging on this theme was recently published in Volta Review (December 1967). Using the semantic differential technique, we have been conducting a series of pilot investigations designed to evaluate how individuals understand terms relating to the phenomenon of hearing impairment.

Three commonly used terms to describe hearing impairment, "Deaf," "hard of hearing," and "hearing loss," were evaluated, in addition to the term, "normal hearing." Each of these terms was described by a series of bipolar adjectives and statements, with a seven point

continuum between each bipolar judgment. Among the bipolar statements were such audio-logical concepts as "ability or inability to respond to sound," "able or unable to use a hearing aid," "speech can or cannot be understood," etc. Four groups of subjects were used, one for each term. The subjects were all college students taking a beginning speech course and were considered homogeneous for the purpose of the study. The results indicated that the subjects distinguished between normal hearing and all the terms relating to hearing impairment. As far as these latter terms are concerned, significant differences were obtained between the terms "hard of hearing" and "deaf" and between "deaf" and "hearing loss," but not between "hearing loss" and "hard of hearing." (This latter comparison approached, but did not reach, significance at the .05 level.) A tentative conclusion at the present time is that the subjects used the term "hearing loss" generically, under which they subsumed "hard of hearing" and "deaf," with the latter terms viewed in a more negative light.

We are presently conducting follow-up studies, for which the scale will be revised in accordance with item and factor analysis information and additional terms evaluated as well. The revised scale will be administered to other groups of subjects (teachers of the deaf, parents of hearing-impaired subjects, etc.) and the manner which these groups understand these terms will be compared. In the completed project, the implications of any differences will be discussed.

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Robert J. Duffy

Harry S. Cooker

Mark Ross

A study recently completed at the University of Connecticut investigated the recognizability of the certain emotional states as carried in the prosodic aspects of the speech signal. The questions investigated were: (1) can listeners recognize the intended emotional state of a speaker when the lexical aspects of speech are held constant; (2) what contributions are made in the recognition of emotions by selected frequency bands in the lower audible range of speech.

Three actors and three actresses were asked to read twelve different emotions. A passage with identical wording was imbedded in each of the 12 paragraphs thereby holding the lexical aspects of each of the emotions constant across all emotions. Recordings were made of twelve emotions as portrayed by each of the six actors. The identical passage from each emotion (making a total of 72 stimuli) was lifted from each of the readings and presented to thirty listeners who were asked to determine the intended emotions of the speakers. The results of this pilot study indicated that listeners were able to identify emotions with a high degree of agreement.

In the next step, the best male and female speaker of the nine most highly identified emotions were selected for further study. Their recordings (eighteen) were filtered through 600 cps, 450 cps, 300 cps, and 150 cps low-pass filters. In addition, one non-filtered condition was used, making a total of 90 separate stimuli. These stimuli were presented to 33

normal hearing college students who were asked to judge the intended emotion of the speakers. The result of this experiment indicated a high degree of recognition for all the emotions studied in the non-filtered, 600, 450, and 300 cps low-pass filter conditions. The results of the 150 cps low-pass filter varied with the different emotions, with recognition minimal and uncertain for most of the emotions.

The results obtained suggest that lower audible frequency bands carry information concerning emotional states of speakers. In the field of aural rehabilitation, this information has implications for training the residual hearing of the profoundly hearing-impaired individual and for lowering the frequency range of hearing aids.

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#### DEVELOPMENT OF TWO STANDARDIZED

#### MEASURES OF HEARING

#### FOR SPEECH BY CHILDREN

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Bruce M. Siegenthaler  
George S. Haspiel

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Speech and Hearing Clinic  
Pennsylvania State University

A continuing problem in clinical audiology is the hearing testing of young children, especially with respect to their ability to hear speech. Existing speech reception threshold test materials for children usually are only versions of materials suitable for adults. One of the present authors assisted in earlier work which developed the preliminary form of a speech

reception test for children, utilizing a picture identification procedure. This test procedure demonstrated its usefulness with children, but it was not available in readily useful form, nor were satisfactory standardization data available. A part of the present project was to develop further this speech reception test, here called the Threshold by Identification of Pictures test (TIP).

There is an even greater absence of suitable speech reception tests of discrimination for children. Earlier work by the present authors laid the groundwork for, and made a preliminary draft of, a Discrimination by Identification of Pictures test (DIP) suitable for children. This test was not based upon phonetic elements of voicing of consonants, pressure pattern of consonants, and transitional patterns between adjacent phonemes. These factors have been demonstrated to be related to speech intelligibility by a number of investigators.

Both of the above tests only require that the child point to pictures suitable for his age, upon hearing the names of the pictures. The TIP test has a total of 25 test items in each of its two forms; the DIP test has a total of 48 items for each of its three forms. Both tests are administered over the normal speech audiometer.

For the present project 295 normal children ages three to eight years of age were tested. There was an approximate equal distribution between the sexes, and among yearly age groups. All subjects passed an otological inspection, pure tone threshold audiogram, and had intelligence quotients between 90 and 110. Subjects were tested on both forms of the TIP test for threshold and subject was given a complete re-test within one week to obtain reliability data.



Data analysis was for test-retest reliability, sex differences, age norms, test form differences, and for shape of intelligibility curves.

The following conclusions were drawn regarding the Threshold by Identification of Pictures test:

1. There are not differences in TIP Forms A and B in variability of threshold, in TIP thresholds between the sexes, or in TIP threshold variability between the sexes or among age groups.
2. TIP Form B produces more intense threshold measurement values than TIP test Form A for all ages and for both sexes, with the order of difference being between one and two decibels.
3. There is an age effect for both males and females, and for both TIP Forms A and B. TIP test threshold measurements show decreasing intensity levels with increasing age, to the extent of about eight decibels over the age range three to eight years.
4. The TIP test threshold reliability, expressed as decibel difference between test and retest, is about three decibels. That is, the best estimate of test reliability, or range within which two-thirds of the test-retest scores lie, is plus or minus three decibels.
5. The TIP test intelligibility curve is essentially equivalent for both Forms A and B, for both sexes, and for all age groups three to eight years inclusive. The form of the curve is specified as:

change from twelve to 75  
percent intelligibility  
over a range of 14.5 dB

zero per cent intelligibility at twelve dB below level which gives twelve percent intelligibility  
ninety per cent intelligibility at five dB above level which gives 75 per cent intelligibility  
one hundred per cent intelligibility at fifteen dB above dB level which gives 75 per cent intelligibility

The following conclusions were drawn regarding the Discrimination by Identification of Pictures test:

1. There are not differences in DIP score for Forms 1, 2 or 3 among children three to eight years of age at any of the presentation levels SRT + 0, +5, or +10 dB, nor in variability of DIP scores among test forms for age or sex groups of children, nor in level of DIP test score as a function of sex.
2. There is an increase of DIP score with increased age, over the range three to eight years.
3. The standard deviation of the distribution of absolute difference between test and retest scores on DIP Forms 1, 2, and 3 is approximately five items. This value is the best estimate of test-retest reliability, is the range within which two-thirds of test-retest scores may be expected to lie, and constitutes the standard error of measurement for the test.
4. The test score plotted against presentation level of the DIP Forms 1, 2 and 3, for both sexes and for age groups three to eight years inclusive, is 1.8 items change in test score per dB change in presentation level over the range SRT + 0 dB through SRT + 10 dB.

Appended to the full research

report, and a product of the project, is the test protocol and test interpretation data for TIP and DIP. Separately produced and bound, together with the test protocols and interpretation are the test pictures. Our experience to date with these materials, and the experience of a number of other audiology clinics which have used these tests on a trial basis indicates the usefulness of the procedures for young children. This includes not only the ability to utilize the pictures successfully for obtaining what appear to be reliable and satisfactory estimates of hearing ability in children, but also includes the strong clinical impressions that the obtained scores are meaningfully related to the child's audiological status.

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## THE PREDICTIVE VALUE

of

## CERTAIN AUDIOLOGIC MEASURES

as related to

## SUCCESSFUL VOCATIONAL

## REHABILITATION

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Jerome G. Alpiner, Ph.D.  
University of Denver

Louis Lerea, Ph.D.  
Northern Illinois University

For the past several years, Northern Illinois University and the Illinois Division of Vocational Rehabilitation have sponsored a residential program for post-secondary hearing impaired young adults between the ages of 16 and 21 (previously described in the Volta Review, Volume 66, 1964). Minimum criteria for

selection of students was an IQ of 30 or better on the performance scale of the Wechsler Adult Intelligence Scale (WAIS) and communication impairment severe enough to affect academic, vocational, and social adjustment. These students spent six weeks in a summer phase of the program for intensive diagnostic speech, hearing, language, psychological, social, and vocational evaluations, as well as trial therapy. According to the summer evaluation program, those students who appeared to have serious vocational limitations were declared eligible by state vocational rehabilitation to continue in an additional nine-month program. The second phase of the program provided communication therapy, remedial instruction, on-the-job vocational exploration, and academic instruction as deemed necessary.

The purpose of this paper is to report the progress of those students who were enrolled at some period during the first three years of the program and to determine if certain audiologic measures could be of predictive value in determining future vocational success for hearing impaired young adults. Each student would have spent either the summer only, or the summer and the nine months in the program. The data presented are for these students who were divided into two groups (summer only, summer and nine months). It was speculated that those students who were enrolled in the summer program only would achieve greater vocational success since their communication difficulties did not appear to seriously affect vocational placement; i.e., they were able to obtain vocational placement and their cases were closed as rehabilitated by vocational rehabilitation.

One major problem became evident during the course of this study. What constitutes vocational success? Is it the salary in a position at the time of case closure by voca-

tional rehabilitation; is it the position one obtains (hopefully, a realistic one in terms of the communication difficulties of the client), a combination of these, or some other factors? It does not appear that this question can be answered entirely at this time, particularly in light of the data to be presented. If we, however, do deem these case closures as successful vocational rehabilitation, then it will be rather evident from the low salaries, that hearing impairment is these students constitutes a real economic handicap. It was anticipated that those students, primarily in the severe and profound hearing loss categories, would be clustered in certain general occupational categories according to the Dictionary of Occupational Titles. This was not true in any of the hearing loss classifications since students were found in all major occupational categories: professional, clerical, service, mechanical, manual, and unclassified.

Students were divided into four hearing loss categories according to pure tone speech frequency averages (ISO, 1964): Mild, 25-45 dB; Moderate, 46-65 dB; Severe, 66-90 dB; and Profound, 91 dB and above. In the mild group, there were three students who attended the total program and six who attended the summer program; in the moderate group, 22 attended the total program and 12 the summer program; in the severe group, 17 attended the total program and 9 the summer program; and in the profound group, five attended the total program and four the summer program. The number for the mild and profound groups are not large since many mildly impaired students who interviewed for the program did not have significant communication problems and those profound candidates interviewed who were not

accepted utilized manualism as their primary means of communication. This particular rehabilitation program was aurally oriented.

Multiple regression correlations were computed to compare salaries, average hearing loss, aided discrimination ability, aided social adequacy scores, intelligence, and the amount of money spent by vocational rehabilitation. Significant correlations were found in some instances between the summer group and the total program group for aided SAI's, mean aided discrimination scores, and salary. In order to determine if any trends could be observed, mean weekly salaries at case closure, mean aided SAI's, mean aided discrimination scores, mean intelligence quotients, and the mean amount of money spent for rehabilitation were utilized to compare the different hearing loss categories within each group and between the two groups.

Those who participated in the total program are considered first. It is interesting to note that the average weekly salaries were \$52.00 for the mild hearing loss group, \$50.00 for the moderate group, \$54 for the severe group, and \$54.00 for the profound group. Although the mean aided SAI's and the mean aided discrimination scores decreased with the severity of the hearing impairment, there was no significant decrease in salary. Intelligence quotients were also similar with the profound group having slightly higher IQ's. The average amount of money spent for rehabilitation for all four hearing loss categories was approximately \$1,500 with the least amount, \$1,200 spent on the profound group. Since no single occupational classification was found to be consistent within each hearing loss category, and since salaries were quite similar, it is difficult to arrive at any startling conclusions.

For those students who participated in the summer program only, the amount of money spent for

rehabilitation was, of course, considerably less. Intelligence did not differ significantly from those who participated in the total program. In the mild hearing loss category, the summer group's mean salary was significantly higher although the average aided SAI was less. For the moderate hearing loss category, salary was significantly higher as were the mean aided SAI's and discrimination scores. Although the mean aided SAI for the severe group was significantly better for those in the summer program, salary and the mean aided discrimination score were not. The salary for the profound category who attended in the summer was significantly higher than for those in the total program but there were no significant differences for mean aided SAI and discrimination ability.

There were no consistent audiologic measures which appeared to demonstrate a method for determining vocational success if it is agreed that salary and employment are the primary factors for vocational rehabilitation of the hearing impaired. Although audiologic measures help us to assess communication function, they apparently are not always able to help predict successful vocational rehabilitation.

Since we are concerned with the total aural rehabilitation of the hearing impaired client it appears necessary to engage in further study in order to determine what happens to the client after he has received evaluation and has undergone remediation therapy. Some suggested directions of investigation should include the intelligibility of the client as observed by a prospective employer and the relationship of the total speechreading process to success on a given job.

In summary, it is necessary to ask the pertinent questions: What is vocational success, how do we measure it, what measures do we use to measure it? The lack of significance in this study with this specified population may be significant from the viewpoint that much remains to be done in the area of total rehabilitation if we are to fulfill any obligations to the hearing impaired.

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## QUIPS & QUOTES

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### ...KELLY MANUAL REPRINT

The James C. Kelly Manual, Audio-Visual Speech Reading is available. The cost is \$1.00. Write to:

John J. O'Neill  
Speech & Hearing Clinic  
University of Illinois  
Champaign, Illinois 61820

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Next issue will include a directory of current members.

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Look for application of learning theory to visual communication in the next issue.

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Keep your contributions coming for the Newsletter.

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## COMMITTEE APPOINTMENTS

Program Committee - John J. O'Neill, Chairman  
Jerome Alpiner  
Moe Bergman

Membership Committee - Jack Rosen, Chairman  
Mary Rose Costello  
Bruce Siegenthaler

Parliamentarian - Freeman McConnell

Nominating Committee - L. Deno Read  
Herbert J. Oyer  
A. Bruce Graham