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RESEARCH UTILIZATION OF R&D PROJECT RESULTS WITH SEVERELY HANDICAPPED DEAF CLIENTS

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I. ISSUES IN RESEARCH UTILIZATION¹

The Problem

Rehabilitation research is conducted for the purpose of discovering useful knowledge which can be applied in rehabilitation programs to improve services to disabled persons. In fact, there is scant evidence that the tremendous amount of money and energy expended on research projects has any significant impact on the efficacy of rehabilitation practice. This realization provided the impetus for intensive study of the research utilization process during the last decade. The basic problem is simply that of getting the results of research projects incorporated into rehabilitation counseling practice.

Three Barriers to Research Utilization

1. Research projects are often designed without any input or participation from the practitioners who will ultimately constitute the vehicle for the application of the research findings. When practitioners are not active participants in the design of studies, questions of major significance may be overlooked or inappropriately framed and, thus, the eventual results may be inapplicable.

2. Research findings are generally not reported in a form which encourages the utilization of results. Most reports (journal articles, monographs, books, etc.) are written for researchers and other academically-oriented persons, and *not* for practitioners. Clearly, the mode of dissemination must be appropriate for the needs and professional interests of the target audience.

3. Resistance to change is a natural characteristic of individuals and organizations which often impedes the utilization of research findings. Halpert (1966) points out that the practitioner, who derives his satisfaction from meeting people's needs, is motivated against changing from practices which apparently have been successful. Thus, the results of research must be presented to potential consumers in convincing and non-threatening ways.

¹This section is abstracted from Bolton, B. *Introduction to Rehabilitation Research*. Springfield, Illinois: Charles C. Thomas, 1974.

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Strategies for Improving Research Utilization

1. The study by Glaser and Taylor (1973) strongly suggests that the *involvement* of practitioners and administrators in planning and conducting research is the major factor in determining the eventual success (utilization of results) of a research project.

2. The practitioner can be educated in research methodology in order to prepare him to critically evaluate research reports and translate the results into techniques which he integrates into his personal counseling style.

3. Research utilization specialists can act as middlemen between the researcher and the practitioner by translating reports into various forms which are directly utilizable by practitioners, e.g., abstracts or summaries, training manuals, audio-visual presentations, etc.

II. TARGET POPULATION: SEVERELY HANDICAPPED DEAF YOUNG ADULTS

One of the most difficult groups of clients currently encountered by rehabilitation professionals is that of severely handicapped deaf young adults. At least one-third and as many as one-half of all deaf young adults may fall into this category. These persons are extremely limited in their ability to meet the demands of daily living. They have not attained the minimal competence in social, academic, or vocational functioning to enable them to make a satisfactory life adjustment. Specific characteristics of multiply handicapped deaf youth are:

1. Severely limited communication skills: speech and speechreading abilities are very poor; manual skills are average at best; virtual illiteracy is the rule.

2. Low academic achievement levels: modal scholastic attainment levels are in the second to third grade range.

3. Emotional immaturity: dependent, passive, rigid, isolated, and undeveloped are terms descriptive of these individuals.

4. Secondary disabilities: more than one-third possess handicaps in addition to deafness (e.g., mental retardation, cerebral palsy, visual defects); behavioral disorders are common.

5. Poor vocational preparation: few have worked at full-time jobs; only one-half have received any vocational training.

The five-part description outlined above does not convey a complete picture of this target population of rehabilitation efforts. A statistical composite developed by Bolton (1973a, p. 9) gives some indication of the genesis of the problems of multiply handicapped deaf youth. The picture which emerges is that of a lower socioeconomic class background. A disproportionate number of severely handicapped deaf youth are nonwhite and come from working class families. They attended public schools, beginning long after the optimal age of two years. It can be assumed that only a fraction of parents received any professional assistance in raising their deaf children. The combination of early childhood deafness, cultural deprivation, and lack of access to needed services (especially preschool training) is difficult to overcome.

III. RESEARCH PROJECTS: SURVEY STUDIES

Four major survey reports of the occupational conditions of deaf adults and young adults and the vocational development of deaf youth have been completed (summaries are contained in Bolton (1971b)). It can be concluded that deaf young adults are generally underemployed as indicated by their concentration in semi-skilled and unskilled occupations. They evidence high job satisfaction and rated satisfactoriness in low-level occupations. Deaf youth have a restricted view of the

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world of work and are provided with inadequate vocational training programs. Thus, a substantial proportion of those young persons who leave schools for the deaf annually are not prepared to enter a vocation, nor are they academically prepared to continue their education.

Two global implications for educators and rehabilitation planners are: (1) structured experiences must be designed and implemented to foster normal vocational development in deaf youth, and (2) vocational training programs in advanced technical areas should be adopted for deaf young adults.

IV. RESEARCH PROJECTS: SERVICE DEMONSTRATION STUDIES

During the past decade five major experimental programs have been conducted in existing rehabilitation facilities for the purpose of serving severely handicapped deaf young adults. Summaries of four of these large-scale innovative projects are contained in Bolton (1971b). It can be concluded from the results of these demonstration service projects that at least one-half of severely handicapped deaf young adults can be rehabilitated (more properly, habilitated) with a core program of vocational and social services. Poor communication skills constitute the single most critical barrier to effective rehabilitation services and subsequent vocational and community adjustment.

The following guidelines or *implications for practice* were derived, in part, from the final reports of the service demonstration studies discussed above (Bolton, 1973a, pp. 51-53):

1. The ability to communicate in manual sign language is prerequisite to serving deaf clients; manual sign language is *not* "signed English," but a separate visual-graphic communication system which constitutes a native language to many deaf persons.

2. Deaf persons possess the same intellectual capacity as hearing persons, including the ability to solve "abstract" problems; however, they are deficient in their mastery of the common symbol system we know as language.

3. Many deaf persons exhibit retarded personal-social development as a result of experiential deprivation; there is no evidence to support the notion of a "deaf personality."

4. Counseling with deaf clients must be situation specific; language difficulties prevent the meaningful discussion of "philosophical" issues. Information giving is an important dimension of the counseling process.

5. Deaf clients require thorough evaluation as a basis for rehabilitation planning; essential aspects are: case history review, psychological testing, situational assessment, and vocational evaluation.

6. The client should be involved in the planning of his rehabilitation program; only through understanding can commitment develop. Giving the deaf client responsibility is the first step toward independence.

7. The rehabilitation program should be as realistic as possible to maximize the transfer of learning. Practical experiences such as independent living training and trial job placements should be utilized whenever possible; the community can be used as a "field test" area.

8. Deaf clients will generally require a longer period of time to complete most services and reach a specified level of competence than hearing clients. Rehabilitation programming should take this into account rather than foster unrealistic expectations in deaf clients.

9. Psychological assessment and vocational evaluation should focus on the qualitative aspects of performance (how the client approached the task, his characteristic behaviors, etc.) as well as the quantitative aspects.

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10. Deaf clients require thorough orientation to all activities; directions must be simplified and should include demonstrations whenever possible.

11. Personal-social preparatory services (PAT training, group counseling, living arrangements, etc.) are the cornerstone of the rehabilitation program for deaf clients; one-half of the total program may be devoted to personal-social preparation in some cases.

12. Most deaf clients will require an extended period of work adjustment before skill training can be initiated.

13. Deaf clients require more intensive instructional supervision in vocational training programs; thus, lower staff-student ratios should be arranged.

14. Deaf clients should receive special vocational tutoring in conjunction with their vocational training programs.

15. Deaf clients often require various supportive services such as interpreting, letter writing, explanation of rules, etc.

16. Employer education and continued contact after placement can greatly improve the deaf client's probability of successful vocational adjustment. On-the-job "counseling" should be available on short notice to deal with any problems that may arise.

17. The success of the deaf client's rehabilitation can be enhanced by involving his family in the program whenever possible. Their support and interest may have special meaning for the client.

The following *policy implications* were prepared by the author at the request of SRS officials:

1. Severely handicapped deaf clients can be prepared for successful vocational adjustment and independent community living by rehabilitation programs which provide special services for them; rehabilitation programs designed to meet the unique needs of deaf clients should be developed in all SRS sponsored facilities.

2. Successful rehabilitation of severely handicapped deaf clients does not conclude with completion of training or job placement, but rather, is a continuing process which extends into the community; support services should be provided to ex-clients through counseling and referral agencies and coordinated with the rehabilitation programs.

3. Rehabilitation programming for many severely handicapped deaf youth begins at school termination; rehabilitation services should be initiated before termination and reflect a cooperative working arrangement between the two institutions.

4. The tremendous retardation in language development and academic achievement which characterizes severely handicapped deaf youth cannot be significantly ameliorated by remedial services; all deaf children should be enrolled in special preschool classes at age two and their parents should receive training from educational specialists in order to prevent the "multiply handicapped syndrome."

5. Severely handicapped deaf clients require more intensive services over a longer period of time than the average client; financial appropriations for rehabilitation services should reflect this higher cost per client.

6. Severely handicapped deaf clients possess average intelligence and perform within the average range on ability and aptitude tests which tap "native" capacities; expanded psychometric research programs to investigate the ability requirements of occupations outside the stereotyped deaf areas should be funded.

7. Counselors need special training in order to effectively serve severely handicapped deaf clients; stipends should be available to students and counselors who express an interest in working with deaf clients.

8. Because they usually possess excellent communication skills and an intimate knowledge of the deaf community, deaf persons and hearing persons with deaf

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parents should be the focus of recruiting efforts by university rehabilitation counselor training programs.

V. RESEARCH PROJECTS: SELECTED STUDIES

Personality Studies of Deaf Adults

Most investigations of the personality and emotional adjustment of deaf persons suffer from several limitations. The purpose of this review was to summarize and evaluate available evidence and draw implications for rehabilitation practitioners. Problems of personality assessment of deaf persons were discussed, six previous reviews were summarized, and recent personality studies of deaf were reviewed. Two conclusions were drawn: (1) Any differences between normal hearing and deaf subjects are probably due to environmental factors and not deafness per se, and (2) Deaf adults are apt to be deficient in basic social skills and exhibit retarded personal development, but these conditions can be treated by educational-rehabilitation programs (Bolton, 1972).

Attitudes Towards Deafness

Two aspects of attitude toward deafness may be delineated: (1) the actual attitudes held by hearing persons, and (2) the attitudes that deaf persons believe that hearing persons hold (perceived attitudes). Both aspects of attitude toward deafness are potentially detrimental to deaf people: actual attitudes may result in real barriers to education, employment, etc., while perceived attitudes influence the deaf person's motivation and estimate of self-worth. The available evidence indicates that deaf persons devalue deafness more than hearing persons and that they believe that hearing people hold more negative attitudes toward deafness than they actually do. These conclusions have clear implications for educators of deaf children and youth, as well as rehabilitation counselors working with deaf adults (Schroedel and Schiff, 1972; abstract reproduced from Bolton, 1973a, p. 25).

Factorial Studies of Communication Skills and Nonverbal Abilities of Deaf Young Adults

Some implications of the results of factor analytic studies of deaf subjects for theory and practice are: (1) oral-verbal communication skills develop independently of manual communication skills. The early acquisition of manual skills does not impede the development of oral skills, and may benefit linguistic development. (2) Cognitive skills develop independently of language skills (assuming that communication performance accurately reflects linguistic competence). This conclusion is consistent with the results of comparative studies and several theoretical positions, especially that of Lenneberg. (3) Formal instruction in manual communication skills should be included in preschool educational programs for profoundly deaf children. (4) Intelligence is not a critical variable to be considered in the preparation of language teaching/learning methods for deaf youngsters. (5) Rehabilitation practitioners should not judge a client by his communication skills. They may not reflect learning aptitude or manual dexterity, both of which are important variables in planning rehabilitation programs for deaf clients. It should be noted that the conclusions and implications (with the exception of the last) are not based on the results of the factorial studies alone. The independence of developmental processes cannot be inferred directly from observed statistical independence in static studies. The results of the factorial studies provide necessary, but not sufficient evidence for the conclusions stated (Bolton, 1971a, 1973b).

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Factors Contributing to Successful Rehabilitation of Deaf Clients

Statistical analyses were conducted to facilitate understanding of the rehabilitation process as applied to deaf clients by determining which combinations of predictor variables explain the variability in client outcomes. Three samples of deaf clients drawn from the service populations of two five-year R&D projects were used in the study: (1) 76 clients of the Hot Springs Project (HSRC), (2) 83 work adjustment clients of the Chicago Project (CJVS-WA), and (3) 92 vocational counseling clients of the Chicago Project (CJVS-C).

The results of the multiple regression analyses were as follows: (1) HSRC sample: the male client, with previous work experience, who completed his training program was more likely to become employed, (2) CJVS-WA sample: the older more intelligent client, who possessed better oral-verbal communication skills, and attended a state residential school was more likely to become employed, and (3) CJVS-C sample: the older, male client who possessed better manual communication skills was more likely to become employed.

These findings would be especially useful to rehabilitation practitioners in settings and programs similar to Hot Springs and Chicago. The concern of practitioners is, of course, not to predict successful rehabilitation of clients, but, rather to avoid failure. In other words, the results of this study may be used to identify those clients who will need special attention, rather than select clients who are most likely to be successful.

Two global conclusions were reached: (1) predictability improved as more information about the clients was included in the regression equation, and (2) predictors of employment for deaf rehabilitation clients are specific to the service program and client population (Bolton, 1973c).

VI. A LONGITUDINAL AND CROSS-SECTIONAL INVESTIGATION OF THE INTELLECTUAL, EMOTIONAL, AND VOCATIONAL DEVELOPMENT OF DEAF CHILDREN AND ADOLESCENTS IN A STATE RESIDENTIAL SCHOOL (Arkansas School for the Deaf)³

The academic underachievement, the retarded social-emotional development, and the restricted vocational development of deaf youth have been thoroughly documented. Furthermore, it has been demonstrated by five R&D projects conducted during the last decade that one-half of the most severely handicapped deaf young adults can be prepared for independent living by intensive rehabilitation programs. The remaining half do not reach a level of maturity which enables them to become self-sufficient. One interpretation of the current status of rehabilitation effectiveness with deaf clients is that a need exists for research-based knowledge of the developmental deficits of deaf children and youth which can serve as a basis for early intervention (before age 16 when the deficit may have become irreversible). An underlying premise is that rehabilitation research and service should move in the direction of detection and prevention whenever possible, and the area of developmental disabilities is the logical beginning point.

The research project has two primary objectives: (1) to increase knowledge of the specific developmental deficits of deaf children and youth in a state residential school, and (2) to develop and test intervention strategies designed to remediate the behavioral deficits identified in conjunction with the first objective.

Five components of the research program may be delineated:

1. Longitudinal-Developmental Study. A random sample of twelve youngsters from each of eight age levels (five, six, eight, ten, twelve, fourteen, sixteen, and

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eighteen) will be tested at two year intervals on selected batteries of psychological instruments. The data from this longitudinal/cross-sectional design will be analyzed to document developmental trends and deficits.

2. Program Evaluation. Deaf education has been severely criticized because deaf youngsters generally perform poorly on standardized achievement tests. In fact, standardized tests are often inappropriate for deaf children and youth and important areas of instruction are not evaluated. In order to more accurately reflect the educational effort of the ASD tests will be developed to measure learning progress in vocational curricula and preparatory courses such as "World of Work."

3. Follow-up Study. The ultimate goal of the educational process is satisfactory life adjustment. Thus, the most important data which can be obtained regarding the effectiveness of an educational program must be collected following graduation. All ASD graduates (and other "leavers") will be located and interviewed at one, three, five, and ten year intervals. These interviews should provide information which is directly applicable to the modification and improvement of courses of instruction.

4. Studies of Learning Abilities. Small scale studies of the learning aptitudes and abilities of students will be designed and carried out to address specific questions which have educational implications. For example, how are certain types of instructional materials best presented to the deaf student? What kinds of workbooks result in the most efficient learning?

5. Vocational Guidance Procedures. Because many deaf youth do not have the opportunity to explore various occupations and career possibilities, they have no basis for selecting among vocational curricula. Instruments will be constructed or adapted for use by deaf students so that individuals are placed in programs which their interests and aptitudes best suit them for.

SUMMARY

Research utilization refers to the implementation of research results in rehabilitation counseling practice. Three barriers to research utilization are: (1) research projects are often designed without the participation of practitioners, (2) research findings are not reported in a form which encourages utilization, and (3) the natural tendency to resist change impedes the utilization of research findings. The utilization of research can be improved by: (1) involving the practitioner in the design and conduct of research projects, (2) educating the practitioner in research methodology, and (3) training research utilization specialists to serve as middlemen between the researcher and the practitioner.

The target population for R&D projects in deaf rehabilitation is the group known as severely handicapped deaf young adults. This large group, which may comprise as many as one-half of all deaf young adults, exhibits the following characteristics: (1) severely limited communication skills, (2) low academic achievement levels, (3) emotional immaturity, (4) secondary disabilities, and (5) poor vocational preparation.

Four major survey reports of the occupational conditions and vocational development of deaf young adults have been completed. The following conclusions are warranted: (1) deaf young adults are generally underemployed, (2) deaf youth do not receive adequate vocational training to enable them to compete on the job market, and (3) deaf youth evidence retarded vocational development. Educators and rehabilitation specialists working with young deaf persons will have to provide experiences which foster normal vocational development and design or adopt up-to-date vocational training programs for deaf youth.

Five experimental service programs have been conducted during the past decade. It can be concluded from the results of these research and demonstration projects that

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at least one-half of severely handicapped deaf young adults can be rehabilitated with a core program of vocational and social services. Seventeen guidelines or implications for rehabilitation counseling practice and eight policy implications are listed in the paper.

Four selected research projects illustrate the process of translating research results into implications for rehabilitation practitioners. The major conclusions reached were: (1) deaf adults often exhibit retarded personal-social development, but their adjustment can be improved through participation in intensive rehabilitative programs, (2) deaf persons devalue deafness more than hearing persons and they believe that hearing people hold more negative attitudes than they actually do; the self-esteem of deaf youth can clearly be enhanced by improving self-attitudes toward deafness, (3) oral-verbal communication skills, manual communication skills, and intellectual ability are relatively independent aspects of the deaf client's functioning capacity; five implications are discussed in the text, and (4) the predictability of deaf client rehabilitation outcome increases as more information is acquired, thus stressing the importance of thorough client evaluation; predictors of employment for deaf clients are specific to service program and client population, thus, generalizations about effective procedures may be hazardous.

It has been demonstrated by five R&D projects that one-half of severely handicapped deaf young adults can be successfully rehabilitated by intensive service programs. What becomes of the other half? At this time they are simply not amenable to existing rehabilitation programs because of the severity of their disabilities. It is the author's belief that rehabilitation researchers in deafness will have to move in the direction of early intervention and prevention as much as possible. The five-part research program outlined in the paper represents one attempt to study the nature of developmental deficits of deaf children and youth and devise and test intervention strategies in a residential school setting.

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