TEACHING YOUTH WHO ARE DEAF-BLIND:

ANNOTATED BIBLIOGRAPHY

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FOREWORD

This introductory publication is designed to be of assistance to teachers who have little or no previous teaching experience working with individuals who are deaf-blind. The publication is divided into topical sections which address specific concerns of teachers. These sections begin with explanatory text which is followed by a topically related annotated bibliography. There are some materials which are appropriate for more than one section and some of these may be cited in several sections but only referenced in one section. For this reason, there is included an author's index at the end of the publication which will indicate where the reference information may be found.

Many of the references listed in this publication were developed in connection with the Regional Centers for Services to Deaf-Blind Children. Most of these Centers no longer exist and governmental efforts have been made to consolidate the educational materials produced by these Centers into one location. The Sunbelt Regional Center for Deaf-Blind Children and Youth at the Alabama Institute for Deaf and Blind (P.O. Box 698, Talladega, Alabama 35160) has a comprehensive library of these and other relevant materials.

This is not meant to be a comprehensive listing of all helpful materials and publications, but to help teachers feel more comfortable in the tasks before them and to provide information about particularly helpful publications. The companion publication of instructional guidelines contains a listing of curriculum and assessment materials not included here.

CHARACTERISTICS OF DEAF-BLINDNESS

There have been a variety of publications and bibliographies printed concerning the education of children and youth who are deaf-blind. Most of these publications have addressed the concerns of special educators in mainstreamed or specialized programs. These publications certainly have some applicability for adult service providers. However, the program organization of adult services in many cases is very different; therefore, the instructional and educational implications are also different. This annotated bibliography seeks to address issues of teaching deaf-blind youth who are in transition to adult rehabilitation or vocational training settings.

This publication is organized by topical areas of concern. Articles included are designed to be very specific in nature. Many articles are also available through NARIC and/or ERIC data bases. Books and journal articles may be accessed through university or community library resources. There is a companion publication, *Teaching Youth Who Are Deaf-Blind: Observed Practices*, which reports current observed practices for direct teaching of individuals with deaf-blindness.

Each section of this publication is introduced with basic information of interest to those who have instructional concerns specific to deaf-blindness, but who may have limited experience in working with students who are deaf-blind. These comments are made to assist those with limited experience to develop a basic understanding of issues in teaching persons with deaf-blindness and to assist in interpreting the information included in the bibliographic references. Not all referenced articles are specific to deaf-blindness, but many have applications when interpreted with the specific and unique educational needs of people who are deaf-blind.

Definitions of Deaf-Blindness

There are two distinct definitions of deaf-blindness. One is used in special education services and generally applied to those under 21 years of age. In reference to children, deaf-blindness is defined in the 1975 Federal Register as applying to "children who have auditory and visual handicaps, the combination of which causes such severe communication and other developmental and educational problems, that they cannot properly be accommodated in special education programs solely for the hearing handicapped child, or the visually handicapped child" (cited in Wolf, Delk, & Schein, 1982). The term dual sensory impaired has recently been introduced to enhance sensitivity to children who have residual hearing and vision (Fredericks & Baldwin, 1987). The use of this term is controversial because of its ambiguity and political ramifications impacting on funding specific to individuals and programs for individuals who are deaf-blind.

Adult service providers commonly use the Helen Keller National Center for Deaf-Blind Youths and Adults definition of deaf-blindness, which is based on functional definitions of deafness and legal blindness. It states that deaf-blindness is defined as central visual acuity of 20/200 or less in the better eye with correction or visual acuity better than 20/200 if the visual field is constricted to 20 degrees or less, plus the presence of a chronic hearing impairment so severe that most speech cannot be understood with optimum amplification (a speech discrimination score of 40% or less). There are some exceptions made to also include individuals with auditory or visual conditions that show poor prognosis,

or one whose ability to use hearing and/or vision is so limited, as a result of protracted inadequate use of either or both of these senses, that the individual functions as a deaf-blind person.

Those who possess vision and hearing impairments are part of a very heterogenous group. To meaningfully describe their group characteristics is difficult at best and can give a very misleading impression of the characteristics of a particular individual with deaf-blindness. Labeling characteristics of individuals helps service providers evaluate, place, and/or screen persons more appropriately, but individuals with deaf-blindness are so unique that they defy most categorizing attempts. Often they are inappropriately categorized and perhaps, in the worst case scenario, their learning opportunities are limited because of mislabeling. Many of these labeling errors occur because of the tremendous lack of appropriate standardized assessment and evaluation instrumentation. Potential instructors should be alerted to this problem and therefore interpret the information presented here and in other publications in that context.

The value of describing characteristics of individuals with deaf-blindness in this framework is to give potential instructors and service providers a beginning understanding of their unique communication strategies and learning characteristics. Characteristics of individuals with deaf-blindness may be categorized by the magnitude or severity of the sensory loss (i.e., deaf-visually impaired, hearing impaired-blind, hearing impaired-visually impaired, etc.); the age of onset of the loss or losses (i.e., adventitiously deaf-congenitally blind, adventitiously deaf and blind, prelingually deaf-congenitally blind, etc.); by etiology (i.e., Usher's Syndrome, Congenital Rubella Syndrome, etc.); by communication style (i.e., tactile fingerspelling, print on palm, communication book, American Sign Language, etc.); and often by the impact of cognitive impairment (i.e., high functioning, minimal language skill, trainable mentally retarded, etc.). For the purpose of this publication, characteristics of individuals with deaf-blindness will be categorized into four groups based on the onset of sensory loss as originally suggested by Bernadette Wynne of the Helen Keller National Center in 1978. These four groups are (a) congenitally deaf and blind, (b) congenitally/prelingually deaf-adventitiously blind, (c) adventitiously deaf-congenitally blind, and (d) adventitiously deaf and blind.

<center>Congenital Deaf-Blindness</center>

Congenitally deaf-blind individuals are those who were born with or who acquired both sensory losses before the age of language acquisition or by about age two. There is a wide range of functional abilities demonstrated among this population. Many of these individuals were born prematurely and have additional disabilities and chronic medical conditions which interfere with their ability to live a normal life. Often retardation and language deficits are prevalent among them. The Rubella epidemic of the 1960's resulted in the birth of about 5,000 children who were classified as having deaf-blindness and who, as they age, tend to develop additional disabilities (Wolf, Delk, & Schein, 1982). There are often related congenital anomalies and delayed and acquired medical conditions in this rubella population, including heart disease, retarded growth development, endocrine disorders, epilepsy, vascular disorders, central nervous system problems, diabetes, and cirrhosis of the liver (Cooper, 1985).

Instructional personnel working with these students may discover the presence of compulsive behaviors as well as other behavior problems in many of these students. It is imperative that these behavior disorders be interpreted in light of the presence or absence of effective communication skills. Students with the ability to communicate expressively and receptively generally show much less tendency toward unexplained inappropriate behavior. Students with emotional outbursts and temper tantrums often are those with very little ability to express feelings and preferences in any other way. Because of their lack of communication skills and language they are often described as low functioning. Their behaviors should be interpreted as potential communication indicators. This does not mean that dangerous or self-injurious behaviors should be tolerated, but that the students should be taught more appropriate ways to communicate. Behavioral cues are often their primary means of expressive communication.

Compliance training, which was used in the past with many lower functioning students, required their unquestioning and immediate obedience and/or adaptation of their actions to meet with the wishes and requirements of instructional and custodial staff. Those who did not comply were usually placed in highly structured behavior modification programs to reinforce and assure their compliance. Justification for this type of training was that of safety for the student and custodial convenience. It was not felt that the students could or would be capable of cognitive perception and/or self-determination. Students who have had these types of instructional experiences usually have very little experience with decision-making, cooperation, self-initiated activities, and/or interactive creative thinking.

Students in the mid-level functioning range of this group have some limited language skills where they can initiate communication and can understand or respond appropriately when addressed in a communication mode they understand. Those with residual (or remaining) vision may make use of low vision aids to learn to read and write. Those with residual hearing may learn limited expressive speech and respond to verbal communication. They are often semi-dependent, yet cooperative and trusting individuals. Interdependence may be achieved, but requires varying levels of supervision to avoid having them become victims of more aggressive and assertive individuals.

Students at the upper range of this group are capable of semi-independent living in supervised apartments and in full time competitive employment in an understanding environment. They can make their needs known and be understood through sign language, speech, and the written word. There are a few exceptional individuals who are able to function relatively independently and communicate clearly with the public. Many who are considered to be higher functioning individuals have good residual hearing and/or vision and have learned to use sensory integration effectively.

Congenital/Prelingual Deafness and Adventitious Blindness

Individuals with this particular category of deaf-blindness usually have the etiology of Usher's Syndrome. Usher's Syndrome accounts for the largest number of cases of deaf-blindness in working age adults. It is characterized by congenital deafness or hearing loss and the presence of Retinitis Pigmentosa which begins to affect visual functioning in early adulthood. Retinitis Pigmentosa (RP) is characterized by night blindness and reduced visual fields. It is a degenerative

disease for which there is no treatment and which can, but does not always, lead to total blindness. The medical prognosis is for progressive visual loss of an unpredictable nature. This disease can cause tremendous psychological stress in individuals because they can function fairly normally in many ways, such as reading regular size print in good light, but are unable to function independently in other situations, such as entering a dark restaurant. It is possible for an individual to read small print but not see a desk or chair outside of his or her visual field. The impact and functional limitations of vision loss is very difficult for them to explain and equally as difficult for others to understand. Mobility can be a very serious problem. The individual is often very hesitant to admit difficulties, sometimes, for example, retaining a driver's license past the point of usefulness and safety.

Communication style varies depending on the educational background of the person and the level of hearing loss at birth. There are at least two identified types of Usher's Syndrome (I and II), distinguished by the level of hearing loss present at birth. Those with Usher's Syndrome I have profound or severe hearing loss at birth and usually use sign language as their primary means of communication.

One important and sometimes confusing aspect of RP is that as the visual fields become greatly reduced, the individual may need to move further away from those with whom he or she is communicating in order to enlarge the visual viewing area. When communicating with these individuals, it is important to keep manual signs fairly small and in a small viewing area. Many people signing to a deaf person with a visual disability have a tendency to enlarge their signs, which may move part of the communication out of the person's visual field and make it difficult to understand. When the visual acuity of the individual is affected as well as the field of vision, the individual may need to hold the signing wrist of the person with whom she/he is communicating in order to keep within the visual field. Signing in this situation should be slow and in good light with no back lighting. Signs should be kept to a small space, and those which require movement out of a tight area should be modified slightly. As the visual loss continues to progress, the need for increased tactile communication may increase. Many individuals who use American Sign Language (ASL) as their primary language may not have good English skills; therefore, fingerspelling may not be a viable alternative because of English vocabulary limitations. The ASL person with Usher's Syndrome I will usually express himself freely in sign language and prefer to receive communication by the same method.

Individuals with Usher's Syndrome I who have been educated by an oral approach in which they depend on lip reading will need to keep the speaker's face within the optimal field of vision. As visual acuity diminishes, receptive communication becomes very difficult and other forms of manual communication may need to be developed. The use of tactile sign language will be dependent upon the individual's willingness to use sign language, since many educated in an oral school are extremely resistant to the use of manual communication. Tactile fingerspelling, large print communication, and, if the person is willing, the introduction of braille may be viable means of receptive communication. It should be noted that openness to using braille is related to psychological adjustment to blindness. The oral person with Usher's Syndrome I is usually able to communicate verbally.

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Persons with Usher's Syndrome II have usable hearing which, with amplification, will allow them to understand normal speech in many situations. Noisy environments are very difficult for some individuals. Depending on the level of hearing loss, the person may be a good candidate for the use of assistive listening devices such as the one-to-one communicator. Some individuals with Usher's Syndrome II experience progressive hearing losses in conjunction with the introduction of visual loss, which is again due to RP. Because communication difficulties may arise, early introduction of braille and tactile sign or fingerspelling may be beneficial for many.

Enough cannot be said about the psychological impact of visual loss on individuals who have become very dependent on their vision for most aspects of communication from people and the environment. Many individuals who are included in the category of deaf-blindness have already entered vocational fields where good vision is essential, such as graphic design, drafting, architecture, and the like. Since most of these individuals have normal or average intelligence and have functioned independently in many ways, the adjustment to and acceptance of the visual prognosis is a tremendous step. Because many have a fear of interacting with agencies serving people who are blind and visually impaired, they may not take advantage of services related to visual loss (i.e., low vision clinics, rehabilitation teaching services, etc.). The understanding counselor of a person who signs often makes arrangements for agencies serving deaf persons to work with individuals as they adjust to this traumatic life event.

Adventitious Deafness and Congenital Blindness

A small minority of people who are deaf-blind were born with a severe visual loss and acquired a hearing loss through illness, disease, or trauma. There are a variety of causes for the visual loss, the most common being premature birth in which the infant received too much oxygen in a neonatal incubator. This is interchangeably called Retinopathy of Prematurity (ROP) or Retro-Lental Fibroplasia (RLF). Characteristics of this group include average or above average intelligence, outgoing personalities, and independence. Occasionally there are incidents of brain damage and retardation due to oxygen deficiencies which occur in the oxygen regulation process. Through education, congenitally blind individuals with normal intelligence usually become proficient in the use of braille and electronic reading devices. Most individuals with RLF have little usable vision and are not able to take advantage of low vision aids and devices.

Depending upon the age of onset, the acquisition of sudden or progressive hearing loss can be an extremely difficult adjustment. Often this hearing loss is due to presbycusis, which is related to the aging process and accompanies other losses associated with aging. Many individuals with hearing loss have made extensive use of radio reading services, telephones, and talking book libraries to access information. They often tend to be information "junkies," and hearing loss can leave them very isolated. The use of amplification devices and assistive listening aids is beneficial to those with residual hearing, but it should be noted that the absence of visual cues can complicate and lessen the effectiveness of these aids. These individuals have good, understandable speech, but those without residual hearing may need to rely on special equipment, such as a tele-touch, to receive communication via braille translation. They are usually not good

candidates for tactile sign language because of a limited spatial sense, but many can benefit from instruction in tactile fingerspelling.

The addition of a hearing loss may cause some balance problems due to inner ear dysfunction. This in turn affects mobility and orientation skills and may require remediation. People used to independent travel may also find this an extremely difficult adjustment.

Adventitious Deafness and Blindness

Those who acquire both hearing and visual loss as adults comprise perhaps the largest subgroup of persons who are deaf-blind, although the fewest have been identified in this category. Many of these individuals have acquired the dual disabilities as a result of the aging process and often do not enter educational or rehabilitation services programs. Estimates of the number of people in this group vary greatly. Often the severity of their problems is undiagnosed and untreated, especially among those in institutions such as nursing care facilities. In addition, some in this group may be diagnosed as deaf-blind due to trauma or disease, such as spinal meningitis or renal disease. Depending on the level of loss, different types of receptive communication techniques or methods may be applied. Print on Palm (POP) is the most commonly used initial communication method for those with little usable vision or hearing and enables them to communicate with others who do not have special communication skills. Their speech will usually remain understandable, although volume and modulation may require some instructional assistance. Those with usable vision may depend on written communication with low vision enhancements, and those with residual hearing may benefit from amplification devices. Again, the benefits of amplification are reduced if the individual cannot access visual cues.

Adjustment is traumatic for both the individual and the family and requires sensitivity and frequent contact by encouraging professionals. Family members may need to be included in many instructional interactions so that they may develop realistic expectations and reinforce instructional objectives. It is not uncommon for family relationships to deteriorate significantly.

Anderson, D. W., & Fisher, K. P. (1986). Nominal realism in congenitally deaf-blind children. *Journal of Visual Impairment and Blindness*, *80*(8), 896-900.

This article reports on a study of nominal realism in congenitally blind children. The children were asked to respond to questions concerning the origin of object names. The findings of the research point out the delay in cognitive development among blind children and emphasize the need for providing appropriately stimulating learning experiences for these children.

Appell, M. W. (1985). The multihandicapped child with congenital rubella: Impact on family and community. *Reviews of Infectious Diseases*, *7*(1), S17-S21.

Ms. Appell reports on the findings of an 18 year longitudinal study of the ongoing training and life needs of children with Congenital Rubella Syndrome (CRS) enrolled in a hospital-based education program at St. Lukes-Roosevelt Hospital Center in New York. The study included 126 students with CRS and concerned the impact on both families and the community. Demographic information on both the students with CRS and the mothers is most revealing. The sample included 79 children with visual and auditory impairments.

Bagley, M. (1989). *Identifying vision and hearing problems among older persons: Strategies and resources*. Sands Point, NY: Helen Keller National Center for Deaf-Blind Youth and Adults.

This booklet helps professionals, families, and friends to identify signs of hearing and visual problems among older persons. The author then provides information about where to find medical and rehabilitation assistance.

Blea, W. A., & Campbell, D. W. (1979). *Proceedings: Workshop for Serving the Deaf-Blind and Multihandicapped Child: Identification, Assessment and Training*. Sacramento: California State Department of Education, Office of State Printing.

This proceedings includes a comprehensive set of papers and presentations on medical aspects of working with students with deaf-blindness. These papers include information on the topics of auditory assessment, visual functioning, medical crisis, hospital stimulation programs, developing fine motor skills, therapy techniques, and parental counseling. The theoretical basis of the proceedings appears to be the developmental approach to assessment and to acquisition of skills.

Busset, P. (Ed.). (1983). *Proceedings: Delivery of Services to Deaf-Blind.* Bronx, NY: Region I Center for Services to Deaf-Blind Children.

The major presentations in this publication focus on the older child or youth with deaf-blindness who is preparing for entry into adult services. Topics include prevocational/vocational planning and implementation, group homes and alternative living situations, and recreation and leisure activities.

Casey, S. M. (1978). Cognitive mapping by the blind. *Journal of Visual Impairment and Blindness, 72*(8), 297-301.

This study attempts to compare the mapping ability of congenitally blind persons to that of partially sighted persons. All participants were asked to construct a tactile map of a familiar area. The researchers found that the partially sighted persons' maps were better organized than those of the congenitally blind persons. This and other similar studies can help teachers and counselors determine how well a person can negotiate within an environment.

Cleaves, W., & Royal, R. W. (1979). Spatial memory for configurations by congenitally blind, late blind and sighted adults. *Journal of Visual Impairment and Blindness, 73*(10), 13-19.

This study compares three groups, congenitally blind, late blind, and blindfolded sighted adults, in their ability to point to specific locations. The rate of error was greatest in congenitally blind adults and least in blindfolded sighted adults. These findings were important to research concerning the spatial memory of individuals who are visually disabled.

Collins, M. (Ed.). (1975). *Sharing Deaf-Blind Methods - 1975: Proceedings of two regional workshops for professionals and paraprofessionals serving deaf-blind children.* Lansing, MI: Midwest Regional Center for Services to Deaf-Blind Children.

The papers compiled in this publication focus on the Rubella population of children with deaf-blindness and are based on a developmental approach to learning. Specific methods and techniques are presented and problem instructional areas are addressed such as feeding and working with the additional disability of cerebral palsy. Papers are presented at both the professional and paraprofessional levels.

The Commission on Education of the Deaf. (1988). *Toward equality: A report to the President and the Congress of the United States*. Washington, DC: U.S. Government Printing Office.

The Commission on Education of the Deaf reported some startling findings to the President and U. S. Congress in this report. The issues of least restrictive environment, professional standards and training, educational issues, and the research needs of this population are discussed, with recommendations for change.

Cooper, L. Z. (1985). The history and medical consequences of rubella. *Reviews of Infectious Diseases*, 7(1), pp. S2-S9.

This overview of the history, medical manifestations, and magnitude of problems related to Rubella and Congenital Rubella Syndrome gives a concise and insightful perspective from a physician with extensive experience working with Rubella patients.

Fredericks, H. D., & Baldwin, V. L. (1987). Individuals with sensory impairments. Who are they? How are they educated? In L. Goetz, D. Guess & K. Stremel (Eds.), *Innovative program design for individuals with dual sensory impairment*. Baltimore: Paul H. Brooks.

Fredericks and Baldwin present the popular view of the Association for Persons with Severe Handicaps (TASH) in defining the population of children with visual and auditory disabilities. They also present an overview and history of the educational service delivery system for persons with dual sensory impairments in the U.S.

Helen Keller National Center for Deaf-Blind Youths and Adults. *At his fingertips* [Film]. Sands Point, NY: Author.

This dramatic presentation of the true life experiences of a man who became deaf-blind as an adult provides insights and information concerning the psychological adjustment, education, and communication issues of deaf-blind adults. The focus of the film is on the feelings and challenges experienced by this articulate and sensitive man and the impact of this experience on his family and friends.

Jose, R. A. (1983). *Understanding low vision*. New York: American Foundation for the Blind.

Dr. Jose presents an intensive overview into the diagnosis, treatment, and enhancement of low vision. This clinical approach to understanding both the medical manifestations and the functional expression of low vision provides valuable information for those unfamiliar with the low vision service delivery network.

Kinney, R. (1972). *Independent living without sight and hearing.* Arlington Heights, IL: The Gray Dove Publishers.

This fascinating book by Dr. Richard Kinney, who was himself deaf-blind, provides wonderful insight and rich information concerning what it is like to be deaf-blind. It is currently being used as a textbook for a class at the Hadley School for the Blind on adjusting to deaf-blindness.

Konar, V., & Rice, B. D. (1984). *Strategies for serving deaf-blind clients.* Hot Springs: University of Arkansas, Arkansas Research and Training Center in Vocational Rehabilitation.

Focusing on the concerns of those providing services to adults with deaf-blindness, this publication addresses the special needs of deaf-blind persons and concerns in integrating these individuals into the Vocational Rehabilitation process. The publication also includes resource information.

Kramer, L. C., Sullivan, R. F., & Hirsch, L. M. (1979). *Audiological evaluation and aural rehabilitation of the deaf-blind adult.* Sands Point, NY: Helen Keller National Center for Deaf-Blind Youths and Adults.

The authors present a comprehensive overview of audiological evaluation and aural rehabilitation of individuals with deaf-blindness. The publication includes a full explanation of communication methods and provides in lay terms helpful information for providing services to adults with residual hearing.

Lowell, E. L., & Rouin, C. C. (Eds.). (1977). *State of the art: Perspective on serving deaf-blind children.* Sacramento: California State Department of Education.

Although published more than 10 years ago, this classic document addresses issues of relevance today. The publication includes a history of services for deaf-blind children both in the United States and internationally and a comprehensive look at the State of the Art in 1977. Philosophically there have been few changes over the years in the delivery of services to deaf-blind children; this work, written by people who were at the forefront of developing those services, offers a good perspective of the services available a decade later.

Meadow, K. P. (1976). Personality and social development of deaf persons. *Journal of Rehabilitation of the Deaf, 9*(3), 1-12.

This article stresses the importance of early language education for deaf persons. The author emphasizes that many personality disorders which are associated with deaf persons as adults can be eliminated if language skills are mastered at normal, age-appropriate stages.

Miller, L. R. (1977). Abilities structures of congenitally blind persons: A factor analysis. *Journal of Visual Impairment and Blindness*, *71*(4), 145-153.

This article describes the findings of a factor analysis in which various sections of five scales (WAIS, HISAB, Category Width Scale, Repression-Sensitization Scale, and the Rigidity Scale) were administered to a sample of congenitally blind adult males. Of the five common factors produced, two were very important: nonverbal ability and verbal intelligence. These factors are important in evaluating test performance and assessing learning potential for the sample group.

Patton, P. L. (Ed.) (1981). *Proceedings and resource guide: Vocational Rehabilitation of the Deaf-Blind Individual.* San Diego: San Diego State University, Rehabilitation Continuing Education Program, Region IX.

This report on a training conference held in Dallas, TX includes information on establishing communications with deaf-blind adults, interpreting visual and auditory assessment information, case management practices, and vocational and social adjustment concerns.

Sever, J. L., South, M. A., & Shaver, K. A. (1985). Relayed manifestations of congenital rubella. *Reviews of Infectious Diseases*, *1*, S164-S169.

Of special interest to teachers working with adults with deaf-blindness due to Congenital Rubella Syndrome (CRS), this article describes the delayed manifestations of CRS which affect many students with deaf-blindness as they move through puberty into their adult years. These manifestations include diabetes, thyroid disease, growth hormone deficiency, vascular disease, and progressive rubella panencephalitis.

Stephens, B., & Grube, C. (1982). Development of Piagetian reasoning in congenitally blind children. *Journal of Visual Impairment and Blindness*, *76*(4), 133-143.

In a research study using Piagetian theories, Stephens and Grube find that in congenitally blind subjects the cognitive development is equivalent to that of sighted subjects when the former group is given a training program which provides reasoning activities geared to their individual needs.

Trybus, R. J. (1984). Demographics and population character research in deaf-blindness. In T. E. Stahlecker, L. E. Glass, and S. Machalow (Eds.), *State-of-the-art: Research priorities in deaf-blindness.* San Francisco: Center on Mental Health and Deafness.

This article is a review of research literature concerning the demographic characteristics of the population of individuals who are deaf-blind in the United States.

Tully, N. L. (Ed.) (1976). *Papers presented at Workshop on Usher's Syndrome.* Sands Point, NY: Helen Keller National Center for Deaf-Blind Youths and Adults.

This series of papers includes those which address the educational, medical, psychological, vocational, and personal needs of individuals with deaf-blindness due to Usher's Syndrome. Two of the papers, presented by persons with Usher's Syndrome, give the personal perspective of two highly educated and open adults facing deaf-blindness.

Watson, D., Barrett, S., & Brown, R. (Eds.). (1984). *A model service delivery system for deaf-blind persons.* Little Rock: University of Arkansas, Rehabilitation Research and Training Center on Deafness and Hearing Impairment.

Information about the population of persons with deaf-blindness and some estimates concerning those who have been identified in different vocational rehabilitation regions, descriptions of communication modes used by persons with deaf-blindness, and suggested service delivery models are included in this publication.

Wolf, E. G., Delk, M. T., & Schein, J. D. (1982). *Needs assessment of services to deaf-blind individuals.* Silver Springs, MD: REDEX, Inc.

This final report of a one year study of the population of persons with deaf-blindness and the services programs available to them provides insightful information concerning the unmet needs and educational gains of people who are deaf-blind. The study addresses issues related to the growing number of institutionalized older persons and the various service delivery systems.

Wynne, B. (1978). *Characteristics of deaf-blind persons.* (Available from Helen Keller National Center for Deaf-Blind Youths and Adults, 111 Middle Neck Rd., Sands Point, NY 11050.)

As Director of the National Training Team at the Helen Keller National Center for Deaf-Blind Youth and Adults, Sister Bernadette Wynne has provided technical assistance and basic training for professionals working with individuals with deaf-blindness. This basic introduction to deaf-blindness is a well ordered explanation of etiology and communication differences among persons who acquire visual and auditory losses at different times in their lives.

LEARNING AND COGNITION

Approaches to learning for individuals who are deaf-blind have gone through considerable evolution. There is still much concern about what constitutes successful acquisition of knowledge. Webster defines learning as "gaining knowledge or understanding of or skill in by study, instruction or experience." Cognition is defined by Webster as "the act or process of knowing, including both awareness and judgement." If these definitions are applied to individuals with deaf-blindness who are often also diagnosed as having some cognitive deficits, then it is obvious that some creative and, perhaps, untraditional approaches to learning should be developed.

There are several learning issues unique to individuals who are deaf-blind. The obvious is the lack or distortion of the visual and aural senses. These two senses are the primary means of learning and contacting distance information. With the exception of smell, the other senses of touch, taste, and kinesthesia (the sense associated with movement) are all senses which require actual physical contact with the environment in order to be perceived. The impact of the dual sensory loss of vision and hearing has an additive affect on the individual involved. When one sense is impaired, there are compensatory skills which are developed in the complimentary sense to assist the individual in coping with the environment. When both senses are impaired, that impact is often of a magnitude far more devastating to the individual than the combination of hearing plus vision loss would imply (Kinney, 1972). Incidental learning is greatly reduced and abstract concepts and concepts of large and relative magnitude (such as distance, size, weight, etc.) are difficult for the teacher to meaningfully express and for the student to fully comprehend.

For individuals who possess congenital impairments in one or both sensory areas, there are often knowledge gaps which need to be discovered and addressed as the learning process continues. Often these gaps may not be known or obvious until the individual is put into a new situation or experience. One major responsibility of the instructor is to be constantly aware of and sensitive to this phenomena.

Questions are often raised concerning retardation and the effects of sensory deprivation on learning and intellectual functioning. Research on people who are deaf-blind is very limited in this area. Standardized tests are of very limited reliability because the diverse characteristics of people with deaf-blindness has made it impossible to adequately norm the findings.

Learning Style

According to Travers, learning style refers to attributes of the individual which interact with instructional circumstances in such a way as to produce differential learning achievement as a function of those circumstances (cited in Blakemore, McCray, & Coker, 1986). In other words, it includes attributes such as preferred modality (auditory, visual, kinesthetic, etc.), preferred operating style (problem solving activities, lecture, small group discussions, etc.), preferred environmental circumstances (classroom, outdoors, quiet atmosphere, etc.), and a variety of other issues. These "preferences" are often very difficult to assess with students who are deaf-blind because of the sophistication of the process of assessment. There are a number of evaluation instruments which have been

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developed. These standardized instruments focus on particular areas of preference and usually require a self-rating or ranking format.

Teachers of students with deaf-blindness are more apt to informally adapt to a student's individual preferences without formal assessment or sometimes without conscious thought. Students will make their preferences known by a variety of techniques and behaviors. Teachers need to develop sensitivity to these expressions of preference. They can be as subtle as a slight lowering of the head or as sophisticated as a verbal expression of preference.

Cognition and Deafness

There has been considerable research in the areas of deafness and cognition. Some of these studies are concerned with the neurological implications of right brain/left brain function, while others are concerned with the problems of perception, information processing, and abstract thought. Language development and cognitive awareness are usually simultaneous activities. The simultaneous development of these two processes can be very challenging for deaf students and even more so for those who are deaf-blind.

In the area of psychology there has been attention given to the concept of cognitive style as a type of learning preference which may be expressed in different ways for different activities. Kogan (1976) defined cognitive styles as "individual variation in modes of perceiving, remembering, and thinking, or as distinct ways of apprehending, storing, transforming and utilizing information."

With individuals who have deaf-blindness there may be a tendency on the part of inexperienced instructors to focus on the communication difficulties and overlook the cognitive and learning styles of individuals. The presence of communication challenges may overshadow integration of other instructional methods. For example, an individual may have a preference for peer interaction when learning, yet the physical and logistical obstacles can make it almost impossible to accommodate this preference on a regular basis.

Several of the references in this section which relate to young children are included to provide instructors with deeper understanding of their students' educational experiences.

Bibliography

Alberto, P. A., Troutman, A. S., & Briggs, T. (1983). The use of negative reinforcement to condition a response in a deaf-blind student. *Education of the Visually Handicapped, XV*(2), 42-50.

Demonstrating the use of a negative reinforcement procedure, the writer of this article emphasizes that negative reinforcement should never be the first choice procedure because of obvious considerations.

Anderson, J. R. (1980). *Cognitive psychology and its implications* (2nd ed.). New York: W. H. Freeman.

Anderson explains Piaget's view of cognitive development, which is composed of four distinct stages: (1) the sensory-motor stage from 0 to 2 years, (2) the preoccupational stage from 2 to 7 years, (3) the concrete-operational stage from 7 to 11 years, and (4) the formal-operational stage from 11 to 15 years. After these four stages, a person is said to be capable of scientific reasoning, as an adult would be. Anderson also reviews the developmental changes in cognition, which are memory, representation, and problem-solving. The author concludes that he believes Cognitive Science will make major contributions to mathematics and related domains of science and technology education.

Blakemore, T., McCray, P., & Coker, C. (1986). *A guide to learning style assessment.* Menomonie: University of Wisconsin-Stout, Stout Vocational Rehabilitation Institute.

This publication is an overview of twelve major learning styles assessment instruments. The authors discuss how learning style assessment can be helpful in the vocational evaluation process. Information for ordering the assessment instruments and a comparison of their attributes is included in the publication.

Burroughs, J. (No Date). *Theoretical models for assessment of cognitive development in deaf-blind children.* Dallas, TX: Callier Hearing and Speech Center.

The purpose of this paper is to present some of the various approaches to cognitive assessment which the writer had observed and found useful in her work with deaf-blind children. She recommends two basic approaches: (1) the Piagetian theory of intellectual and perceptual development, and (2) the principles of behavior and modification. These two models may be found to be complimentary systems for development and learning if viewed from the proper perspective. Again, the author in this writing purports to share her blending of two models with the readers.

Canfield, A., & Canfield, J. (1976). *Learning styles inventory.* Rochester, MI: Humanics Media.

The Learning Styles Inventory (LSI) is a self-identification inventory in which the student ranks four sets of test items. There are 30 items which are written at sixth grade reading level. The instrument covers four main categories of information related to learning style: (1) conditions, (2) content, (3) mode, and (4) expectation.

Claxton, C. S., & Ralston, Y. (1978). *Learning styles: Their impact on teaching and administration* (Report No. 10). Washington, DC: American Foundation for Higher Education.

Although primarily concerned with students in a higher education setting, this early article in the learning styles literature is concerned with students' response styles or attitudes as an indicator of learning style. General guidelines as to how teachers might consider working with the eight identified types of learners are presented in the article, as well as administrative considerations. The types of learners discussed include compliant students, anxious-dependent students, discouraged students, independent students, "heroes," "snipers," attention seekers, and silent students.

Dagley, P. (No Date). *Educating deaf-blind infants and young children: A parent handbook.* Glen Ellyn, IL: Deaf-Blind Service Center.

This book is meant as a guide for parents who are looking for ways to assist their deaf-blind child in developing age appropriate physical, mental, sensory, and cognitive skills. The activities suggested are recreation, play, and leisure activities which help students to develop specific skills.

Daugherty, K. M., & Moran, M. F. (1982). Neuropsychological, learning and developmental characteristics of the low vision child. *Journal of Visual Impairment and Blindness, 76*(11), 398-406.

This article reports on research conducted to make conclusions concerning cognitive, psychomotor, academic, and neuropsychological development of low vision children. The researchers found that the cognitive development, psychomotor development, and academic achievement of these children were substantially delayed.

Davis, A. J. (1971). Cognitive style: Methodological and development considerations. *Child Development*, *42*, 1447-1459.

In administering Sigel's Cognitive Style Test to 120 fifth, eighth, and eleventh grade students with an average I.Q. of 119, Davis concludes that there were validity and reliability problems with this particular instrument in his study, and that his findings were inconsistent with previous research.

Furth, H. G. (1966). *Thinking without language*. New York: The Free Press.

This book by Furth is a classic in understanding the cognition of deaf persons with deficiencies in language acquisition. He address misconceptions which have been accepted by some educators concerning achievement, intelligence, and linguistic deficiencies in deaf children and adults. He differentiates between language, linguistic competence, concept, symbol, and thinking and discusses issues leading to a clearer understanding of how deaf persons think.

Furth, H. G. (1973). *Deafness and learning*. Belmont, CA: Wadsworth.

Basing his research on the premise that language may not be necessary to cognitive thinking, Furth presents findings dealing with the question of how deaf persons learn to think. This book is a follow-up to his 1966 publication.

Glaser, R. (1977). Adaptive education: Individual diversity and learning. *Principles of educational psychology series*. New York: Holt, Rinehart, & Winston.

This book deals with adaptive education, or education in which individual learners' needs are met with methods as varied as the learners themselves. The educational process adapts to an individual's talents, strengths, weaknesses, and the like, instead of vice versa.

Hollyfield, R. L., & Foulke, E. (1983). The spatial cognition of blind pedestrians. *Journal of Visual Impairment and Blindness*, *33*(5), 204-210.

This report presents the findings of an experiment conducted with blind pedestrians to evaluate their ability to remember spatially. The findings showed that blind pedestrians have more difficulty in memorial representations of objects.

COMMUNICATION STYLES

There are a variety of communication styles used by persons with deaf-blindness. These styles include written communication sometimes enhanced by the use of braille, large print, closed circuit television systems, bold markers, low vision aids, increased lighting and computerized technology. Specialized equipment can be used in conjunction with Telecommunication Devices for the Deaf (TDD), closed captioning systems, and specialized reading aids.

Interpersonal communication is a receptive-expressive interaction. Methods used by persons with deaf-blindness to receive information or communication include lip reading, auditory speech, fingerspelling, print on palm, the Tadoma method of tactile lip reading, communication books, sign language (both tactile and visual), use of electronic listening aids, and specialized equipment such as a telebraille or Dexter II, the computerized fingerspelling device (Gilden, 1988). Deaf-blind persons may use many of the above techniques to express themselves, or they may simply behave in certain manners to express their feelings or wants.

Much attention has been given to extinguishing inappropriate behaviors in this population, especially among those with limited language ability, but recently more attention has been given to understanding behavior as a type of communication style. This shift in emphasis places the responsibility on the teacher to understand and interpret the behaviors as communication, rather than simply to work out a program of behavior modification to extinguish the behaviors. Slinging a chair across the room may not be an appropriate behavior, but it is more likely to evoke an immediate response than trying to find a slate and stylus to braille a note to the teacher. Students have found that "inappropriate and aggressive behaviors" are effective means of communication even if they are not well accepted by others. It is important to understand that sign language is not the only communication system used by individuals with deaf-blindness and some methods can be learned readily by teachers and support staff. The references listed here provide a variety of resources for teachers and for skilled interpreters of the deaf.

Bibliography

Curtis, W. S., Donlon, E. T., & Tweedie, D. (1974). Communicative behavior in deaf-blind children. *Education of the Visually Handicapped, 6,* 114-118.

The authors conducted a three year research project to study communication skills as a secondary aspect of adjustment and learning in deaf-blind youth. Results of the study emphasize the importance of the visual-motor system as the students' greatest asset in learning. As an example of the severity of the problem, the authors note that of over 100 children videotaped in the study, only one student responded to a problem solving situation with humor and as if it were simply two individuals communicating with one another.

DePietro, L. (Ed.). (1978). *Guidelines on interpreting for deaf-blind persons.* Washington, DC: Gallaudet College.

This is an illustrated guide for certified interpreters for deaf persons. It provides detailed and helpful information on assisting persons with an additional visual disability to maximize their understanding of both their environment and interpersonal communications.

Gallaudet College Media Productions. (1981). *Beyond the silence barrier* [Film]. Washington, DC: Gallaudet College Media Productions.

Two basic philosophies of education for people who are deaf, the oralist approach and total communication, are explored and explained in this film. Several deaf individuals who explain their feelings concerning their educational experiences are featured.

Gilden, D. (1988). Dexter II: "Second-hand" information for deaf-blind individuals. In H. J. Murphy (Ed.), *Proceedings of the Fourth Annual Conference on Technology and Persons with Disabilities.* Northridge: California State University, Office of Disabled Student Services.

Several graduate students from the Department of Mechanical Engineering at Stanford University have developed a mechanical hand which serves as a fingerspelling communication device for individuals with deaf-blindness. Although still in the prototype stage of development, plans include a survey of potential consumers concerning its marketability.

Johnson, D. D. (1976). Communication characteristics of a young deaf adult population: Techniques for evaluating their communication skills. *American Annals of the Deaf, 121*(4), 409-424.

This is a rather old but interesting report of a project of the National Technical Institute for the Deaf (NTID) to develop a standardized assessment tool known as the "Communication Performance Profile." The profile examines seven receptive and three expressive forms of communication. The article explains the process of development of the Profile, the interpretation of results, and the various uses of the information.

Kates, L., & Schein, J. (1980). *A complete guide to communication with deaf-blind persons.* Silver Springs, MD: National Association of the Deaf.

Descriptions of different communication modes and the applicability of each for persons with various levels of vision and hearing loss are presented in this guide.

Kent, M. S. (1972). Signs - what system? *The Maryland Bulletin, CII*(6).

The author gives a brief overview of communication systems used by people who are deaf and provides some insight into the selection of a particular system for an individual deaf person. Systems included in the article are total communication, the Rochester Method, the Simultaneous Method, Signing Exact English, American Sign Language, and cued speech.

Konar, V., & Rice, B. D. (Eds.). (1984). *Strategies for serving deaf-blind clients.* Hot Springs: University of Arkansas, Arkansas Research and Training Center in Vocational Rehabilitation.

Included in this publication for adult service providers is an illustrated chapter on different communication methods and techniques which have been useful in communicating with deaf-blind persons. The authors have presented the material in a quick to read, easy to understand style.

McAnally, P. L., Rose, S., & Quigley, S. P. (1987). *Language learning practices with deaf children.* Boston: College Hill Press.

This textbook addresses the issues of language development in prelinguistically deaf children. Included in the book are historical overviews of teaching methods and materials, use of American Sign Language to teach English, and specialized aspects of language development. Written from the perspective of speech therapy and linguistic development, the text is of particular interest to those working with young children.

Mehrabian, A. (1972). *Nonverbal communication.* Chicago: Aldine-Atherton.

Mehrabian presents his approach to the interpretation of nonverbal communication, including behavioral cues and their impact in communicating levels of positiveness, potency, and responsiveness. His theories incorporate the ability of the individual to visually perceive the environment and other persons. Although he does not address issues specific to sensory impaired persons, this research-based text might be of interest to behaviorists.

Raistrick, K. L. (1988). *Interpreting and transliterating for persons who are deaf-blind.* Springfield: Illinois Department of Rehabilitation Services, Division of Services for the Hearing Impaired.

This small pamphlet provides specific and practical information for interpreters, consumers, and those utilizing interpreter services for communicating with individuals who are deaf-blind. Special attention is given to competencies, environmental interpreting, and special considerations which are unique for deaf people who have visual impairments.

Schein, J. D., Kates, L., Wolf, E. G., & Theil, L. (1983). Assessing and developing the communication abilities of deaf-blind children. *Journal of Visual Impairment and Blindness, 77*(4), 152-157.

An assessment-intervention curriculum model which assesses seven areas of achievement (drinking-pouring, eating, undressing-dressing, toileting, personal care, kitchen preparation, and housekeeping) is discussed and compared to other curricula used with a similar population. The research study is reported and discussed.

Wendt, E., Sprague, M. J., & Marquis, J. (1975). Communication without speech. *Teaching Exceptional Children, 8,* 38-42.

This article is a case study of a 10 1/2 year-old boy with cerebral palsy who had no speech or understandable gestures. The case study follows the student's use of the Auto-Com communication device and his development as a student as a result of the increased communication.

Wynne, B. (1980). *The power of touch: Communication and education.* Paper presented at the Helen Keller Centennial Congress. (Available from Helen Keller National Center for Deaf-Blind Youths and Adults, 111 Middle Neck Rd., Sands Point, NY 11050.)

Sister Bernadette Wynne describes communication methods and equipment used by individuals who are deaf-blind and stresses the importance of the physical touch as a means of communication.

Adjustment is defined in Webster's Collegiate Dictionary as "the process of adapting or bringing to a more comfortable state or condition." Adjusting to new environments, people, disabling conditions, or learning tasks can be stressful. As these stressful conditions are compounded, the combination of events often can produce what is considered to be aberrant behavior. The process of adjusting or becoming more comfortable with the new situations can be lengthy for some people. Those with limited language or with limitations on their ability to understand the changes around them can become extremely stressed.

One major responsibility of the teacher introducing new situations to individuals with deaf-blindness is to reduce the number of concurrent new encounters as much as possible in order to reassure the student. It should be expected that some students will demonstrate inappropriate or aggressive behaviors in new situations. How these behavioral problems are handled initially can do much to influence the student's adjustment to the situation. There is not much written which specifically addresses how to counsel or handle adjustment problems with people who are deaf-blind. Adjustment is often tied in with the individual's ability to perceive his or her environment and to cognitively process the changes in it and his or her relationships to it.

Perception is defined in Webster's Collegiate Dictionary as (1) direct or intuitive cognition and (2) as a mental image or concept. Because of the distortion or absence of distant sensory information experienced by individuals with deaf-blindness, perception may also be distorted, or in some instances absent, unless the individual has developed alternate ways of interpreting the physical or social environment. Many individuals with deaf-blindness have relied on their intuitive ability to interpret the environment. The accuracy of this ability varies considerably between both individuals and situations. Experience, motivation, feedback, cognition, and awareness are certainly important factors in the development of this skill.

Bibliography

Anderson, D. W. (1984). Mental imagery in congenitally blind children. *Journal of Visual Impairment and Blindness*, *78*(5), 206-210.

By comparing the way that sighted children described selected common objects to the way totally and congenitally blind children described the same objects, the writers of this article were able to make conclusions concerning the nature and development of language in blind children, the educational needs of these children, and the common linguistic experiences of both groups of children.

Barrett, S. S., & Smith, A. M. (Eds.). (1986). *Employment options for young adults with deaf-blindness: Philosophy, practice and new directions*. Sands Point, NY: Helen Keller National Center for Deaf-Blind Youths and Adults.

Believing that transition from a protected family or educational environment to productive adult members of society can be very difficult for deaf-blind persons, these writers have compiled a list of articles which give necessary information on a variety of services available, choices, and work opportunities.

Barton, L. E., & Lagrow, S. J. (1983). Reducing self-injurious and aggressive behavior in deaf-blind persons through overcorrection. *Journal of Visual Impairment and Blindness*, *77*(9), 421-424.

As the title suggests, this article reports on an experiment using overcorrection as a technique of reducing undesirable behaviors in deaf-blind individuals, specifically, self-injurious behaviors and aggressive behaviors. In this experiment, the overcorrection proved to be an effective means of reducing these behaviors.

Bransford, J. D., & Stein, B. S. (1984). *The ideal problem solver: A guide for improving thinking, learning, and creativity*. New York: W. H. Freeman.

Bransford and Stein, using research findings, discuss the processes involved in successful problem-solving. They first point out unsuccessful problem-solving techniques such as physical escape, mental escape, and inappropriate strategies. Next, the writers propose a model for improving problem-solving which includes the five aspects of: identifying, defining, exploring, acting, and looking (at the effects). These five aspects are embodied in the acronym IDEAL, which is the name given to this model. A variety of exercises are included throughout the text to provide practice in working with the IDEAL model.

Conrod, B. E., Bross, M., & White, C. W. (1986). Active and passive perceptual learning in the visually impaired. *Journal of Visual Impairment and Blindness*, *80*(1), 528-531.

This article is a report of an experiment comparing active and passive involvement of persons with macular degeneration in perceptual training methods designed to improve residual vision. The researchers found that those who were actively involved in the training showed more improvement than did the passively involved or the control group. They also found that perceptual training may contribute to successful visual adjustment.

Ficociello, C. (1977). *Behavior modification: A workshop proceedings*. Dallas: The University of Texas.

This article is a report of the proceedings of a workshop on behavior modification held in New Orleans, LA, in 1977. The participants discussed and reached conclusions concerning the ways people acquire new behavior. They then discussed how these findings could be applied to programs which deal with persons who are disabled. The participants learned how to develop behavior modification programs and how to effectively document these programs.

Longo, J., Rotatori, A. F., Kapperman, G., & Heinze, T. (1982). Procedures used to modify self-injurious behaviors in visually impaired, mentally retarded individuals. *Education of the Visually Handicapped*, *XIV*(1), 77-83.

This article is a review of procedures available to eliminate self-injurious behaviors in deaf-blind persons. Among these procedures are: restraints, drugs, shock, punishment, positive reinforcement, and overcorrection.

Neef, N. A., Schafer, M. S., Egel, A. L., Cataldo, M. F., & Parrish, J. M. (1983). The class specific effects of compliance training with "do" and "don't" requests: Analogue analysis and classroom application. *Journal of Applied Behavior Analysis*, *16*(1), 81-99.

This report is the summary of an experiment conducted first on a group of developmentally disabled children, then in a classroom setting in which compliance with "do" and "don't" requests was studied. The experimenters used various approaches to determine to which type of request the children comply best. The researchers found that consistent reinforcement of either "do" or "don't" requests elicited the highest rate of compliance.

Nemshick, L. A., Vernon, M., & Ludman, F. (1986). The impact of Retinitis Pigmentosa on young adults: Psychological, educational, vocational and social considerations. *Journal of Visual Impairment and Blindness*, *80*(9), 859-862.

The writers of this article discuss the feelings of persons who suffer from Retinitis Pigmentosa concerning employment, mobility, and socialization.

Roehrig, A. A. (1980). *A deaf person's adjustment to Usher's Syndrome.* Washington, DC: Gallaudet University.

This simple pamphlet provides definitions and explanations concerning Usher's Syndrome and Retinitis Pigmentosa, as well as information concerning genetic counseling, screening, education, and social adjustment. Brief vignettes about individuals with Usher's Syndrome are included.

Schwartz, T. J. (1983). Social cognition in visually impaired and sighted children. *Journal of Visual Impairment and Blindness*, *77*(8), 377-381.

This report describes an experiment in which sighted children were compared to visually impaired children in the areas of spatial role-taking, social role-taking, and referential communication. The researchers found that visually impaired children, if given significant verbal interaction with others, are able to function on a level equal to that of sighted children in the areas of referential communication and social role-taking.

Simpson, R. L., Sasso, G. M., & Bump, N. (1982). Modification of manneristic behavior in a blind child via time-out procedure. *Education of the Visually Handicapped, XIV*(2), 50-55.

This article is a description of the successful use of time-out procedures to reduce undesirable behaviors in children with visual disabilities. The specific behaviors targeted in this study are "eye gouging" and "head wagging."

Stevens, R. P. (1976). Experientialᴨdeprivation: Another response. *American Annals of the Deaf, 121*(5), 494-496.

This article is a critique of the article, "Experimental deprivation: Unsolved factor in the impoverished socialization of deaf school children in residence." The writer suggests that more research be done before ascribing to Evans' findings and acting on them.

Vernon, M. (Ed.). (1978). Usher's Syndrome: The personal, social and emotional implications [Special issue]. *American Annals of the Deaf, 123*(3).

This issue of *American Annals of the Deaf* is comprised of articles from the presentations at a workshop sponsored by the South-Central Regional Center for Services to Deaf-Blind Children. Articles include the needs of families, genetic counseling issues, the psychological considerations, continuing education, and visual screening concerns.

Wood, M. M., Combs, C., & Lomarc, A. (1976). *Strategies for managing severe problem behavior while fostering emotional growth.* Athens, GA: The Council for Exceptional Children.

Wood, Combs, & Lomarc have put together this workbook to accompany a training institute sponsored by the Council for Exceptional Children. The workbook contains articles on child behavior assessment, child development theory, specific behavior issues intervention models, and 12 management techniques. It is designed to be used with accompanying videotape and lectures.

TEACHING ISSUES

Teaching situations vary tremendously depending upon the material presented, the type of program, the learning and communication styles of the individual with deaf-blindness, and the experience of the teaching staff. The issues addressed in this discussion are student-teacher interaction, use of interpreters and supplementary instructional personnel, and instructional materials.

Teacher and Student Interaction

The recommended ratio of teacher to student varies according to the material being taught, the safeness of the environment, the skills of the student, and the level of visual and auditory functioning of the student. Initial orientation and mobility instruction on crossing a busy street would obviously be a one-to-one activity; whereas, helping to prepare sandwiches for lunch in a group home may work best with one teacher and four or five students. The recommended, but rarely adhered to, ratio of teachers to students with deaf-blindness is usually one teacher to two students. To facilitate maximum use of personnel, students should be encouraged to work independently for short periods of time. One frequently mentioned educational objective relates to extending the length of time the student is able to work without prompting or teacher intervention. This is to help the student prepare for work-related responsibilities where expectations and staffing patterns are different than in a school setting.

It should be noted that the intensity of the instructional interaction can be extremely taxing, physically and emotionally, for both teacher and student. This often prompts the rotation of personnel working with more physically and emotionally demanding students, but it is important to remember that the student also tires. Fatigue can and does affect learning. Students who do not have the ability to entertain themselves or to work unprompted as a respite from instruction are at an extreme disadvantage in programs with larger ratios between students and teachers.

Many students favor certain instructional personnel and may purposely do poorly with other personnel in order to stay with the favorite one. This may be particularly evident when students move to new programs or schools. The adjustment to new personnel and learning environments often takes a long time, especially for lower functioning students. Students can be distracted by the newness of the environment; adjustment may be enhanced by allowing the student to make a lengthy and thorough examination of the environment. If this is accomplished with familiar personnel before the introduction of new personnel, the transition to a new facility can be less traumatic for both the student and staff.

Use of Interpreters and Supplemental Instructional Personnel

What happens when there is a perfect vocational training opportunity except that none of the instructional personnel knows the special communication skills necessary to work with an individual with deaf-blindness? One possible solution is the use of an interpreter. Interpreters skilled in the use of tactual sign are somewhat rare and the physical energy required usually necessitates the use of at least two interpreters for any period in excess of one hour. This can quickly become a very expensive proposition, often costing more than the tuition for the

actual training program. If the training is one that requires written homework or readings, there may be additional expenses of a reader/tutor to summarize the information and an interpreter to express the information to the individual. If the person is proficient in braille and text materials are available in braille, the homework/reading aspects of a training program can be greatly facilitated. This is also true of individuals who can read large print or have some residual hearing for taped materials.

The responsibility of the interpreter is to interpret and, if agreed upon in advance, to help guide the person with deaf-blindness. Unless special arrangements are made in advance, the interpreter is not a teacher or tutor and is not necessarily responsible for the behavior or needs of the student. Often an interpreter/companion or rehabilitation aide will take on these additional responsibilities and can provide instructional personnel unfamiliar with deaf-blindness with some inservice training. Whenever possible, it is advisable to include the deaf-blind individual in staff training opportunities. Higher functioning deaf-blind persons will have good suggestions and ideas for modification of classes and/or instructional occasions.

Instructional Materials

Instructional materials are designed to be understood via all sensory forms: (1) haptic or tactile, (2) visual, (3) auditory, (4) kinesthetic (pertaining to the sense of movement), (5) olfactory (pertaining to the sense of smell), and (6) gustatory (pertaining to the sense of taste). Whenever possible it is good to combine the ways in which information may be perceived by the learner. Some individuals will have specific learning styles for which modality of presentation is a factor. Learning style is defined in a variety of ways. Simple definitions such as that of Della-Dora and Blanchard indicate that learning styles are a personally preferred way of dealing with information and experience (cited in Blakemore et al., 1986). As mentioned in an earlier section, Travers defined learning style as "an attribute of the individual which interacts with instructional circumstances in such a way as to produce differential learning achievement as a function of those circumstances" (cited in Blakemore et al., 1986). Essentially, the term "learning style" is a way to express and explain individual differences in how people learn, process, and retain information.

In developing instructional materials, it is important to consider the learning styles of the individual. Although "learning styles" refers to more than modality, modality is certainly a prevalent theme in learning styles literature (Blakemore et al., 1986). The assumption that an impaired sense may not be the primary learning sense is a faulty assumption. The reliability of that sense in isolation may be questionable, but for many it is still more dependable than other sensory modalities, especially for things like environmental cues.

Instructional materials can be presented tactually in braille, electronic braille, Optacon, or computerized braille graphic formats. Less formal tactile formats include "hi-dots" markers, raised line drawing kits, puff paint, thermaform images, three-dimensional models, and hands-on life experiences. For example, if discussing the concept of cattle, a raised drawing of a cow may give an elementary idea; a narrative description in braille may be more accurate; a plastic model is even more helpful; but the actual cow presents the best and most accurate concept.

Bibliography

Allen, T. (Ed.). (1978). *Instructional Techniques for Teaching Deaf-Blind Children: Workshop proceedings.* Denver, CO: Mountain Plains Regional Center for Services to Deaf-Blind Children.

The workshop proceedings include papers presented by teachers with practical experience in the areas of language development, self-help skills, feeding problems, dressing techniques, positioning issues, and educational planning. The presentations contain specific techniques and activities which would be of special interest to educators of young children with deaf-blindness or older children and youth with severe multiple handicaps in addition to deaf-blindness.

Bannatyne, A. D., Bradtke, L. M., Kirkpatrick, W. J., Rosenblatt, K. P., & Strunk, D. L. (1971). *Development and trainability assessment.* (Available from William T. Kirkpatrick, Jr.; BKR Project; Sunland Training Center at Miami; 20000 NW 47th Ave.; Miami, FL 33054.)

The authors designed scales and rating systems for trainability, susceptibility to motivation, and speed of performance for normal young children and mentally retarded children.

Baud, H., & Garrett, J. (Eds.) (1975). Multi-dimensional models for teaching deaf-blind children. *Proceedings from the 2nd Annual Spring Workshop for Professionals Serving Deaf-Blind Children in the South Atlantic Region.* Raleigh, NC: State Department of Public Instruction.

These proceedings include the following presentation monographs:
Interpretation of Visual Reports-Marvin Efron
Language Acquisition in the Severely Handicapped-Mary Marshall
Motor Development and the Classroom Teacher-Cynthia Stone
The Interpretation of Audiological Evaluations-Judith Waddell
Behavior Management for the Deaf-Blind-Jan Writer

Bransford, J., Sherwood, R., Vye, N., & Rieser, J. (1986). Teaching, thinking, and problem solving: Research foundations. *American Psychologist, 41*(10), 1078-1089.

The writers of this article discuss new teaching techniques in problem-solving which focus on both general problem-solving strategies and specific knowledge that is organized appropriately for individual needs. New and better methods of teaching problem-solving, which will endow students with better life skills, are explored.

Busby, E. B. (1974). *Handbook for teachers: Deaf-blind services.* Fort Worth: Texas Education Agency, Education Service Center XI.

The premise of this publication is stated in the introduction. "The needs of the deaf-blind child seem to be to develop physical abilities, to learn to organize sensory stimulation, and to acquire language skills." The publication is to be used in conjunction with the Callier-Azuza Developmental Scale and contains information for teachers to assist them in working with deaf-blind students to achieve skill in the proposed areas.

Busse, D. G., Romer, L. T., Fewell, R. R., & Vadasy, P. F. (1985). Employment of deaf-blind Rubella students in a subsidized work program. *Journal of Visual Impairment and Blindness, 79*(2), 59-64.

This article is the report of a workshop in which members of the deaf-blind Rubella population are trained in assembly and self-help skills and observed as to rates of productivity. The results were very positive and point out the potential of individualized programming to meet the vocational needs of these persons.

Caldwell, E. K., Baldwin, S. J., & Brooks, B. L. (1974). *A competency based instructional program for teachers of deaf-blind children.* Raleigh, NC: South Atlantic Regional Center for Services to Deaf-Blind Children.

This article describes a complete program for teachers of deaf-blind children. Goals, topics, materials, outlines, and evaluative criteria are included. Also in the publication is information on the results and effectiveness of the program.

Cooper, J. A., & Bjorling, B. J. (1981). Individualized education programs for multiply handicapped students. *Journal of the School of Education/Indiana University, 57*(1), 31-35.

This paper attempts to review the mandates of Public Law 94-142 of 1975 (which provides for a free and public education) relative to IEPs (Individualized Education Programs) and examines the various areas that must be addressed in developing appropriate goals and objectives.

Das, K. (Ed.). (1975). *Curricula for the deaf-blind.* Bronx, NY: Mid-Atlantic North and Caribbean Regional Center for Services to Deaf-Blind Children.

This publication is an annotated bibliography of curriculum development materials relevant to the education of deaf-blind children. The guide is divided into seven categories of instruction and five age groups.

Donlon, E. T., & Burton, L. F. (1976). *The severely and profoundly handicapped: A practical approach to teaching.* New York: Grune Statton.

Donlon and Burton address assessment and educational programming for severely and profoundly handicapped students. Although persons with deaf-blindness are not specifically addressed, many of the instructional areas discussed have applications for teachers of students with deaf-blindness. These educational areas include visual stimulation and training, auditory stimulation and training, self care skills, communication, behavior, socialization, and family concerns. This publication is targeted toward issues of particular interest to teachers.

Egan, I., Fredericks, H. D., & Hendrickson, K. (1985). Teaching associated work skills to adolescents with severe handicaps. *Education & Treatment of Children, 8*(3), 239-250.

In this article, Egan, Fredericks, and Hendrickson report on underlying reasons that persons with disabilities have difficulties with community jobs. They report that associated work skills, such as communication, self-help, and the like, are often missing. They suggest that one way to alleviate this problem is for related curriculum to be integrated into the secondary schools that these persons attend.

Elioseff, J. (1971). Training or education: Learning patterns of younger deaf-blind children. *Fourth International Conference on Deaf-Blind Children, August 22-27, 1971 at Perkins School for the Blind* (pp. 85-106). Watertown, MA: Perkins School for the Blind.

In this article, Elioseff suggests redefining the minimally educable classification of deaf-blind children. The present classification, according to this writer, is restrictive in that it prevents children from participating in academic programs.

Ficociello, C. (1975). *After school needs of deaf-blind and other multihandicapped children.* Dallas, TX: Callier Center for Communication Disorders.

This publication of activities developed by teachers at an activities workshop contains information of specific interest to parents and after-school recreational personnel who are trying to find fun and educational activities for children with minimal expense for materials. Most of the activities use "scrounged" supplies and are specifically to encourage sensory stimulation.

Ficociello, C. (Ed.) (1976). *Techniques of teaching deaf-blind children.* Dallas, TX: South Central Regional Center for Services to Deaf-Blind Children.

Directed toward teachers of young deaf-blind children, this publication addresses specific issues such as communication through massage, visual assessment and stimulation, task analysis, and the transition from sign to reading skills. The publication is based on a workshop presented in Oklahoma City.

Jones, T. W. (Ed). (1975). *Manual for language development.* Bronx, NY: Mid-Atlantic North and Caribbean Regional Center for Services to Deaf-Blind Children.

This is a publication to be used by teachers, counselors, etc., who work with deaf-blind children endeavoring to help these children in language development. The publication provides information on objectives, materials, and methods to be used for 10 distinct levels of language development which are explained and outlined.

Lash, J. P. (1980). *Helen and teacher: The story of Helen Keller and Anne Sullivan Macy.* New York: Delcarte Press.

This epic biography of Helen Keller and Anne Sullivan reveals vivid remembrances of the teaching interactions and friendship of these two amazing women. Although it does not focus on the teaching methods so much as the personal dependency of Helen and her teacher, the book does provide fascinating reading.

Lockett, T. (1976). *Role modeling: Alternative prevocational training for the deaf-blind.* Lansing, MI: Midwest Regional Center for Services to Deaf-Blind Children.

This article describes a project performed with deaf-blind individuals to improve their productivity and to decrease undesirable behaviors. The project was largely successful in that three of four participants were able to enter a local sheltered work setting.

Lockett, T. (Ed.). (1976). *Changing pre-vocational expectations and perceptions of deaf-blind* [workshop proceedings]. Lansing, MI: Midwest Regional Center for Services to Deaf-Blind Children.

Concern over the types of activities and expectations developed as prevocational programs prompted the development of this workshop. The need for solid prework, work adjustment, and vocationally related prevocational activities is emphasized throughout the proceedings. Specific concern over successful community placements of deaf-blind individuals in meaningful jobs and satisfactory living arrangements is expressed and suggestions for change discussed.

Mercer, C. D., & Mercer, A. R. (1981). *Teaching students with learning problems.* Columbus, OH: Charles E. Merrill.

This textbook for prospective teachers contains information on assessing, diagnosing, and effectively correcting learning problems. The problems addressed in the text are not necessarily of a physical nature, so much as those related to learning style, personal preference, and attitude. The authors give a particularly helpful guide to assessing learning styles and preferences in students with limited expressive language.

National Children's Center, Inc. Deaf-Blind Project. (1978). *Task analysis for ball-point pen assembly* (Monograph). Washington, DC: National Children's Center, Inc.

This monograph contains specific directions to instruct a deaf-blind student in ball-point pen assembly using the methodology of task analysis.

Pimental, A. (No Date). *Handling the upper secondary and college Usher's Syndrome student* (Monograph). Baltimore, MD: RP Foundation Fighting Blindness.

This paper briefly addresses some of the issues faced by young deaf people who discover they have Usher's Syndrome and explains some of the alternatives available to them at Gallaudet University.

Robbins, N. (1971). The teaching of a manual-sign as a diagnostic tool with deaf-blind children. *Fourth International Conference on Deaf-Blind Children, August 22-27, 1971 at Perkins School for the Blind* (pp. 62-84). Watertown, MA: Perkins School for the Blind.

In this article, Robbins discusses teaching manual signs to deaf-blind children in order to use them as diagnostic tools. The author suggests that these signs can be used to evaluate cognitive development, communication competence, ability to maintain attention, and ability to solve problems.

Rouin, C., & Blea, W. A. (1977). *Proceedings: Basic assessment and intervention techniques for deaf-blind and multihandicapped children.* Sacramento: California State Department of Education.

Academic and intellectual assessment of children with deaf-blindness and those with multihandicapping conditions has been extremely difficult because of the lack of appropriate assessment instrumentation and the heterogenous nature of the population involved. This conference addressed the use of informal assessment techniques and teacher assessment in classroom settings.

Ryndak, D. L. (1986). The integration of the vocational curriculum component throughout the educational process for students who are deaf-blind or have other severe handicaps. In S. Barrett & A. Smith (Eds.), *Employment options for young adults with deaf-blindness: Philosophy, practice and new directions* (pp. 13-32). Sands Point, NY: Helen Keller National Center.

In this article, Ryndak cites the content, emphasis, purpose, and technology of vocational programs as reasons for lack of success in adequately preparing severely handicapped persons for employment.

ADDITIONAL RESOURCES

Bellamy, G. T., & Snyder, S. (1976). The trainee performance sample: Toward the prediction of habilitation costs for severely handicapped adults. *AAESPH Review*, *1*(4), 17-36.

Bellamy and Snyder have developed an assessment instrument, the Trainee Performance Sample, to facilitate counselors in determining time and cost of habilitating/rehabilitating severely handicapped adults.

DeSantis, V., & Schein, J. D. (1986). Blindness statistics (Part 2): Blindness registers in the United States. *Journal of Visual Impairment and Blindness*, *80*, 570-572.

This paper presents the results of a state-by-state survey of agencies serving individuals who are visually disabled.

George, D. S. (1975). *Prevocational/vocational curriculum aid for deaf-blind children* (Monograph). Bronx, NY: Mid-Atlantic Caribbean Regional Center for Services to Deaf-Blind Children.

This publication includes a model based on seven areas of living: communication, social, health and safety, economic, recreation, civic responsibility, and prevocational. Within these areas, levels and activities to reach competency are explored. The author also suggests evaluation techniques and formats.

Hammes, R. (1986). The necessity for the coordinated planning of special education, vocational-technical education, and vocational rehabilitation services. In S. Barrett & A. Smith (Eds.), *Employment options for young adults with deaf-blindness: Philosophy, practice and new directions* (pp. 1-12). Sands Point, NY: Helen Keller National Center for Deaf-Blind Youths and Adults.

This article presents a summarized history of services offered by special education, vocational-technical education, and vocational rehabilitation, along with rationale for combining services and improving communication between the three agencies.

Kaehler, T., & Minihane, W. M. (1977). *Deaf-blind bibliography* (rev. ed.). Watertown, MA: Perkins School for the Blind and the New England Regional Center for Services to Deaf-Blind Children.

This bibliography, although somewhat dated, is a comprehensive listing of references specific to deaf-blindness available through 1977. The citations are arranged by topic and include references of interest to educators, parents, families, and consumers.

Lambert, W., Griffin, T., Pike, C., & Kurr, R. (1980). Group assessment and structured learning. *Journal of Visual Impairment and Blindness*, 74(5), 225-228.

This article is a study of structured learning therapy and group assessment, two new techniques which are being used to plan individualized programs for blind, multihandicapped youth.

Nelipovich, M., & Naegele, L. (1985). The rehabilitation process for persons who are deaf and blind. *Journal of Visual Impairment and Blindness*, 79(3), 104-109.

The writers of this article suggest that traditional methods of service delivery to deaf-blind clients are in need of modification, and they make suggestions concerning these needed changes.

Schneck, G. R. (1986). Overview of current legislation and vocational education of students with disabilities. In S. Barrett & A. Smith (Eds.), *Employment options for young adults with deaf-blindness: Philosophy, practice and new directions* (pp. 46-70). Sands Point, NY: Helen Keller National Center for Deaf-Blind Youths and Adults.

This article provides both an overview of current legislation and a summary of past legislation concerning education and rehabilitation of deaf-blind persons. Schneck includes his view that much remains to be done to facilitate the participation in society of deaf-blind persons.

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