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ABSTRACT

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I. [illegible]

Provision of Total Education for All Children

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Strength development is a very important influence on posture. Poor strength development [illegible] poor posture. The converse is not necessarily true; good strength development does not necessarily result in good posture, but for the most part it can be assumed that individuals with appropriate strength development will have normal levels of acceptable posture. Strength development plays an important role [illegible] and positively, that having to do with social emulation. The blind child may not have had the opportunity to see how something is done the right way or to see how it is done at all because of his blindness. Without social emulation he may become a very strong individual and he may be able to use his musculature to great advantage, but his posture would not indicate that he is using these muscles most appropriately. So, through the development of strength, posture, and with attitudes of suggestion that come through social emulation, that does not necessarily have to be physical at all times but can be a matter of concern, some of the individual as he is going through a physical activity

Strength development is a very interesting consideration. Consider an activity such as jumping a rope. Is it possible in your mind to teach a deaf-blind child to jump rope? People who work with blind children I think would be in agreement with the understanding that a deaf-blind child could learn how to jump a rope. This question is, "Can the individual conceptualize what has to take place as far as the jumping of that rope itself is concerned?" Without a long discussion of the technique to use for this particular activity, it is pretty generally understood that with proper technique a child could learn to jump a rope in spite of his visual/auditory restrictions. We may have to adjust our approach somewhat, but nevertheless the child still could learn how to jump that rope.

In jumping rope there is, through the movement itself, an opportunity for strength development in the thighs and lower legs. This is an obvious advantage in developing strength.

We can place these children in weight training programs. Without attempting to create muscular specimen, they can handle weights in a weight-room or in a weight training situation which will be very appropriate and justified for them. There are variations in weight training which cut down on the possible over-development as far as the musculature is concerned.

Weight training itself can be a very useful adjunct to a training program in developing general physical fitness as well as strength. We should keep in mind that upper arm and shoulder girdle development is a very important part of the development of an individual, no matter what age or what sex. American children are notoriously weak in their upper arm and shoulder girdle strength. The instructor of these activities should keep this in mind so that there will be considerations made for this particular part of strength development.

Another factor is cardiovascular endurance relative to the deaf-blind child. Cardiovascular endurance develops primarily from running. How do we teach a deaf-blind child to run? The easiest way would be to have the child become familiar with his surroundings, develop a feeling of security, know and understand that no one is going to leave him, and then have him run with a sighted individual. The sighted individual could either hold the hand of the child or use a very short piece of rope and let the blind person hold on to it. Of course, there will be some restrictions which will be part of the situation but nevertheless it can be accomplished with a relative degree of ease. The situation may be different regarding sprinting, but in running a sighted individual can very easily assist a non-sighted person.

The third consideration involves games and sports for blind children. Depending upon the age of the child, of course, there is going to be a variation as far as the activities themselves are concerned. There are many wrestling programs existing for blind children.

Not only is wrestling a good opportunity for a blind child to experience rewarding physical activity, it also is another means by which components of physical fitness may be improved. Through participation and training, he can become a much more effective performer in everyday life. The success aspect is immeasurable. Up to that time, the blind child may not have had the opportunity to indulge in an event with satisfaction of such magnitude.

Modified tumbling is another activity possessing potential invaluable to the blind child. These modifications include definite understanding on the child's part that he will be safely spotted at all times. Individual activities include forward and backward rolls, cartwheels, head and hand balances, trampoline movements, and those stunts involving a partner (i.e., balancing and strength stunts).

Recreational participation includes swimming, rowing, and skating. With assistance from a sighted partner or instructor, the blind individual can row a boat, roller skate or ice skate, and participate in swimming. Individually, blind persons can function quite appropriately in water recreation.

Minor considerations should be made relative to the age, experience, and maturity of the blind swimmer. With proper preparation and professional guidance, a blind individual can learn to enjoy the water as completely as a sighted person.

Track and field events can be modified for the blind through the use of waist-high rope guides, set up on a 100 yard dash for example. Other modifications include overhead lines with a length of rope attached to which the blind runner maintains his grasp. There have been blind letter-winners in college cross-country who traveled the required distance by holding on to a short length of rope held by a teammate.

What can be arranged for a blind person regarding dance? Those with adequate hearing can respond to the auditory stimuli in associated body movements. With the deaf-blind, there are necessary adjustments. Having the participants on a wooden floor will relay vibrations through bare feet. Without "hearing" the music, a deaf-blind child can respond by means of vibrations received through tactile stimulation of the soles of his feet.

Considerations must now be made for the child of elementary school age. All children desire and should receive an opportunity to explore the space in their particular environment. This provides an opportunity for a child to learn about his space, how he best functions with it and which movements are going to be the most appropriate for his learning about limitations of that space. We all live in a certain territorial restriction. Although this territorial restriction may be somewhat of a suggested limitation, there is a need for the individual to learn as much as he possibly can about that particular space which he requires for his daily living and activities. The blind child, due to the limitations and restrictions placed upon him, has an additional problem in learning how best to use his space. He is restricted in the input received from the visual channel. The deaf-blind child goes beyond the problems experienced by the blind child in that he has two channels of input which are now restricted. So, not only is the deaf-blind child unable to respond to his spatial exploration due to limitations in vision, but he is also restricted by limitations in audition. Obviously, this individual is going to be very restricted in how he responds to that particular space which his body displaces. While most of us can function in a situation because we are able to make the appropriate adjustments to that situation as far as movement is concerned, there is a definite lack of input relative to the deaf-blind child receiving appropriate stimulation that will permit him to react most favorably in learning about the space in which he functions: He has difficulties in knowing space restrictions, how limited the use of that space may be, and understanding what elements of that environment may impose a threat to his successful function.

closely associated with space experiences in the environment that involves the actual movements required for the person to learn about his environment. Due to the nature of handicapping conditions under which a deaf-blind child must function, there is a definite reluctance on his part to move about his environment with a degree of security. The child, in most circumstances, has been the recipient of bumps, bruises, and abrasions which have led him to feel very insecure about his environment. Not only does he have recollection of experiences which have resulted in his being injured, but also he has had the experience of being inept when it comes to moving about his environment. A deaf-blind child should have situations provided for him which will lead to the development of confidence in his movement about his particular surroundings.

Infants begin to learn about their environment through movement at a very early stage of their development. They are constantly moving, touching, looking, and rolling to become more familiar with their immediate surroundings. In the process, they are learning how best to use their bodies as far as particular actions are concerned. They also are learning about that particular environment in which they are existing at that time which will then lead to a normal adjustment and familiarity with their surroundings to the extent that they are able to function most appropriately. In learning about their environment through movement exploration, children secondarily are developing those movement actions which will be most beneficial in support of their developing patterns which will be of use in the future.

Deaf-blind children have difficulties in this aspect of their development because of the lack of confidence which comes from input through the auditory and visual channels, which most of us use to an advantage. Such a child, because of his condition, is restricted in how much input he receives. Therefore, he must depend upon the other channels which provide less than a majority of the information necessary for him to function advantageously.

Very early in his life, the deaf-blind child should be provided the experiences which will result in his developing confidence in his movements relative to the situation in which he functions. The child should be provided the opportunity to develop an awareness of the objects contained within his environment around which he must function. We do not necessarily remove the obstacles from the individual's path. Rather, we would assist the child in such a way that he would develop the ability to understand that such obstacles are in his immediate surroundings. Once he has achieved this level of understanding, however limited it may be, the child is on his way to becoming a willing participant in those activities which will allow him to learn more about his environment.

Those of us who are sighted have learned about our bodies, and what they look like and how they function, due largely to the visual input we have received simply through observation of other people in movement. The blind child is not so fortunate. He does not have the opportunity to observe through modeling what the human body looks like and what some of the movements associated with that body demonstrate. It is imperative to have an understanding of body image. One way which is useful in assisting a blind child with the development of an understanding of his body shape and contour is through tactile stimulation. In such a situation, the child utilizes his hands in going over the contours of his own body as well as those of other individuals and learning, through touch, how the individual is shaped. He then will be able to internalize this tactile information to such an extent that he will hopefully develop a better understanding of what he is shaped like.

Once the child understands his body shape or body image, he then is able to develop appropriate actions resulting in maximum efficiency as far as the utilization of his body in movements is concerned. One consideration that must be made is the development of laterality. Laterality is the understanding of the body to such an extent that each side can be used independently of the other. This is an indication that the individual understands there is a mid-line to the body. He knows he can function with that mid-line and he understands that each side, though it is a part of the total body, can function independently. An example of this would be the development of the child's ability to drink from a container such as a glass or cup, from an action utilizing both hands to ultimately an action using one hand independent of the other. Individuals progress through a chain of movements which leads to this development. One of the reasons we are able to progress through this series of events is because we are the beneficiaries of visual input. This visual input is the result of our being able to see other individuals and learn from observation. The deaf-blind child does not have this opportunity. Therefore, the establishment of appropriate activities for the development of such body understanding as laterality requires the teachers of this individual to be aware of his needs. This awareness then can be used to an advantage through the establishment of activities useful in developing these skills.

The elementary age deaf-blind child has unique problems which must be taken into consideration. Through simple activities such as movement exploration, the development of body image, the understanding and exhibition of laterality, and the accomplishments of movement in general will lead to a more appropriately adapted child who has definite space and movement restrictions and can operate successfully with such restrictions.

III. TECHNIQUES

Innovative techniques in programming for adapted physical education are necessary if services are to be provided for deaf-blind children. No longer are the standbys of former programs providing the solutions to the problems manifested by deaf-blind children. There is an obvious need for individual instruction and participation which must be kept foremost in mind by the individual responsible for the program.

At the elementary level of instruction, which includes the primary or pre-school level, there are many activities which must be taken into consideration. Opportunities for movement exploration should be made available for the deaf-blind child. He should be provided situations which will result in his learning as much as he can about his environment and its restrictions. We must go beyond the point of having the child sit quietly or move slowly about his environment because we are afraid that the individual will hurt himself in some way. The opportunity for trial and error learning must be established for these children. They must learn about the restrictions through personal experience as well as the opportunities to receive most beneficial input from activities leading to most appropriate adjustment. The child must be provided situations which will lead to the development of body awareness. He should experience climbing activities, obstacle course activities, as well as tumbling activities. This will result in the child developing an understanding of what the body can do and what it cannot do, how it can be maneuvered to greatest advantage, and what coordinated activities are going to be necessary to result in most appropriate action.

All of us function in our environments with space limitations and an understanding of those limitations. The same may be said for the deaf-blind child. He will need to be motivated to learn more about his environment, but he must simultaneously understand that there are particular restrictions which must be learned. When these restrictions are understood, and the child still is able to function appropriately with minimal influence of a threatening nature, then the individual's confidence is his performance will begin to increase.

An individual's ability to learn through movement, and to learn movement activities, is going to be very closely associated with the confidence the individual has in himself, his environment, and his performance capabilities. Once the individual begins to manifest this feeling of confidence, then the ground work has been established which will lead to his becoming a more appropriately adapted individual in his particular situation. One of the greatest handicaps, or restrictions, which impedes the development of performance by deaf-blind children is the fact that they have very little confidence in themselves, their surroundings, or the individuals who are in their immediate surroundings. Through movement activities of various types, the individual can learn more about himself and his movements which will result in the development of an attitude receptive to suggestion that he learn even more in regard to his environment.

Locomotor activities are movement patterns demonstrated by individuals. These patterns involve walking, running, rolling, leaping, jumping, and throwing. These are just a few of the locomotor patterns which are possessed by humans. Because we possess these movement capabilities does not mean that they will be developed to greatest advantage unless there is positive influence from environmental sources. This is one reason why physical education programs are so important at the early stages of an individual's development. We not only should learn to function most appropriately through locomotor activities; in addition, we should learn to function most appropriately to the extent of our capabilities.

Locomotion is the movement of the body from one point in space to another point in space under self-propulsion. We are capable of receiving environmental feedback through the auditory and visual channels which will indicate to us our degree of success in most appropriate movement. Without input from these two channels, we would not be as capable of learning through our movements.

The elementary age individual should benefit from those activities which are going to lead to appropriate adjustment and movement. In the process, he will develop an understanding of his body, realize the restrictions imposed by the space in which he functions, and learn to function most appropriately in that environment. This will lead to the development of confidence which then promotes the willingness on the individual's part to learn as much as he can about movement. This will lead to further attempts on the individual's part to develop the activities in movement which are going to be used to greatest advantage in the individual's existence.

When dealing with small groups of children, there are some basic considerations to keep in mind. In this particular situation, small groups refers to three or four children. At the elementary level, the child should

have some of the following experiences established for him. He should learn that movement can be accomplished in a safe environment. The way this safe environment is to be established depends upon particular situations. Basically, the individual must come to the realization that he is relatively safe in that particular environment and will not be the recipient of unknown or unexpected injuries.

At this particular level, some suggestions for environmental structure which will promote the understanding of a safe environment would include the following: a large room with floor covering of sufficient thickness to diminish the chances for injury in the event of falls. An example of this could be a wrestling room with wall-to-wall mats in it. These mats provide a safe underfooting for the individual. Additionally, most wrestling rooms in public schools will have protective matting to a height of about three or three and a half feet on all walls. The individual can learn the extent of the protective mats on the floors and the walls through exploration of that environment and movements of the hands to transmit this information to the brain. The child, or children, can move about that environment by either crawling or being assisted by a sighted individual. In moving about, the child can touch the matting on the walls and the floor, roll on the floor, and understand through touch that there are protective surfaces which he will come in contact with. This will alleviate the attention the individual must give to his well being. That means he can spend more time, and make more effort in becoming more movement oriented. He can spend time previously utilized in making certain he was not going to be injured, or hurt in some way, in a more productive manner relative to the movement in that particular situation.

Large grassy areas outdoors can be used to a great advantage. Not only does a child have an opportunity to move about a safe environment, but he is also provided a situation where he can benefit from activities conducted in fresh air and sunlight. Grassy areas are generally minimally restrictive if they are of significant size. The child will realize that he can move about in that situation without being influenced by the possibility of injuring himself through contact with an unexpected obstacle. The use of inclines can be a distinct opportunity for teaching some activities. Combined with the force of gravity, these inclines can aid the individual's moving. He can run down hills, roll down hills, run up hills, and learn how to use his body in movements which are at slight inclinations other than those previously experienced.

A blind child never has the opportunity to really express feelings of freedom in his movement. No matter how freely sighted individuals exhibit their varieties of movement, they still receive visual input which permits slight adjustments resulting in movement most beneficial to the individual. For the blind child to develop feelings of freedom in movement requires very serious consideration in the establishment of the situation and the types of activities utilized. The development and the provision of these experiences will require a considerable amount of time and effort on the instructor's part, both in preparation and application.

The teacher should maintain fairly close contact when working with children in small groups. There should be maintenance of adult supervision in close proximity to the individual. This does not serve as much for assisting the individual as it does provide a means by which appropriate

anticipation will result in minimal adverse influence. This way, the child can be aided for safety purposes while at the same time be guided away from situations which can prove harmful.

When dealing with older children who have restrictions in vision and hearing, there is a particular attitude which must be established by those who are working with these children. They must keep in mind that these children have limitations. However, these limitations may not be those limitations which the child exhibits as much as the limitations which are imposed upon the child by those who are responsible for his well being. The fear of injury may not be a feeling demonstrated by the child more than it is an attitude which is imposed upon the child by his parents or teachers. We may inculcate this fear of injury through our own fears which are then fostered upon the individual. We may be fearful that the child will experience harm to the extent that we overprotect the individual and do not allow him the opportunity to experience situations which he will have to deal with for the rest of his life.

To permit most successful involvement with an individual's environment, we must arrange situations which are going to lead to successful experiences. In the establishment of these situations, we must make certain that we do not eliminate all of those factors which will be useful to the child in functioning most appropriately in his environment. We cannot eliminate all of the danger factors. We rather should assist the individual in recognizing his own limitations. With an understanding of his limitations, knowledge of environmental limitations, and realization of movement capabilities, the individual will depend less on others for assistance and more on himself for independence.

In promotion of locomotor development, there are some general considerations. Any time we move about our environment, we must have input significant enough to warrant our feelings of security in moving about that environment. One way in which to establish these feelings of confidence with a deaf-blind child is the maintaining of contact with a sighted person while performing some of these locomotor patterns.

Before a blind individual can move appropriately with a sighted individual, he must understand how best to maintain contact with the sighted individual. Generally, the blind individual will grasp the sighted person's arm at the elbow joint, or just above the elbow. The sighted individual carries the appropriate arm at a normal 90 degree angle. This method of assistance allows the blind individual a degree of control over the speed or direction of the sighted individual through the movement. It is not a matter of the sighted individual holding on to the blind person and dragging him along through a series of activities. Through such contact a locomotor activity such as walking can be obviously arranged to meet the exercise needs of the blind individual. To attempt further locomotor participation, such as running, would not be suggested with this method of contact. However, there are ways in which sighted and blind individuals can participate together in running. A short length of rope can be grasped at either end by the sighted and blind individuals. In this way contact is maintained, although direct contact is not established and maintained, so that there is a degree of freedom in movement by both participants.

A lead up of such situations will ultimately result in the establishment of safe movement activities by the blind individual. He will have learned about his environment to the extent that he feels relatively secure in moving about without being unduly injured.

In the establishment and conducting of programs in movement for deaf blind children, there are some techniques as well as technical developments which are needed by teachers. These needs are not necessarily the result of the teacher's innovative thinking. Instead, they are the result of influence from a variety of sources.

Teachers should be open for suggestions from other professionals and parents regarding programs and activities for deaf blind children. That is not to say that other professionals and parents know the teacher's job better than that teacher, but they do have similar interests as far as the education al development and achievement of these children are concerned. Being receptive to suggestions does not mean that the suggestions have to be utilized completely; rather, it is a means by which a teacher can augment the teaching situation to the benefit of the child in that particular circumstance.

All teachers have particular ways in which they conduct training programs and provide experiences for children. Many of these situations can be successfully modified to meet the needs of children who have problems of various types. In addition, the teacher can rely on past experience and information gleaned from the literature to appropriately influence the learning situation. Due to the nature and variety of past experiences, many teachers can modify that which has proved successful with other groups of children and use it very appropriately with deaf-blind children.

A basic consideration which I think teachers do not use to the best advantage involves improvisation of activities by the child or children in a particular group. Children should in some part of their program have an opportunity to devise activities and implement movements which are most significant to them. They can develop personal activities along individual lines which are going to be important to them. Many times what the child will demonstrate in the way of interest may be more closely associated with individual selection than selection suggested by the teacher. To develop this technique, the teacher must communicate the feeling of freedom to a child which will result in his expression of a very unique activity. The uniqueness lies in the understanding that the individual is performing according to his own desires. Before this situation can be established and maintained, the individual must feel relatively secure in his surroundings. He will be very guarded in his performance if he is not certain of the provision of safety.

Teachers are quite adept at utilizing techniques which have been generalized by authorities in the field. We do not necessarily take what an individual suggests verbatim and apply it to our class. Instead, we modify and adapt some techniques which we, as teachers, feel to be significant attributes in the provision of a satisfactory program for our students. Some of these individuals in movement development include Charles Buell. He has written a significant amount appropriate to the needs in physical education for the blind child. His explanations are concerned primarily with blind children of adolescent age. The needs of these blind children can be met through involvement with regular athletic competition under the guidance of a very skilled coach. The results from such participation are as valuable for the deaf-blind child as they are for the sighted child.

[illegible] have developed about how learning takes place [illegible] the concept that individuals [illegible] of their information [illegible] The perceptual theory [illegible] the deaf blind child. [illegible] muscular strength, coordination, and balance.

One of the most recent advocates of [illegible] to the perception of learning is that of Bryant Cratty. He explains that sensory-motor learning [illegible] the learning situation does not necessarily occur in the classroom. A child learns through a variety of experiences which are arranged in many situations. Learning should be fun and at the same time alter the behavior of the individual. He has devised a variety of activities which can be used directly or modified in dealing with deaf-blind children in the school. Of the individuals briefly discussed here, Cratty probably has most appropriate application to the deaf blind child. Activities suggested in a variety of publications can be used most advantageously.

A few years ago, Newell Kephart developed his theory of perceptual motor match. Without a discussion of what this perceptual motor match entails, an indication of significant components will be briefly mentioned. Initially, he feels that posture and balance are of singular importance in the adjustment of the individual to his environment. We are constantly assuming body positions which are demonstrated by posture. The assumption of these positions results in our demonstration of balance. This balance is in direct response to the influence of gravity upon our bodies. This influence of gravity is maintained and exerted throughout our lives. We must learn to function most appropriately through postural adjustment and response to the force of gravity on our bodies. The blind child has difficulty in correct posture assumption and development of balance because of (1) lack of model imitation and (2) movement activities which will provide appropriate stimuli stimulation necessary for the maintenance of balance.

Kephart discusses contact as being a very important part of a child's perceptual motor development. His explanation of contact had to do with the manipulation of objects by hand. Many children are deprived of opportunities to manipulate objects of various sizes, shapes, and textures simply because objects with these differing characteristics are not in their environments or provided for their experience. The blind child particularly can benefit from such opportunities if the experiences are arranged for him. Finally, Kephart discusses receipt and propulsion. These elements are concerned with the receiving of objects coming toward an individual and the releasing of objects away from an individual. Practical observation and experience in receipt and propulsion result in the individual catching and throwing a ball, for example.

Techniques which can be used to an advantage by a teacher are associated with similar objectives which are used in regular physical education classes or can be used by the regular classroom teacher with necessary modifications. These objectives increase minimal physical fitness levels.

For purposes of daily living, it is essential that all individuals maintain at least minimal levels of muscular performance. Unfortunately, many adults maintain only these minimal levels of performance. To perpetrate this

In discussing the topic of "Vocational Counseling for Deaf-Blind Children--A Rehabilitation Model", I wish to: 1) focus on the challenge for professionals, parents, community, and agencies; 2) discuss existing research; 3) discuss the concept of vocational counseling; 4) discuss the prospects for success; and 5) comment briefly on recommendations for habilitation and rehabilitation of deaf-blind children.

The Challenge

The overall mission of all local, state, and federal service agencies is to facilitate human effectiveness. In the field of rehabilitation, vocational awareness, selection, training, and placement are the most sought after goals. It appears from a review of the literature relating to the habilitation and rehabilitation of deaf-blind persons, that this population presents a unique challenge to achievement of these goals. Needless to say, a review of the literature only serves to confirm that which many of us here today have already experienced, and are experiencing on every single occasion that we have the opportunity to interact with a deaf-blind person. This is to say, that the deaf-blind population represents a very diverse group of people with very diverse needs. The diversity in the deaf-blind population manifests itself in the form of multiple handicaps seldom encountered with any other population. Among the multiple handicaps identified through a recent study in 1973 are: brain damage, cerebral palsy, epilepsy, heart disorders, emotional and behavioral disorders, learning disabilities, mental retardation, orthopedic disorders, and perceptual motor disorders.

Dr. Harriet Kopp (1973), chairman of the Department of Speech Pathology and Audiology at San Diego State University, has posed some very significant questions which I feel each of us has asked ourselves at one time or another. Namely: "How can the diagnostician or the statistician evaluate the cumulative problem of the individual resulting from the combination of hearing loss, moderate motor discoordination, severe visual deficit and epilepsy?"; "Is such a combination more or less disabling than a severe hearing loss coupled with mild mental retardation and a perceptual motor disorder?"; "Where are the diagnosticians capable of such evaluations and of maintaining close and intimate relationships with the educational and rehabilitation establishment?" These questions are only a few of the many questions which we as professionals, laymen, parents, and administrators continuously ask. I do not propose to answer these questions, nor do I propose to clearly and without reservation stand here and advocate that anyone does. Nevertheless, these questions need to be answered and that is part of the reason why we are here today.

I shall borrow from a poem most appropriate for the occasion, entitled "Just For Today". It reads, "God grant me the serenity to accept the things I cannot change; the courage to change the things I can, and the wisdom to know the difference". I find the poem most appropriate because in providing the atmosphere, environment, and growth producing experiences needed by deaf-blind children, we are often unaccepting of the things we cannot change. I can imagine that many of us here today attempt to deny the obvious handicaps many of these children possess. I have encountered individuals in the past, including counselors, administrators, and parents, who fail to accept the obvious limitations of a particular individual. Often the result is that the handicapped individual labors under the goals and expectations of others,

which can be far removed from those of his own. I think we can all see how such an individual is striving, not for himself but rather to resolve the frustrations and guilt of the counselor, administrator or parent. The results are obvious; the individual satisfies few of his own needs, his frustration increases tremendously, he grows to resent and distrust his environment, and he views little positive growth within himself. I characterize the resultant individual as very hostile, afraid, and functioning significantly below his ability.

Further, I view all of us here today as possessing the courage to change the things which we can. When we assess the present functioning level of a deaf-blind child in terms of communication skills, social and psychological adjustment, pre-vocational and vocational awareness, educational level of achievement, self-care and independence, mobility, and attitude toward work, the resultant picture provides us with something with which to begin development and growth. As I view the process, I see that by engaging in the assessment of each child, we can: 1) determine at what level he has achieved; 2) determine at what level he is functioning; and 3) introduce measures to increase and develop his ability for growth and independence. Therefore, we can change these identifiable and unidentifiable entities by our insight, dedication, and involvement.

Finally, do we have the wisdom to know the difference between the things we cannot change and things which we can change? Need I ask, for asking implies that I am unsure of you and need your affirmations. I feel that your presence here implies your commitment. It also affirms your commitment to your community and agency.

In my assessment of a program's effectiveness in the past, it has been my experience that many program administrators and staff attempt to develop a "one-stop service". In their attempt to do so, they often isolate and neutralize their relationship with other agencies. The results are quite obvious. The relationship between agencies is extremely poor, the effectiveness of services to clients is diminished, the relationship between staff and clients is jeopardized, and the entire community of agencies and clients continues to experience a sense of inadequacy. It is in instances such as these that our wisdom and dedication are challenged. It is here that we must choose between services to deaf-blind children, parents and community, or services to agencies. I realize that the former area, services to deaf-blind children, parents and community is our expressed ideal. But is it our choice? Will it be to provide services to agencies or services to deaf-blind children, parents and community? You decide!

Research

Let me take this opportunity to review some of the significant research relating to deaf-blindness. Significant research by noted academicians in the field of deafness, blindness, and deaf-blindness has provided qualitative and quantitative results. Much of this research has been realized through the efforts of the Department of Deaf-Blind Children at Perkins, the American Association of Workers for Deaf-Blind Persons, Inc., the Industrial Home for the Blind, the New York University Deafness Research Training Center, and countless professionals indirectly involved in research at the local level.

Again I draw your attention to the research and program implementation presently underway by many researchers and counselors, among them, Dr. Jerome D. Schein of New York University's Deafness Research and Training Center and Dr. Peter J. Salmon, Director of the National Center for Deaf-Blind Youth and Adults. Internationally known is the work with deaf-blind children of Dr. Van Dijk published by Rotterdam University Press. As I bring the research closer to home, I must commend the coordinators, staff, and local program professionals in the regional centers across the United States. Having met most of the regional coordinators, I sense a great commitment and dedication to the implementation of effective services to deaf-blind youth and adults.

It is quite obvious to me that counselors must deal with the here and now, which might frequently force them to work outside a theoretical context. To do so, and meet with some degree of success, is both necessary and recommended, but not necessarily ideal.

It is very remarkable to see the number of counselors who, due to distaste and lack of time, find theories and research irrelevant and beyond them. Much of this has grown out of the lack of time to become involved in such, a lack of commitment to the profession, and just a basic matter of taste. Any of these reasons leaves the field of vocational counseling increasingly dependent on researchers, academicians, and others often far removed from the population of which it professes to have significant expertise. By choice, I will not propose any answers to these potential problems at this time, but will merely state that there are inherent dangers in a system which perpetuates the limited availability of counselors and academicians to interact concomitantly in research and client services.

Among the concepts about vocational counseling which go more or less unchallenged is the notion that vocational information, i.e. pamphlets, films, visits to factories and offices, and speakers representing various vocational fields, facilitate vocational choice by better informing youth about the "facts" pertaining to vocations (Osipow, 1968). Further, Osipow (1968) raises some significant questions regarding this concept. Among them are: How does this information accomplish the task of facilitating vocational choice? Under what conditions does it do so? Does vocational information provide useful information for all students at all times in the early stages of vocational decision-making? Are there circumstances when vocational information obscures rather than enlightens students about vocations?

Other questions raised by Hulslander (1958), Gonyea (1962), Holland and Nichols (1964), and countless others reflect the uncertainty of theories and concepts regarding vocational choice. It is quite evident to me that what the counselor decides to do when faced with such situations depends upon his ideas and conceptions about interests and what they are. He need also be concerned with how they are acquired, what factors determine vocation patterns in the normal course of events, and what circumstances can prevent a pattern from crystallizing as it should. The results of research obtained in such a context are more likely to be integrated into counseling practice than the results of research that do not stem from theory.

Vocational Counseling

Having introduced some significant questions regarding vocational choice, I wish to introduce to you the tenets of my concept regarding the actual implementation of my beliefs and ideas regarding vocational counseling. They are: 1) vocational counseling is person-centered--with self-concept and individual need as key constructs; 2) vocational counseling is for all students, not just those who are terminal; 3) vocational counseling activities must be continuous, sequential and multi-dimensional; and 4) the purpose of vocational counseling is not to force children into early decisions, but to provide them with a wide base of experience so that when they make decisions they will make realistic ones, supported by a background of knowledge and experiences.

I wish to place particular emphasis on the first tenet which directs itself toward the person with self-concept and need as key constructs. This position grew out of the work of Ginzberg(1971), Super (1957), Maslow (1954), Rogers and client-centered counselors (1951). This position holds as its central theses that: 1) individuals develop more clearly defined self-concepts as they grow older; 2) people develop images of the occupational world which they compare with their self-image in trying to make vocational decisions; 3) the adequacy of the eventual vocational decision is based on the similarity between an individual self-concept and the vocational concept of the career he eventually chooses; and 4) the needs of individuals may be arranged in a hierarchy.

It is my strong belief, and I venture to say that there are others of you who will agree, that vocational counseling is "person oriented". This is to say, that counseling must be directed toward achieving individual awareness, acceptance, development, and independence. What does this mean to each of you? Needless to say, we all will agree on many goals. This is not to say, however, that we will not share in some core goals; it is merely to say that each of us as individuals has certain ideas which we hold as significantly valid. We all maintain some degree of flexibility as individuals which are equally applicable to the deaf-blind individual. Dr. Ed Hammer (1973) states, "if there is one statement that can be made in summary about the deaf-blind population, it is that this is a highly diverse group in which each person requires a unique approach to formulation of his own individualized program". He further states, that in developing programs and services for persons who are deaf and blind adjustments are required in evaluative procedure, and flexibility is essential in the way experiences are offered. Significant is the fact that normative group comparison is negated, demanding that each person must have an individualized program which allows evaluation of his progress in terms of the personal achievement and attainment of objectives.

In vocational counseling, I am constantly reminded of the individual's self-concept and needs. It is without a doubt that the perceptions that a deaf-blind individual has of himself significantly influence his vocational choice. Donald Super (1957) drew the assumption that every given man possesses the potential for success and satisfaction in a variety of occupational settings. Needless to say, there are inherent dangers in this assumption when we attempt to apply it to the deaf-blind individual. Still it conveys the idea that in order to provide vocational counseling for deaf-blind individuals we must foresee these individuals as capable of maintaining employment and independence in a variety of settings.

I would also like to draw your attention to the fact that vocational self-concepts develop on the basis of children's observations of and identifications with adults involved in work. There is evidence to show that because some deaf children seldom see deaf adults, their concept of their future life and development is distorted and confused. It is also a fact that these same children have problems developing positive self-concepts in part due to the lack of reinforcement from deaf-adults. I have also been told by deaf children that maybe they just died when they grew up. It is possible that this void has grown from their lack of exposure to deaf adults engaged in vocations with which they could identify. I foresee these same problems becoming more evident with deaf-blind children as they approach vocational education and training. It is therefore very important that each deaf-blind child have someone and something which he believes in and identifies with.

Preparation for this cannot begin too soon. Ideally, it starts with early diagnosis of deaf-blindness, followed immediately by parent counseling. Too often, a lack in these two has led to neglect or unconstructive handling of the child. Consequently, knowledge of and the meeting of his needs comes too late to permit his developing to the limit of his innate maximum potential. Counseling then is very important even in the pre-vocational years of the individual. Where then must we concentrate our energies and how must they be implemented? We must concentrate our energies on assisting the individual in reaching "his" maximum potential and development. Again we must accept the basic premise that each individual has an innate potential for achieving some degree of satisfaction. We must also accept the view that, if given an opportunity, and provided with adequate opportunities, each deaf-blind child can and will reach his level of satisfaction. We must also accept the view that if provided with adequate counseling, education, and training, most deaf-blind children can achieve some degree of gainful employment.

As I look back on the basic needs inherent in each of us, I cannot help but see our basic needs for safety and protection, belongingness, love, respect, self-esteem, identity, and self-actualization.

Therefore, I view vocational counseling as a process. A process directed with the individual deaf-blind child and for the individual deaf-blind child. It is a process with the goals of achieving a positive self-concept, good attitudes and work habits, satisfaction, respect, identity, and countless others, depending on the capacity and environment of the individual. Having stated the characteristic objectives of the counseling process, let us now examine the underlying needs of each individual.

Underlying Need Concept

Inherent in each of us is what Maslow (1954) has described as "the basic needs". They are: 1) physiological needs; 2) safety needs; 3) belongingness and love needs; 4) esteem needs; and 5) the need for self-actualization. These needs form the basis for the formulation of a positive concept of motivation. They are diagrammed in terms of a pyramid with the physiological needs at the base and the need for self-actualization at the pinnacle. These needs form what Maslow describes as man's "need hierarchy".

Examining the "need hierarchy" involves a cursory overview of the preconditions for the basic need satisfactions. Such conditions as the freedom to communicate, freedom to investigate and seek for information, freedom to defend oneself, justice, fairness, and honesty are examples of such preconditions for basic need satisfactions. Thwarting of these freedoms will be reacted to with a threat or emergency response. These conditions are not ends in themselves, but they are almost so, since they are so closely related to the basic needs. These conditions are defended because without them the basic satisfactions are quite impossible, or at least severely endangered. In vocational counseling, these needs are to be recognized and respected, as they are the keys to developing a positive and unconditional relationship with an individual, regardless of the handicap or disability. Needless to say, there are other preconditions which we can further identify.

In vocational counseling, we must begin to assess the level in the "need hierarchy" at which the individual is functioning in order for us to be able to determine some of the needs of the deaf-blind child. I have labeled these needs "pre-vocational needs" because they precede any attempt at vocational counseling. Therefore, we must assess the physiological needs of the individual. That is, those needs which consist of hunger, drink, and the like. A person who is lacking food, safety, love, and esteem would probably hunger for food more strongly than for anything else. If all the needs are unsatisfied, and the organism is then dominated by the physiological needs, all other needs may become simply nonexistent or be pushed into the background. I have used this example simply to demonstrate how basic our needs system is and how there are certain things which we simply take for granted.

Given the above, we can then proceed to the need for safety. All that has been said of the physiological needs is equally true here, although in less degree. An indication of a deaf-blind child's need for safety is his preference for some kind of undisrupted routine or rhythm. He seems to want a predictable, orderly world. For instance, injustice, unfairness, or inconsistency in the parents seems to make a child feel anxious and unsafe. Young children seem to thrive better under a system that has at least a skeletal outline of rigidity, in which there is a schedule of some kind, some sort of routine, something that can be counted on. I can express this more clearly by saying that a child needs an organized world rather than an unorganized or unstructured one.

If both the physiological and the safety needs are fairly well satisfied, there will emerge the love and affection and belongingness needs, and the whole cycle already described will repeat itself with this new center. This need is manifested more clearly with the absence of friends, or a parent, or a pet. The thwarting of these needs is the most commonly found core in cases of maladjustment and more severe psychopathology. Also important is the fact that the love needs involve both giving and receiving love.

Each of us here has a need or desire for a stable, firmly based, usually high evaluation of themselves, for self-respect, or self-esteem, and for the esteem of others. Being divided into two subsidiary sets, we can further identify our needs. These are, first, the desire for achievement, for adequacy, for mastery and competence, for confidence in the face of the world, and for independence and freedom. Second, we have a desire for reputation, a prestige, recognition, importance and appreciation. Satisfaction

of the self-esteem needs leads to feelings of self-confidence, worth, capability, of being useful and necessary in the world. Thwarting of these needs creates feelings of inferiority, of weakness, and of helplessness. As Maslow (1954) states, "the most stable and therefore most healthy self-esteem is based on deserved respect from others rather than on external fame or celebrity and unwarranted adulation".

Finally, we come to the need for self-actualization. As we have no doubt seen in the many individuals with whom we have worked, a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for. What a man "can" be he "must" be. This need may be called self-actualization. The specific form that these needs will take will vary from person to person. In one individual it may take the form of the desire to be a programmer, in another it may be expressed in printing, still in another as a writer. In summary, the clear emergence of these needs usually rests upon prior satisfaction of the physiological, safety, love, and esteem needs.

Vocational counseling must, therefore, be directed toward the attainment of definite needs which, together with the counselor and client, will prepare the individual for coping with other uncertainties. This does not, however, eliminate the need for the individual client to attain knowledge of his potential capabilities, the world of work, educational and vocational training available, and potential job placement. The entire process is multidimensional involving every facet of the deaf-blind child's person, environment, and existence, resulting in what Helen Keller described as "the dignity of self-support and the joy of usefulness". For the counselor, he must maintain warmth, respect, empathy, genuineness, and positive regard for the individual. There is very little room for obstruction in the process, which must be eliminated if the child is to reach his potential for independence and self-respect. A desirable philosophy regarding the actual vocational education of the deaf-blind child seems to be expressed by Boyce R. Williams concerning the deaf: "Vocational teachers should be developers of good attitudes and work habits and should have realization and acceptance of the fact that their subject matter is not an end in itself; but is a means to the greater end of teaching boys and girls to be better, more effective, men and women."

Recommendations

For the counselor involved, the implementation of vocational counseling does involve some very specific preconditions. It requires: 1) a knowledge and awareness of the individual and his potentials; 2) a knowledge of vocational and educational assessment tools; 3) a knowledge of the world of work; 4) a knowledge of vocational and educational training programs; 5) an awareness of community resources; 6) an awareness of placement facilities; 7) a knowledge of counseling and human potential and 8) an awareness of his own limitations and assets. These are but a few of the skills which a counselor need possess in vocational counseling. In order to achieve expertise, some degree of formal training is advised and recommended, though this does not insure effectiveness in the area. In essence, there are many individuals who maintain a high degree of effectiveness without the training.

For the parent of the deaf-blind child there are obvious areas previously discussed which should attract your attention, specifically, the process of initiating habilitative measures with the early diagnosis of deaf-blindness. Obviously, too, there are many discomforts associated with the process and parental support is needed. At this time, there is a severe need for a positive and empathic relationship between the husband and wife. Evidences too is the need for counseling for learning to cope with the situation and for maintaining a productive and healthy environment for the child. Siblings have also been found to respond favorably to counseling when introduced during this critical period.

It is the interpersonal process, not vocational counseling itself, which readies the deaf-blind child for independence and self-respect. Yet, vocational counseling is not the end. Rather, it is a process, a congruent entity, which serves to assist the rehabilitation toward its goal. It is not an end itself. It does not satisfy all of the individual's needs. Therefore, it must be seen as only a significant part of the total process, involving all other aspects of the individual's reality. Therefore it is extremely critical that it be realized that a positive environment, involving the entire family, be maintained. Ann Roe (1957) has demonstrated very clearly several specific child-rearing techniques, all of which have to do with the manner in which parents interact with the child. Her work indicates how the loving, accepting parents offer satisfactory gratification of their children's needs at most levels. The personality that results in the child from accepting parental techniques is able to seek the gratification of his needs at most levels. Carolyn Torrie (1972) of the Callier Hearing and Speech Center, Dallas, Texas has compiled some significant research relating to the needs of some parents of deaf-blind children, therefore it is apparent that we can draw from these resources. It is very desirable to me that parents of deaf-blind children be afforded concrete services in the form of support counseling. This counseling can and should be developed through community agencies, assisted by city, state and regional officials.

Extreme emphasis needs to be placed on the development of training, job placement, housing, vocational skill, and transportation by community agencies and organizations. It is with the assistance from these entities that far greater services can be realized. There is no doubt that upon careful scrutiny by each of us, we can identify some particular areas in which more effective services can be provided to deaf-blind individuals. Your attention can and will bring about far greater awareness of what can truly be accomplished through dedication and commitment.

Conclusion

I have spoken a lot of words today. To some of you they make a lot of sense, to others, they make a lot of noise, but to most of you they convey a message regarding a body of knowledge and expertise still undeveloped. Therefore, it is the task before each of us here today to ready ourselves to provide a service to a group of individuals who, without each of us, will remain as isolated and undernourished as we have allowed some to remain in the past. It is to each of us a challenge, not one of us can be excluded.

As I part, I am reminded of a story which I wish to share with each of you and particularly to Hank Baud and his staff. The message is incorporated in this story.

In this day and age with the so-called generation gap between youth and adults being given lipservice throughout our nation, the generation gap exists in a small North Carolina community where full democracy is still practiced through the townhouse meeting. No decision was made in the community without obtaining the viewpoint of one who was respectfully audressed as the "Old Man" because of the extent of his wisdom and knowledge.

Two young men in the community grew to resent the old man and searched for a means of expressing their resentment and embarrassing the old man. One day, while walking in the woods, they captured a bird and the idea occured to them that this might be the means for expressing their resentment. They successfully sought and called a townhouse meeting and when the citizens had been assembled, one of them confronted the old man with the bird cupped in his hand and said, "Old man, I have in my hand a bird. Is he alive or dead?" The plan was that if the old man said the bird was alive, they would crush the bird and let it fall at their feet, but if the old man said it was dead, they would open their hands and let the bird fly away. The old man pondered for a few minutes and replied -- "It is in your hands."

What occurs as a result of this workshop is "In your hands."

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PREVOCATIONAL SERVICES FOR DEAF-BLIND CHILDREN AND YOUTH

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Definition of Terms

The rehabilitation process has been defined as a process consisting of a planned, orderly sequence of services related to the total needs of the handicapped individual. Medical, social, and psychological services are necessary to accomplish the rehabilitation process.

Sankovsky (1972) stated that work adjustment may be viewed as a therapeutic process designed to enhance an individual's vocational potential of life capacities, providing information or new experiences and/or changing existing behavior. Sankovsky also indicated that "work adjustment can seldom be successful without appropriate and prior social and personal adjustment". These are the roles of a pre-vocational transitional program in the school setting.

Thus, pre-vocational services may be defined as the provision of personal adjustment opportunities, social adjustment activities, and work adjustment training in a planned, orderly sequence for children who have received the maximum benefits from the educational program and need to be prepared to enter a work oriented program.

Overlap of Services

Many educators feel that their role is to teach the child academic skills and that their responsibility ends there. At the same time, many people in rehabilitation feel that their role is exclusively confined to the area of vocational training. Many experiences reported from rehabilitation literature have demonstrated that the programming for the severely handicapped person cannot be divided into two separate components; that is, education and training. Rather, rehabilitation must maintain a close working relationship among all programs and services 1. IRB, 1968, 2. Switzer, 1967, 3. Savisaari, 1968, 4. Fine, 1969, 5. English, 1970, 6. Stewart, 1971.

Further indications of the reality of these problems is evident by the proliferation of workshops, work activity centers, extended employment centers, supervised living facilities and evaluation facilities being supported by state and federal monies through rehabilitation agencies.

Due to the overlap of educational and rehabilitation services to the severely handicapped deaf-blind individual, it is now time to examine the role of each service and perhaps to begin to delineate what may be done to expedite services to the severely impaired client. If pre-vocational

services, as defined above as those daily living activities [illegible], or grooming, travel, personal, and work adjustment, and as [illegible] meaningful programming, these activities must begin in the schools. This means that before a deaf-blind child is expected to enter a vocational rehabilitation program, there are certain activities which should be taught in the classroom program and which should help the deaf-blind [illegible] function in a work situation after formal vocational training.

Traditionally, pre-vocational activities have been in a rehabilitation setting. These have tended to be more product oriented than those activities which are defined as pre-vocational activities for the school or classroom setting. The educational program which provides pre-vocational activities, therefore, may be identified as a transitional program, that is, a [illegible] program where there is a shift from academic priorities to vocational objectives.

Educators must be attuned to the needs of students and be aware of the long term goals for each child in their program. The criteria for transferring a child from the academic setting to pre-vocational activities, in the school setting, must be well established and understood by the teaching staff. This criteria should not be limited by the age of the child or by the behaviors which the child exhibits which may encourage his removal from the academic program.

The lack of communication between rehabilitation and education is a common occurrence. When serving the minimally impaired youth or adult, communication between these agencies is not critical. As the severity of impairment increases, there must be a proportionate increase in communication between educational and rehabilitation personnel. The results of this communication must be the establishment of common goals, agreement of methodologies to be used for instruction, mutual understanding of priorities of needs to be met, and pooling of all available resources from these and other agencies.

Education has the responsibility to rehabilitation in providing services that will enable the deaf-blind person to benefit from vocational services. That is, education is the logical setting for preparation of skills needed for entrance into rehabilitation programs.

Rehabilitation has the responsibility to educational settings to inform educators of the skills required for the deaf-blind student to enter training programs. Input into the development of educational activities by rehabilitation personnel is important to help establish appropriate educational goals and objectives.

These responsibilities must be met by personnel in both education and rehabilitation if services to deaf-blind persons are to be effective. It seems important to state again that no one agency or individual profession can provide all the services a deaf-blind person needs. All must work cooperatively if services are to succeed.

Study of Program [illegible] 197[illegible]

Numerous data indicate that over the past [illegible] years [illegible] changes [illegible]. The emphasis of educational services to these children has [illegible], changes in the provision of services, change in concepts of education, change in styles of teaching, and [illegible] of program [illegible]. This has meant questioning the role of the professional, the responsibility of school personnel to children, and the objectives of classroom activities. This reorientation has involved educators from the state level to local program personnel [illegible] as aides or volunteers. In many cases, this reorientation has not been easy to achieve. The reactions from personnel in the schools has been varied and has ranged from reactions of flight from the problem ("I'm getting out of here before I become too involved"), through reactions of fighting the problem ("They are not going to change my mind about educational procedures"), to denying the problem and resulting changes ("What do you mean 'deaf-blind' children?"), to learning to cope with the problem ("Deaf-blind children are first of all children and can benefit from coming to school. Now what do we do first?").

As more of these children are referred to state rehabilitation agencies, the same types of reactions may be expected. The current situation facing agencies providing vocational services is similar to the situation faced by those in education five years ago. There are large numbers of deaf-blind youth nearing the age when vocational services are needed and few programs are currently providing services to this population. Fortunately, rehabilitation has time to better plan than the educators, if the time is well utilized. If comprehensive services to deaf-blind youths and adults is to develop, there needs to be identification of existing resources for training, there needs to be justification of the population to be serviced, there needs to be a listing of the problems involved in placing the client in the services, and there needs to be a measurement of the outcome of services so that programs may be [illegible].

In school year 1971-72, one child was accepted into the deaf-blind program at the Callier Center for Communication Disorders in Dallas. This young man was 17 years of age, had previously been rejected by a vocational training program because of his behavior, and needed further educational opportunities to learn language, mobility skills, and attending behaviors. This case study served as a pilot inquiry into the types of activities which the classroom could provide to prepare a deaf-blind person to enter a vocational training program.

In the fall of 1972, a planning team was developed to assess prevocational services which were currently available for deaf-blind children and youth. The team visited eight facilities across the country, five of which provided direct services to deaf-blind persons in vocational training as well as adjustment opportunities before training.

Prior to the site visits, a series of questions was developed by team members to relate to current services and which asked questions regarding procedures for entering vocational training programs, costs, referral channels, follow-up procedures and evaluation techniques. Eight categories were assessed by the team: referral system, criteria for admission, evaluation procedures, training techniques, medical assistance, placement procedures, follow-up methods, and costs. (Appendix A)

[illegible]

Problems Encountered

Staff training programs seem to be concentrating on the academic or pre-academic programming when there is an immediate need for personnel to work with older children needing pre-vocational services. Long range co-ordination between educational facilities and rehabilitation services seems to be slow in developing or lacking.

At the present time, there are eight regional pilot programs studying the pre-vocational needs of older deaf-blind children. These studies are being conducted within the Regional Centers for Services to Deaf-Blind Children and include forty-one states. Hopefully, by the end of the fiscal year, trends will be identified which will permit the best use of the time available because, for these children, time is of the essence.

THE CALLIER PROGRAM

Consultants

The pilot pre-vocational program is funded by the Texas Education Agency and received supportive services from the administrative staff of the Regional Center for Services to Deaf-Blind Children. These services consist of educational, social services and administrative consultations. Other consultative services to the program include the areas of ophthalmology, audiology, social services, occupational therapy, physical therapy, as well as the full range of services available through the Texas State Commission for the Blind.

The Classroom

There are five children from the Dallas area enrolled in the Callier Deaf-Blind Pre-Vocational Program. The age range is 11 to 16. These students have educational handicaps which include: blindness, visual and auditory perceptual disorders, speech anomalies, hearing impairments, behavior problems, expressive and receptive learning disabilities, and gross and fine motor developmental delays. Two are totally blind and two are totally deaf. None are totally deaf-blind. The classroom is staffed by two primary teachers and teaching assistants.

Curriculum

The pre-vocational program curriculum is a combination of individualized instruction projects. Some of these projects are academic, while others are oriented toward daily living skills, hobbies, crafts, cooking, and allied arts.

Pre-academic visual-motor skills consist of eye-hand coordination, eye-foot coordination, directionality, hand dominance, shape and tactile discrimination, and spatial relationships.

The communication skills system utilized within the program is based on the standardized sign system which has been adopted at the Texas School for the Deaf at Austin. The educational approach is total communication with emphasis on associative learning.

Academic training includes mathematical concepts such as: number sets, measurement and time intervals, and sequencing. These concepts are reinforced with abstract and concrete objects and related experiences to facilitate the associative process. Language and auditory training are also essential parts of these children's education. The Peabody language method is utilized and is supplemented with stories to aid the student in comprehension and recognition of sequential events.

Community field trips are planned monthly to increase self awareness as well as awareness of environment aside from the family setting. These trips allow community members an opportunity to observe the deaf-blind student and, hopefully, to dissolve some of the misconceptions which have been associated with this population.

Physical exercise is included in the teaching component. Specific exercises are planned in orderly sequence to meet the basic needs of the individual. Many are Yoga exercises. Stretching exercises are particularly helpful in relieving tension since all stretching is inherently tranquilizing.

Many children have become so emotionally repressed, constricted, and inhibited, they cannot profit by ordinary exercise and calisthenics. Attitudes of the body often effect the attitude of the mind.

Balancing exercise requires the student's complete attention. In time, the habit of concentration generally makes it easier to focus attention inside or outside oneself. It is expected this attention and concentration will carry over in classroom training.

As we work with children on various levels, all areas of our program can be checked for strengths and weaknesses. The results may be good or bad, but from this, we can look at what has happened in student services and modify to meet their needs.

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AUDIOLOGICAL EVALUATIONS FOR DEAF-BLIND CHILDREN

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Introduction

It is in testing the hearing of the multiply-handicapped child that audiologists face one of the greatest challenges. The developmentally disabled child often displays problems which appear to involve auditory, motor, speech and language functions in such a manner that others have questioned the role of hearing in the child's disability, and the subtle and pervasive interactions of a combination of various handicapping conditions make it very difficult to determine accurately what the child's auditory capacities are.

Measurement of hearing by the pure tone and speech audiometer for an individual who communicates normally, and who has been able to follow directions, is a relatively uncomplicated task. In fact, one may question whether the skill of the audiologist should be used in much of this routine kind of testing that must be done in evaluating hearing loss. When a child without verbal language presents himself, however, and shows great difficulty in responding, we must apply all the knowledge and skills we have in differentiating between one who does not hear at the peripheral level, and one who may not hear at a central level, or for other complicated reasons. The problem confronting the audiologist, when he must evaluate the infant or very young child who has not acquired speech and language commensurate with his chronological age, is to determine those factors that are producing either the complete absence, or retardation, in language development. Once these factors are determined, the audiologist may refer the child to other appropriate specialists, including educational, and depending on whether the auditory problem is one that may require continuing audiologic monitoring, he may or may not be involved further to any great extent. In the case of the deaf-blind, he should indeed continue in an important role.

The Role of Audition in Acquiring Language

Audition plays such a pervasive role in the receiving and sending of information that one must consider the intactness of the auditory modality in the implementation of any educational program for any handicapped child. Our entire civilization is in fact highly dependent upon auditory transmission of information, and its importance in the education and habilitation of deaf-blind children cannot be overestimated. Furthermore, it is impossible to consider the development of audition in the growing child without relating it to his language behavior, which in itself is an enormously complex process encompassing a multitude of psychosensory abilities, internal symbolic processes, and motoric-vocal expression functions.

These abilities depend not only upon a reasonably intact peripheral mechanism, but also upon the proper functioning of central nervous system (CNS) mechanism which mediate the transmission, orderly integration and assimilation of stimuli in order to present accurate sensory-perceptual patterns to the higher symbolic centers.

We are lacking a comprehensive theory concerning auditory perceptual development, although important contributions in this area have been made recently by Friedlander (1970) and Eisenberg (1970). Friedlander emphasizes that issues related to infant listening and receptive processes have been virtually ignored in the proliferation of language studies throughout the sixties. There is general acknowledgement, however, that language input is a necessary prerequisite for the organization of speech. Despite this obvious truism, the development of auditory perception in general, and of language perception in particular, have been accorded relatively little time by researchers.

One perplexing phenomenon which plagues the erstwhile investigator studying auditory development is the fact that once the child begins to listen selectively and with meaningfulness, he has simultaneously learned to inhibit or 'tune out' those sounds which are non-meaningful. The mechanism of central and peripheral filtering that attenuates unwanted stimuli and exercises selective attention among multiple stimuli is a distinctive feature in studying the differences between auditory and visual receptors. For example, a baby can close his eyes to avoid looking, but he must invoke entirely different central nervous system mechanisms to tune out unwanted auditory inputs. Thus, separating significant language signals from irrelevant household and family noise in the infant's environment is undoubtedly a most difficult initial task for the immature auditory system in learning to listen to language effectively.

Eisenberg (1970) has demonstrated that human infants have the capacity right from birth to respond selectively to different auditory signals, although such differential signal recognition is relatively crude compared to the very refined acoustical discriminations which become possible later in their development. She has shown that the newborn infant can actively regulate auditory stimulus events around him, and thus we can dispose of the old notion that very young babies are simply passive recipients of outside stimuli. The child whose preverbal language in this early period is accepted by his parents as an outward manifestation of his need to become a communicating member of the family is indeed fortunate. That is to say, the child is reaching out to communicate with his family long before spoken language is developed. In turn, verbal language will be enhanced when the infant's preverbal attempts are needed and positively reinforced. Educators of deaf-blind children should capitalize on this principle in terms of its implications for parent involvement in the early education of their children. Early intervention programs which are directed toward the parents in the child's earliest years are an absolute necessity in making effective use of residual hearing levels in deaf-blind children. The normal sequence of auditory development thus becomes an important frame of reference for both the teacher and the parents in this early stage.

In the first weeks of life the child will respond reflexively to a variety of sounds, particularly those which are sudden and loud (McConnell et al., 1974). Hearing screening of the newborn, for example, is done at

a period when the startle reflex is easily activated. The infant soon begins to listen selectively to his sound environment, and the reflexive responses become harder and harder to elicit as he develops in his ability to associate meaning with sound. It appears he first responds to moods and emotional values in the voices of those around him rather than to specific meanings of words. For example, the mother may talk to him in a soothing voice until she evokes his cooing and smiling behavior which reflects his state of well-being and content. This response furthermore denotes an auditory perception (association of meaning with a sound source) has developed. The infant acquires these auditory perceptions rapidly, greatly expanding his knowledge of his environment through the distance sense of hearing in this early period when he is still restricted to his crib or playpen.

By six months he has learned to move his eyes to locate sound and frequently to vocalize responses overtly to intonations in the voices of those around him. These vocalizations consist primarily of vowel sounds at this early stage combined with some of the more easily made consonant sounds such as /m/ and /b/. In the second six months speech sounds gradually acquire meaning, enabling him to associate meaning with single words often repeated. For example, he may recognize that 'mama' and 'milk' evoke familiar images and will begin to respond differentially to these and other common naming and action words. Ability to recognize single words at one year is followed by his learning to carry out simple instructions composed of three to four words, such as "get daddy's shoes", even though he would be far from able to produce this degree of complexity of syntax. At this period children are not responding to the separate words as much as to the total communicative context. They may recognize only one of the single words spoken separately, but they can respond to whole phrases and sentences appropriately even though they could not break these clusters down into their separate word and syllable components.

Between 18 months and two years, the child is able to enjoy nursery rhymes which are appealing because of their lilting auditory pattern even when he comprehends little of the meaning. The prosodic features of language are equal in importance to the semantic features at this point, and are imitated in the jargon stage at around 18 months when the child jabbers in imitation of the adult speech he hears. He will use similar kinds of inflection and rhythm patterns even though he may have only one or two intelligible words interspersed in his jabbering. It is not until the third year of life that we can expect him to follow simple stories in connected discourse through hearing alone; by the fourth year conversation with the child can be carried out in a give and take situation of daily living, even though his attention span may vary markedly depending on the message content. A knowledge of these expectations of what the normal youngster can do at these progressive stages is vital to our assessment techniques for the deviant child.

Assessment of Hearing

The deaf-blind child lacks normal functioning in the two sensory systems most vital to acquiring information about one's environment and to integrating himself into that environment in a meaningful manner. Both hearing and visual disorders are, however, like other handicapping conditions, on a continuum. Each condition can exist in degree ranging from mild to severe, along with varying degrees of disability in the intellectual area, motor coordination and ability, and personal-social development. Dysfunction in language can be expected in both verbal expression and auditory comprehension,

which will later be reflected in difficulty in handling the read and written language tasks required in obtaining an education. It is thus very crucial that we evaluate as accurately as possible the hearing function in order to plan for the child's best possible opportunity to develop (McConnell, 1973).

One asks first: Does this child use hearing as a primary sense modality? If not, does he use it secondarily or not at all? Does he use sound inconsistently? Let us first consider the "deaf" child. Very few children are totally deaf, if by "total" we imply lack of hearing for any frequency at any intensity. Deaf children are generally consistent in a test situation and will give overt responses to sounds if made loud enough. Reports from parents will indicate that the child does seem to notice environmental sounds of high intensity, such as a car horn, a dropped dish, or a low-flying airplane. Noisemakers, particularly percussion sounds, will often evoke a startle response. Loud voice at one foot, if one is careful not to allow breath movement or other tactile clues, will frequently be heard when one uses strong vowel sounds as in "GO"! Eye movement, momentary cessation of activity, and turning toward the source as the sound breaks into the child's consciousness are the more classic modes of response. Important to remember is that deaf children usually do respond quite visibly to sounds above threshold.

The retarded child tends to be erratic in his response to sound and requires an intensity usually considerably greater than his threshold in order to elicit a response. Pure tones, which are meaningless abstractions at best, are highly inappropriate if not combined with more meaningful stimuli or play conditioning type situations. Depending upon the degree of retardation, lack of attention alone can be the main reason for lack of response to sound. Alertness on the part of the examiner is very important, for very subtle evidences of hearing will be given many times by these children, which will not be repeated on retrial. Those at the lowest levels of mentality will often not pay the slightest attention to sound stimuli of any kind. This absence of response may be shown to be a lack of attention and interest, however, for if one utilizes a faint rattling of a spoon against a plate, or some other sound associated with their physical needs, they will turn instantly toward the source. Children at somewhat higher mentality levels (ranging from 50 to 60 IQ) may respond to speech sounds, but must be conditioned with play techniques to respond to pure tones. Obtaining actual thresholds is usually difficult with slow learning children, however.

When the child with severe emotional disturbances has not learned to talk, his inattention to sound may lead others to consider him deaf. Parents of such children, however, will often say the child "sometimes seems to hear us". Pleasant sounds at low intensities are more apt to elicit response than sounds of high intensities, but many will not respond to sound, even at pain threshold levels. In other words, they tend to ignore all sensory stimuli. Under stress or when separated from their parents these children will sometimes produce speech such as "Yes" or "No". The ability to do this suggests they have probably been able to hear within normal limits in order to have learned to speak these isolated words. Generally, conversation will fail to stimulate these children auditorially.

The aphasoid, or severely perceptually-impaired child may also ignore all sounds except those with which he has learned to associate meaning. Usual sound stimuli produced by noisemakers may produce a response once or twice, but will quickly be ignored once the child is conditioned to the stimulus. Questioning parents to determine if there are any particular sounds to which the child will attend may yield effective results. I recall one post-

encephalitic child, severely involved, who responded to no noisemakers nor to test stimuli of any kind that we had tried. Further questioning of the parents revealed she would respond to two speech phrases -- "Give Daddy a kiss," and "Do you want a cookie". When these were spoken at a very low conversational level six feet behind her, she turned immediately and in response to "Give Daddy a kiss", ran to her father and did so. Both the aphasoid and the retarded child may be stimulated to produce vocalization by babbling ("buh-buh-buh") at very soft intensity levels near their ear. The emotionally disturbed child, on the contrary, will ignore such stimulations, as will the deaf.

Principles of Audiologic Management

It is not my purpose, however, to dwell on the techniques of testing multiple-handicapped children, inasmuch as I assume that this group is more interested in the meaning of the audiologist's findings and the role of the audiologist in the program of services for the deaf-blind child. The audiologist must interpret all auditory behavior against the total behavioral and the developmental background. Thus, complete history information, careful interviewing of the parents and careful observation of the child himself during the examination are necessary. One evaluation is a starting point only. An important principle which cannot be stressed enough is that the audiologic evaluation of the multiple-handicapped child must be on an ongoing basis. The difference between those children who achieve functional use of residual hearing and those who do not is crucially related to the quality and the periodicity of the audiologic report after a hearing aid has been recommended for such a child, which concludes with the statement, "Annual audiologic evaluation is recommended." Please be assured that "annual audiologic evaluation" will not do the job.

We have been involved in an early intervention program for hearing and language impaired children from birth through the preschool years the past eight years. In 1966 we initiated an active birth to three programs as a parent teaching component to lead into the preschool nursery and kindergarten years. We have good evidence now to support that frequent audiologic visits (measurement of the hearing with or without the hearing aid, continuing counseling on what the parents and teachers may expect from the child in the way of auditory functioning with and without his hearing aid, and also guidance on proper maintenance principles for the hearing aid to insure that the child is indeed receiving auditory signals) are vital. I will not dwell here on how many hearing impaired children sit in classrooms over the country wearing hearing aids through which no signals are being transmitted. The condition of hearing aids worn by children cannot be taken for granted as they will not tell you when the hearing aid is not working. It is essential that the teacher of the regular class, the teacher aide, and the parents all be involved in knowing how to check the hearing aid and seeing that it is indeed in proper working order.

A second principle equally important is that wearable hearing aid use be established at the earliest time possible, as soon as the hearing loss can be detected and determined. That can be as early as four to six months and is crucial for maximal exploitation of the residual hearing. I think it is very important that it be well before the child enters preschool. If at all possible, it should not be delayed beyond the end of the second year. It is my opinion based on empirical data that if the hearing aid is fitted before the child develops the independence that accompanies his becoming

ambulatory, with the implications for then exploring his environment in a more active manner, he will better be able to accept the device as a part of his body, and thus, self-image concepts are more easily established. The longer he adapts to a world without sound or with only faint or distorted sound, the more difficult it is for him to re-orient himself to an auditory world. Thus, hearing aid use begun as late as four to five years of age is destined to produce frustrations and agonizings by parents and others who are hopefully watching the child for benefits from his hearing that seem never to occur.

In this connection, we have studied two groups of children from our program - one having had early intervention, parent teaching, and wearable hearing aids before age two compared with another group who did not have such programming until after age three. The median age at which hearing aid use was begun for the early intervention group was two years, while that for the late intervention group was four years.

The target experimental group included six children from among the first group enrolled in the parent-infant program. Each of these children began in the parent program and started wearable hearing aid use before age 3 (median age 2 years 3 months). The second group included five children for whom parent intervention had not been provided and for whom hearing aids had not been fitted until after age 3 (median age, 4 years). These children were enrolled in a self-contained class for hearing-impaired children, their level of language being inadequate for integration into regular classes. The parents of these subjects had not been involved in the formal parent instruction program at the home because of the age of the child when discovered, although preschool training had been available. A third group included six normal-hearing children enrolled in the same public school second grade classes in which the six early intervention children also participated with the added help of a resource teacher. The teachers of the regular classes were asked to select children for the third group whom they considered average achievers.

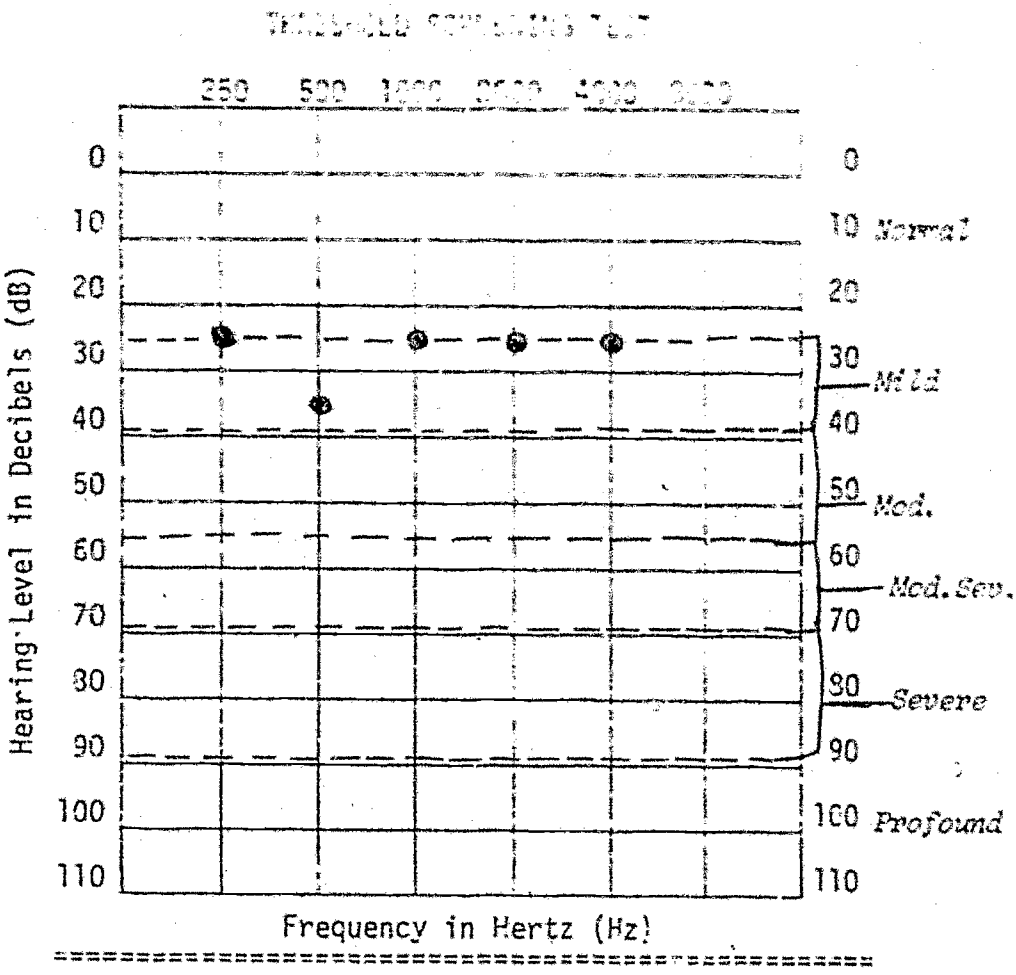
When the 50 consecutive utterances produced by the children in each of the above groups were analyzed according to Lee's Developmental Sentence Types, the findings revealed that the spoken language competence of the early intervention children was very similar to that of the normal-hearing group. The statistically significant differences in the study arose only from those comparisons of the late intervention group with either the early intervention or the normal-hearing group. For example, the early intervention group produced on the average 75 percent of their utterances at the sentence level, while the late intervention group produced only 32 percent at that level. The early intervention subjects produced only 8 percent noun-type utterances (an immature construction type) while the late intervention group produced 19 percent such utterances. Verbal-type utterances (a more mature construction type) occured 79 percent of the time in the "early" group compared with only 49 percent of the "late" group. In contrast, the normal-hearing group and the early-intervention group were not significantly different from one another in any comparison of type or level of utterance, while significant differences prevailed in almost all comparisons between the late intervention group and either the hearing-impaired children in the early intervention group or the normal-hearing group. It is important to point out here that the severity of hearing loss for the two hearing-impaired groups was not different, being at a median level of 87 dB for the early group and at 84 dB (actually slightly better) for the late group.

Thus, the examiner (Liff, 1973) concluded that the positive effects of the early intervention program, including the early use of hearing aids well before age 3, were reflected in the children's ability to express themselves in spoken language which, although not always as morphologically correct as that of their normal-hearing peers nor with as precise articulation, was highly comparable in syntactical structure. This same area of language competence was handled much less adequately by those children whose intervention program occured as much as two years later.

A third principle to which we adhere is that every young child should have the advantage of binaural hearing aids in order to simulate as closely as possible the type of auditory stimulation the hearing child receives. (Binaural (or two-eared hearing) means a separate hearing aid for each ear.) Again we have done some studies which show that children who have been consistently good binaural hearing aid users are significantly better listeners contrasted with a group of children who have been equally good monaural hearing aid users over the same period of time. Superior speech discrimination ability at a statistically significant level for the binaural users demonstrated they were able to take advantage of auditory clues under different difficult listening situations better than the children who were "raised," so to speak, on one-eared hearing, the monaural hearing aid.

I believe these principles, which have been established as critical to the progress of hearing impaired children, are extremely important in carrying over to the child who has the added handicap of visual impairment. The deaf-blind child, because he is affected in the two most critical sensory modalities for learning, presents us all with a responsibility to bring to bear our special skills onto the problem of helping him be as <u>auditory</u> as possible.

FIGURE 1



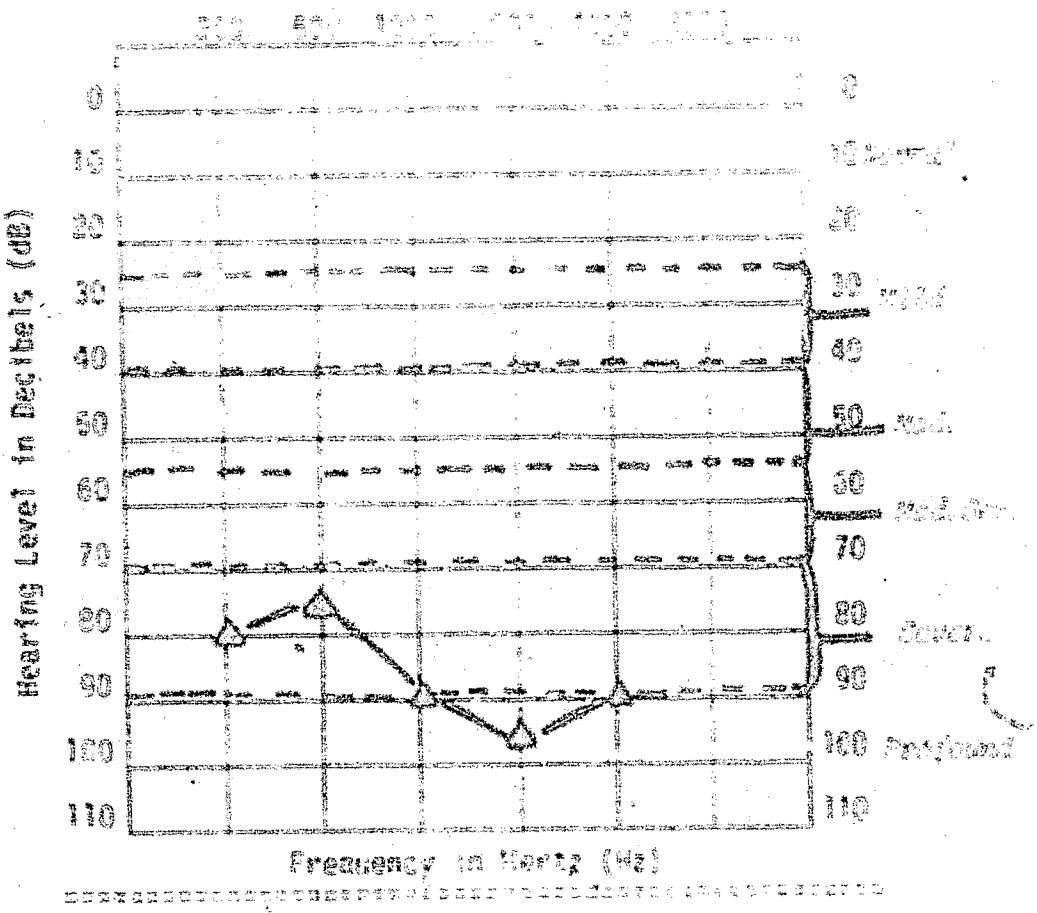
Rubella
Age 5-1
Day Pupil - Talladega
Hearing Aid Use - 2 1/2 years
Does not like h/a
Turns off volume
Excellent adaptation to school

Surgery twice for glaucoma--Strabismus, cataracts
Sat alone 8 months - Walked 16 months
No speech - clicks tongue, hums, gestures

(Figure 1) shows the hearing level found for a child referred to us from the Regional Evaluation Center. (You will note that the audiogram is divided into levels of hearing in terms of severity, ranging from normal hearing limits at the top to profound hearing loss at the lower limits from 90 - 110 dB.) This child, as you see, was 6 years, one month at the time of the examination. He had been seen at two different Hearing and Speech Centers in the Southeastern Region prior to our seeing him. He was at that time enrolled in his first year at the Talladega School. He had been estimated at the age of 2 1/2 to have a severe to profound hearing loss as noted at the bottom and had been fitted with a strong gain hearing aid, which brought him a signal much too loud for his level of hearing. It turns out that his hearing loss is quite mild and hardly below normal limits. Wearing a strong hearing aid probably did more to distort auditory signals than it did to help him, and it was not surprising that he did not wear the hearing aid regularly. He resisted by turning the volume off. This is a rubella child, who had had complicating visual conditions including glaucoma, strabismus and cataracts. Surgery had left him a partially sighted child. Developmentally he was reasonably normal,

being only slightly delayed in age at walking and sitting alone. Nonetheless, he was a nonlanguage child, and was observed to click his tongue, hum and gesture for communication. The hearing loss is, however, not the reason for lack of development of language because his hearing level was definitely sufficient to enable him to hear the spoken voice. We are perhaps dealing here with an auditory perceptual impairment related to central nervous system functioning (not uncommon in the rubella population). Whether the incorrect diagnosis of profound loss at age two and the use of the stronger hearing aid may have contributed to his auditory perceptual impairment is a moot point. This child is not seriously retarded, even though he has not developed language. He was placed at the Talladega School last September, being at five the youngest day pupil there at that time. His parents had moved there to enter him in the school. His teachers reported that by Christmas he was settled down, his hyperactivity had decreased, and he was learning sign language. They believed he was more aware of sound in his environment, but he was still unable to imitate speech. The teachers remarked that he had been a "joy and challenge" to all of them. This child is very likely going to need to use the visual modality, even though limited, rather than the auditory modality despite the fact he has such a good level of hearing. Central auditory problems are manifestly more difficult to help with our traditional methods than is the peripheral. In fact, the traditional approach of putting the hearing aid on had not in fact worked with this boy. Improved quality of audiologic evaluation combined with more frequent assessments to study his auditory behavior in early life might have brought about a more accurate diagnosis, and thus have saved exposing him to the unnecessarily strong-gain hearing aid to which he could not adapt.

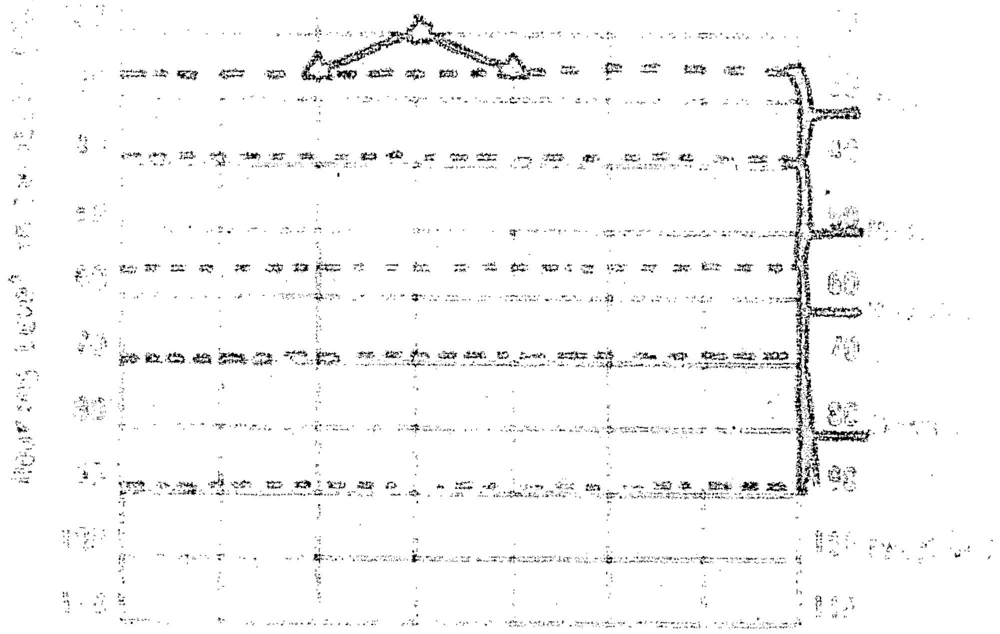
FIGURE 8



Binaural amplification recommended
Continue special program

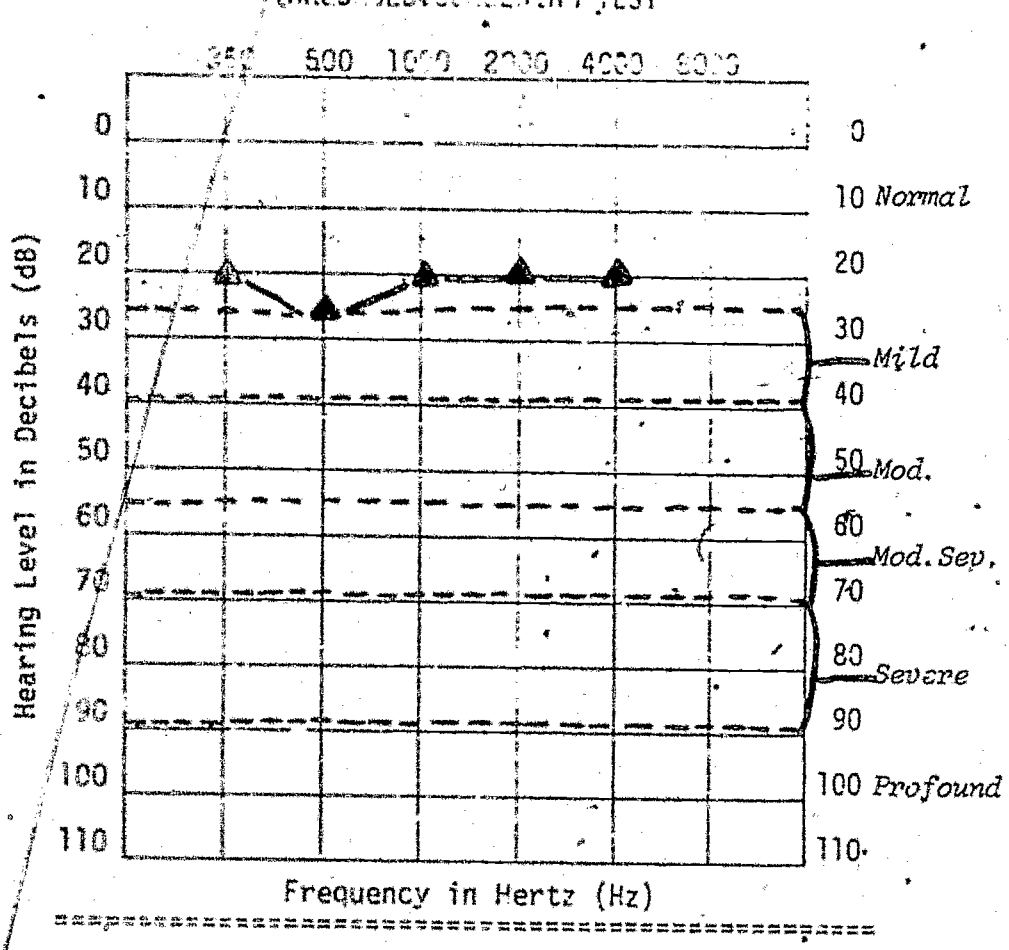
The second child (Figure 8) has a severe hearing loss, but hears across the frequency range making it possible to give him aided hearing at around 30 dB, the level at which he responded to speech with his hearing aid. He had been in a special pre-school, and had worn a hearing aid since three. Intervention one to two years sooner would have enabled the development of much better language. By the time we saw him at age 4 years, 3 months. Since he appeared generally responsive to sound and his aid, we recommended that he go to binaural amplification, a hearing aid in each ear, and that he continue in the special program. Although partially sighted, his hearing level and intelligence, are adequate to have resulted in spoken language considerably better than displayed at the time of test.

FIGURE 3



[illegible] third child (Figure 3) [illegible] rubella syndrome [illegible] a syndrome of [illegible], which suggests that probably the mother did have rubella. She [illegible] to have been exposed but was not sure she had it. The child had a cardiac problem, was eventually [illegible], was extremely developmentally retarded, did not begin to walk until [illegible] years, was [illegible] years, 11 months when we saw her [illegible] a very unformed, wrinkled appearance. She had been enrolled in a self-contained program for the retarded for the past two years. Again while this child had been considered deaf-blind or blind and had never had a diagnosis of normal hearing, it appears that her hearing is probably quite well within normal limits. She responded to noise at 15 - 20 dB in both ears and also in the sound field and had some localization and response to speech, but it was [illegible]. Her responses to sound were very infantile; she responded by [illegible] of [illegible] behavior seen in younger children; she would develop a [illegible] with [illegible] seen in younger children; she understood only a few [illegible] words and used gestural communication. Here we have a child who is seriously affected in a number of areas including intellectual. Her lack of speech and language is not related to the hearing problem which is minimal or absent. Audiologic followup at this point is contraindicated, since her auditory problems are those relating to central nervous system function.

FIGURE 4



Premature - 3lb. 8oz.
Trauma - skull fracture at 3 months
Considered deaf and blind since
Knows name
Responds to "No"
Age 3-1
Performance Age 8-12 months

(Figure 4) is also a child that turns out to have normal or near normal hearing, although she had been considered deaf-blind. She was 3 years, 1 month at the time of evaluation. Etiology may have been related to premature birthweight, but also to skull fracture. A baby sitter employed by the family had beaten the child severely when she was three months old, resulting in skull fracture. She could respond to her name and "no", but her level of receptive language was perhaps at about 6 - 9 months; her performance age was about 8 - 12 months. This child is not deaf, although she had been diagnosed as deaf. She was still not walking at the time we saw her, but she could crawl and pull up to furniture. This "deaf-blind" child was thus mislabeled. Whether the educational program can be modified to strengthen and develop auditory perceptual skills is questionable but should be tried.

Summary

In conclusion, the audiologic evaluation of deaf-blind children requires us to exercise our clinical skills to the maximum in arriving at an assessment of the functional level at which he can be expected to perform. If the hearing loss is peripheral in origin, every effort must be expended in helping the child use his hearing through wearable amplification as a primary or secondary learning modality, dependent upon the nature of his accompanying visual defect. As with all hearing impaired children, very early detection and intervention are mandatory, to include intensive parent training in the years from birth to three before he enters more structured educational programs oriented toward the child. Continuing audiologic management to include counseling and guidance for both parents and teachers is essential. The aim should be to make the child as auditory in function as is humanly possible in view of the limitations in hearing which the evaluation determines to be present.

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VISUAL EVALUATIONS OF DEAF-BLIND CHILDREN

Ferne R. Roberts

Evaluation of the status of the eyes and vision is equally important for eye specialists and for parents and professionals who provide learning experiences for children who are visually handicapped. In the broadest terms, effective nurturing of the child depends on accurate assessment of eye structure and physiology and of functional vision. For the ophthalmologist, precise diagnosis of the eye's structural anomalies, physiological deviations or disease processes is essential to all medical intervention. There cannot be any guesswork about surgical, drug or corrective treatments. Thorough knowledge of eye structure, physiology and disease, as well as of other diseases and syndromes which affect the eye or are reflected in it, is the focus of ophthalmological training and practice. Exactness is the goal.

For the optometrist, precise diagnosis of structural deviations which create refractive errors, muscular imbalance and poor visual efficiency is essential to prescribing spectacles or low vision aids. Again, exactness is the goal.

Both ophthalmologists and optometrists are, in addition, called upon to measure or estimate and report distance and, less often, near visual acuity as a basis for establishing eligibility for services. Regional Deaf-Blind Centers, Library of Congress, American Printing House for the Blind, Schools and State Commissions for the Blind and Visually Handicapped all require verification of visual status by eye specialists before service is provided. Unfortunately, in almost all cases measurements of distance visual acuity and/or degree of field restriction are the criteria for eligibility for services. The definition of legal blindness which includes the words, "central visual acuity of 20/200 or less in the better eye, with correcting glasses" was established in the 1930's by the Social Security Administration. This is not a useful definition for planning for services for adults, much less visually handicapped children. However, there has been only limited pressure to include measurement of near visual acuity or assessment of visual function and efficiency in eye specialists' reports which influence service decisions.

Those who work with young visually handicapped children are well aware that the name of an eye disease or anomaly and a measure of distance visual acuity are vital parts of a child's cumulative file but they are equally aware that this information alone is grossly inadequate as a basis for educational planning. At the very least, an estimate of near visual acuity, and a narrative description of the effects of an eye disease or anomaly and of the effects of prescribed treatments should be included in the reports of eye specialists. The fact that they are seldom included is more the fault of the users of so-called "eye reports" than of the eye specialists who produce them.

For a century, ophthalmologists were relied on to examine and treat the eyes and to make recommendations regarding school placements and procedures. Parents and educators minimized their own ability to make useful observations about a child's use of vision and instead took great care to follow medical recommendations about educational procedures. So long as it was believed that residual vision must be protected by limited use, it was entirely proper for educators to "take the doctor's word for it" -- to carefully follow instructions. However, when in this century ophthalmologists became convinced that restricted use of residual vision was not only not necessary but was also stultifying, the door was open for assessment of visual functioning by non-medical personnel. But the habit is hard to kick! It is easier to ask the doctor than to develop the skills required to assess visual functioning as a basis for educational placement and planning. And strangely enough, as the field of education moves toward greater responsibility for evaluation of visual function, it has only fitfully requested eye specialists to report their most useful information--near visual acuity and narrative description of effects of eye conditions. Having so long unquestioningly followed medical recommendations regarding school placement and mode of reading, professional educators still tend to passively accept minimal information. The taboo against asking questions or letting the eye specialists know that further information is needed is very hard to overcome. Even more difficult to eradicate is the teachers' conviction that their own assessments of visual functioning are somehow inferior to the more exact measurements made by eye specialists.

As Eleanor Faye (1970, p. 142), a noted ophthalmologist, says "Observation of the functional vision of a child is more important than the acuity. It is not possible to measure it and put down a number. It consists of observing the child in all his activities: in mobility, in visual activities, and in interest (how much a child uses visual clues). Can he join in sports, see the ball, the jumprope etc.? Does the child follow with his eyes? Does he ever comment on color or dress? Does he stop to inspect the bulletin board, maps or globes--is visual curiosity automatic or does the child have to be reminded to look?"

While our assessment of the functional vision of a deaf-blind child is not indeed expressed in numbers or medical terms, it is as essential a component of educational planning as a diagnosis is for medical intervention. Unless we are quite specific about the ways in which a child sees and looks and the conditions which improve or decrease visual efficiency, we are teaching by trial and error. And that is contrary to our fervent wish to waste as little of each child's learning opportunity as possible.

We must know how well the child responds to visual tasks in bright and dim light, at various distances from visual stimuli. We must know how the child reacts to colors or shades of gray, to subtle and gross variations in size and contour and to familiar and unfamiliar sights; and how well he learns when visual and auditory or visual and tactile stimuli are presented together; and whether his visual attention is best when he looks at concrete objects, representations (pictures) or at symbols (words and numbers); whether he imitates gestures or must be guided through visual-kinesthetic activities.

These and other conditions of seeing are necessarily assessed by parents,

teachers, and aides who see the deaf-blind child many hours each day in many activities. Without these assessments of visual functioning, it is patently impossible to plan learning experiences, select instructional materials, specify teaching strategies or evaluate learning outcomes. It is just as impossible for a teacher to teach without visual function information as it is for a surgeon to operate without an accurate diagnosis. The surgeon's failures are undoubtedly more dramatic and there may be no second chances. But the fact that our criteria for success or failure are not as exacting as those of a surgeon should not allow us an excuse for poorly designed learning experiences.

Types of Evaluations

Complete visual evaluation of deaf-blind children depends on two types of evaluations: First, original diagnosis and periodic examinations of the structure and physiology of the eye and measurement of visual acuity by eye specialists. Second, on-going assessment of visual function in the child's own environment by parents, teachers and aides.

The first type, periodic evaluation by an eye specialist, generally takes place in an office or clinic under controlled lighting conditions, with restricted movement by the child, with an imperative that the child attend and respond by gesture or work and within a limited examination period. Various pieces of equipment are at hand. They were designed to give the examiner very precise and objective information about the eye and optic nerve and about the physiological processes within the eye. Questions which the specialist may ask himself are: How much does this child see in spite of disease or anomaly? How well do his two eyes work together to produce fusion and binocular vision? Does he see color? Are there refractive errors which can be corrected with lenses? Does the child experience discomfort or pain because of an eye condition? Does the condition of the eyes reflect other health problems? Are drugs or surgery to be prescribed?

While the concerns of the ophthalmologist and the optometrist overlap to a degree, the primary difference in responsibility lies in the area of diagnosis and treatment of eye conditions which require medical or surgical intervention. The ophthalmologist is a physician who specializes in care and treatment of the eyes. The optometrist is a specialist in diagnosis and correction of refractive errors such as myopia, hyperopia and astigmatism and non-surgical correction of muscle imbalance (Strabismus). Literally, opto- eye metrist-measure. He may also be concerned with certain visual perceptual problems. Both are qualified to prescribe lenses to correct refractive errors and both may be interested in low vision aids though there seems to be a somewhat greater number of optometrists than ophthalmologists involved in low vision services. While there have been feuds between the two groups in the past, we seem now to be in a period of equilibrium in which each specialty is respected for its role and roles are quite clearly defined. In many parts of the country both may legally sign eye reports required by service agencies.

The second type of visual evaluation, on-going assessment of visual function in the child's own environment, is concerned with how the child uses vision for everyday activities in his own home, neighborhood, school or institution. The parents, teachers and aides who make this type of evaluation are at a distinct disadvantage because they do not have years of training, the sophisticated equipment nor the codified measurement system that enable the eye specialist to gather objective information.

At this point it is important to define quite precisely the terms that are commonly used in discussion of visual functioning. Barraga (in Lowenfeld, 1973, p. 122) defines visual acuity as a measure of "reception of visual stimuli by foveal cells connected directly to the visual receptors in the occipital cortex". She defines visual perception as the combination of "neurological factors involved in processing and meaningful interpretation of all messages received through the visual sense".

Visual efficiency is defined as "effective control of the optical mechanism, speed and filtering abilities of the transmitting channels and the strength and parity of processing capacities".

The concept of visual efficiency is such an essential component of an assessment of visual function that elaboration of the definition is required. Gesell et al (1950) concluded that visual functioning is both an act and a process characterized by an orderly sequence of development. Fixation is the first step in the developmental sequence and it continues as a basic visual function. Focus, fusion and unification follow fixation as development continues. These functions continue their attempted growth even when physical difficulties intervene. Thus Gesell believed that experience and training might improve visual effectiveness and efficiency. Faye (1970, p. 137) states that "even if acuity is poor, the brain receives visual impressions and combines visual, auditory and other sensory information".

In summary, visual efficiency may be increased--the more the child "looks" the more he stimulates the eye and pathways to the brain. As the brain receives more and more information, assimilation occurs--impressions are compared, contrasted and evaluated. As the child matures, accommodation also occurs--present information is compared with previous experience and sensations are matched, evaluated and integrated (Hammer, 1972).

Visual acuity, visual perception, visual efficiency--together they determine visual functioning. Although eye specialists give us measurements of visual acuity and psychologists, neurologists or Learning Disability specialists may give us clues about visual perceptual processes, parents and educators are still left with the lion's share of responsibility for assessing visual function. And visual function is a crucial factor in how and what the deaf-blind child learns.

First, let us review some of the factors that get in the way of our achieving useful assessments of visual functioning. Then we can look at the techniques and tools which may help us.

Problems:

1. *The training of teachers and other education personnel may not have enabled them to develop skills as observers and recorders of child behaviors.*
2. *In general, the training of teachers and the school experiences of parents lead to a focus on the outcomes of experiences or lessons rather than on the ways the child learns and the ways he may be helped to increase sensory functioning. To illustrate this by being absurd, traditional school report cards do not include an academic area called visual efficiency nor can a child get an "excellent" for deportment because he is very good at "looking". We tend to view the results of efficient or inefficient "looking" as successes or failures in physical, psychosocial, language or cognitive development.*
3. *Out of training and habit, parents and teachers may say that a child has or does not have a certain behavior or skill without adequate regard to the various circumstances under which the child operates. To oversimplify*

this point, we may say that a child can climb stairs alternating feet on successive treads because he does this on stairs at home or school. But a stranger who sees the same child outdoors in very bright sunlight, on steps with very unequal risers and treads or on stairs without handrails, might report that the child still crawls up stairs! The visual, kinesthetic, tactual and perhaps auditory conditions are different and the child's behavior has changed.

4. Early diagnosis of visual problems may dispose eye specialists, parents and teachers to minimize visual assessment and stimulation. The difficulty of estimating visual acuity of infants and the reduced visual responsiveness of ill or multiply handicapped children often lead to assumptions that there is little useful residual vision. Lack of visual experience and the concomitant reduction of assimilation and accomodation of visual impressions perpetuate the probability that assessment of visual function will be neglected.

5. In all aspects of evaluation of performance and/or verbal intelligence of visually handicapped children and adults, we tend to rely on auditory stimuli and responses. We operate (Chase, 1972) with visual handicapped people in a sighted evaluation model and look to verbal behaviors as evidence that results are congruent with those of evaluations of people with 20/20 vision. This tendency has two obvious pitfalls for teachers who wish to assess visual function of deaf-blind children: First, the children may not be able to receive auditory stimuli nor to give a verbal response. Second, there is often great disparity between verbal responses and basic understanding of concepts.

6. We tend to be discouraged because we do not have a few neat words or numbers to record or transmit information about visual function. Anecdotal observations, check-lists and behavior sample techniques produce lengthier reports than those required to convey information about visual acuity measurements. The medical terminology and model appear more scientific and efficient.

7. Probably the greatest deterrent to systematic assessment of visual functioning is the difficulty of isolating purely visual activity from the effects of cognitive, psycho-social or other sensory function. For example if a child fails to reproduce a square at age six, the question of whether he can see the model is only one of several explorations. Motor coordination, motivation, past experience with pencil and paper and understanding of the task may all be as related to the failure as are visual acuity, perception or efficiency.

8. Since effective assessment of visual function is continuous, the types of observations and formats for recording findings must be easy to use and easy to interpret. A few aspects of visual function may be determined in an initial assessment. Reactions to bright or dim light or characteristic way of holding head or objects to attain sharpest focus may not change over long periods. But almost all other visual behaviors may change with experience and sensory training and we need ways to record these changes.

How can we resolve these problems? They are not easily dealt with. If they were, this would not have been a topic at this workshop and there would

be widely available formats and techniques at your fingertips. This is not to say that we must start from absolute scratch, but we do have to select, learn to use, modify and generate tools and techniques.

For a moment let us consider the characteristics of evaluation settings and the home/school settings in which the eyes, vision and visual function are assessed. The method and materials which are used in an evaluation setting may differ from those used in on-going assessment in home or school environment. Or the same materials may be used in different ways. At any rate, the primary distinction between evaluation setting versus home/school assessment of visual function lies in control of variables. In an evaluation setting, whether it is the eye specialist's office, the psychologist's office or the neurologist's examining room there is a predetermined procedure, an established list of check-points, standard terminology and a controlled environment. In addition to the formal evaluation carried out under controlled circumstances, these specialists may also make informal observations or use related activities to estimate level of visual function. For example, a psychologist might use formal or informal assessment of visual function to determine whether a visual task in a subsequent test will be feasible for a child. Both the Gesell Developmental Schedules and the Bayley Infant Development Scale have items which can be used for quick gross assessment of visual responses in young or low-functioning children. For older children the Flash-Card Vision Test For Children (New York Association for the Blind, 1966) will give an approximate idea of the size of print symbols to which a child responds. Or the Visual Efficiency Scale (Barraga, 1970) may be administered and the profile cross-checked with items or tasks in a standardized intelligence, achievement, social or personality test.

In the home/school setting, assessment of visual function is usually carried out under less controlled conditions. First, because the methods and techniques are so far less standardized. Second, because the objective of the assessment is determination of the child's functioning with visual tasks in the everyday environment. However, there is obvious necessity for organizing tools and procedures for assessments in less controlled environments. It cannot be assumed that informal methods must be used in informal settings. Rather, the tools and techniques may need to be very specific in order to assure useful observations in informal settings.

Fortunately, in the last five years there has been a great increase in the quality and quantity of materials and models which are useful to those who are concerned with assessment of visual functioning. These, combined with some of the old stand-bys can nourish strong steps toward more systematic assessment of visual functioning and use of the findings to design instruction.

Some of the most useful resources are those which give guidance for establishing systematic behavior observation programs. One of the stand-bys is Almy's (1959) Ways of Studying Children. The greatest contribution of this book is the clarity with which the anecdotal record is explained and illustrated. The ability to write good anecdotal records provides the basis for the development of other skills essential to assessing children, designing instruction and evaluating instructional outcomes. One of those other essential skills, the one required to make anecdotal records readily useful, is the ability to code the observation information. Valentin

Dimitriev, University of Washington in Seattle, has developed a relatively simple but highly useful coding system. After the anecdotal record is written, the information is excerpted and put in three columns: antecedent event, behavioral response and consequent social event. Each sheet has spaces for child's and observer's name and the time and date. These sheets make extremely useful, easily read records. As an example, if a new teacher were given coded records which listed an antecedent event "Mother put a large (two inches) and a small (one inch) toy car on table and made sign for big", a behavior "John looked at the cars, shifting gaze back and forth between them" and a consequent activity, "picked up big car", she/he would almost at a glance know several things about John's visual functioning. He fixates on and examines concrete objects of one to two inches' length, he can visually differentiate size differences between two quite disparate sized objects and he can see signs for words he has been taught. If a subsequent record for John has an antecedent event "Mother put black and white outline drawings of cars (one, two inches long and one, one inch long) and made the sign for little" and recorded his failure to pick up the small picture, the parameters for additional assessment and for instruction have been clearly set.

There are two recent publications which offer very specific guidelines for formulating plans for systematic observations. Establishing a Behavior Observation System (Della-Piana, 1971) is a programmed booklet which includes practice sheets for the completion of tally, duration and interval observations, graphs and charts. Part of the self-instruction includes practice in identifying and describing the specific child behavior the teacher needs more information about. The child's visual behavior can easily be used in the practice exercises. A tally record is simply a count of how often a behavior occurs in a given time period; a duration record shows the amount of time a child spends in a specific behavior in a given time period and an interval record shows the percentage of intervals (i.e. 15 seconds) in which a behavior occurs in a given time period. A simple example of the use of one of these methods, a duration record, shows the wide range of information to be gained. A duration record indicates that during one half hour period John spent ten minutes at the activities which were included in the predetermined target behavior. That target behavior was "John visually examines objects in the play area by moving himself or the object within two feet or less of his face." One of the conditions for the observation was that it be made during free play. The record also indicated that the total of ten minutes was made up of three periods in which he examined objects for two minutes' duration. Even from this one observation the teacher knows that John visually examines objects without prompting. Several observations will enable the teacher to make a graph which can be compared with later graphs after the teacher has carried out instruction designed to increase John's visual examinations during free play.

The second, Developing Observation Skills (Cartwright, 1974), includes chapters on necessity of observation; methods of observing and record keeping; behavior tallying and charting; checklists, participation charts and rating scales; anecdotal records and observing instructional environments and teaching behavior. Specific guidelines and examples are also included.

In addition to the resource materials relating to systematic observation of children, there are materials which are useful to the solution of other problems related to assessment of visual functioning. But first we

must know what we want. Perhaps the most pressing questions are, first, what do we need to know about the child's functional vision and second, approximately where in the continuum of visual growth and development does the child operate? Until we can specify what it is that we must know in order to set goals and design learning experiences for deaf-blind children, no amount of observation or assessment will be meaningful. What each of you must know varies with the visual tasks inherent in your program content and philosophy. Similarly, until we can pin-point the approximate developmental level of a child's visual function, it is impossible to design learning activities which are congruent with his present learning abilities.

Each teacher or group of educational personnel in a program must, to some extent, set up a unique check-list of visual behaviors which are relevant to that particular program. Every visual environment is different and every parent or teacher uses certain materials and techniques which pose unique visual problems.

There are, however, several resources which may provide guidelines for compilation of individualized check-lists or which may be simply adapted to other programs. Perhaps the one which is best known to you is An Educational Program for Multiply Handicapped Children (East San Gabriel Valley School, 1972). The East San Gabriel Valley Project focuses on five goals, including one on perceptual abilities. A sub-section relates to "attending, discriminating and responding to visual stimuli". Visual responses which roughly correspond to seven age levels between birth and age four are described. It is possible to select the visual response which best describes a child in your program. The next highest level or response, in effect, becomes the goal for the child. Essential steps between present function and the next highest level can be outlined as the basis for instruction. The project manual also includes some visual training activities. Both the East San Gabriel Valley School and the Area Center for Services to Deaf-Blind Children at the Callier Hearing and Speech Center, are in process of adding additional age-level performance criteria.

Several years ago the Learning Diagnostic Clinic, Childrens' Hospital of Washington, D.C., developed an informal scale, What Works. The teacher uses a scale to rate the response of a child to several sensory and motor stimuli. Major categories are: How Do You Get His Attention? How Does He Learn? What Reinforcement Works? The rating scale goes from 1, Always Ineffective to 5, Always Effective. Subsections include observation of ways which are used by the teacher to get the child's visual attention, of ways in which the child responds to visual stimuli and to combined auditory and visual stimuli. The interesting aspect of this scale is its focus on teacher activities which may have become habitual even though they remain ineffective.

None of these resources is likely to be exactly what any one of us is looking for but they do serve as bases or catalysts for the development of systems for our observations of visual function. Nor is any one of us apt to develop a scale or checklist which remains entirely satisfactory. We keep changing visual tasks and environments and we become more sophisticated in our understanding of visual functioning. These understandings come from the fields of medicine, psychology and education and from our own knowledge of child development. A recent article in Scientific American (Kagan, 1972) is a case in point. We know that stimuli which attract young infants are

moving objects, sharp contours and strong light-dark contrasts. The rate of change of stimuli is also important. Rapid change may produce startle reaction while the same changes at slower rates may be interesting or acceptable. In recent studies conducted at Harvard University and reported in an article titled "Do Infants Think?", there are indications that infants begin to acquire mental representations of events as early as the second month. It appears that infants pay more attention to stimuli that differ moderately from those they usually encounter. As an example, children of 7-12 months were shown an orange cube on six or seven occasions. When they were then shown a smaller orange cube, they attended to it for extensive periods and vocalized extensively. However, when shown a yellow rippled cylinder, there was limited attention and vocalization. The discrepancy principle: Events that are moderately different from the infant's schema elicit longer spans of attention than either totally familiar or totally novel events.

In another visual discrepancy study cited, four month old infants responded similarly. This study involved measuring the amount of attention (eye fixation) given to an arrangement of geometrical objects. After baseline measurements were made in the laboratory, the infants were returned home with mobiles which were to be hung over their cribs for thirty minutes each day. Some of the infants had mobiles which were identical to the arrangements they had seen in the laboratory; others had mobiles which were slightly, moderately and extremely different and a control group had no mobiles. At the end of three weeks, changes in attention to the original mobile were measured. There was no change in attention to the original mobile for those infants who had not had a mobile at home. The smallest drop in attention was found among the infants whose home mobiles were moderately discrepant; the greatest drop in attention was found among children who had identical or quite similar mobiles. Extreme discrepancy also showed significant drops in attention.

While we cannot equate the experiences and expected behavior of normal infants and older preschool multiply handicapped children, these findings may have significance to those of us who are interested in the developmental aspects of vision.

In summary, it is essential to emphasize that there are some helpful techniques and resources available but that assessment of functional vision is still a pioneering activity. Neither the techniques nor the precise terminology available to eye specialists to assess visual acuity are available to educators. Visual assessment carried out in one environment may not be entirely useful in the next. And it is difficult to dissociate visual functioning from cognitive, psycho-social and motor function. (If a child cannot reproduce a circle, it may be because he cannot see it, cannot wield a pencil, has not reached that level of intellectual development, is not sufficiently interested in complying with the request or, indeed that he does not understand the request.) Assessment of visual functioning is a rather formidable task! But if more efficient use of vision can be learned, it must be taught. And if it is to be taught, we must know present function and the next highest developmental level.

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CLASSROOM TECHNIQUES FOR THE EVALUATION OF FUNCTIONAL VISION

Dr. Marvin Efron

Classroom teachers have unique potential for evaluation as well as for the teaching of deaf-blind children, from a functional vision point of view. One of the major purposes for evaluation by teachers is to assist them in planning curriculum. It is better to have the child function on a level on which he can succeed, but not to make the materials so easy for him that he loses interest or make it so difficult that he becomes frustrated and does not try any longer.

But determining the level of instruction is not an easy task. Developmental scales have been used; they start off with tasks that are very simple, becoming more and more complex until they get to very difficult patterns. The student progresses along the scale until he stops succeeding. This is the point where the teacher must try to determine the instruction point. The student must be taught at a level at the top of his success point, that is, where he is succeeding but is pushing himself in order to do so.

There is no cookbook method for every student, because each deaf-blind child is an individual and each responds differently, therefore, the teacher must know to what extent a student responds, what motivates him to make these responses more readily, and the type of material to use. A qualified teacher is the best person to do this type of evaluation, because she knows the child and the child knows her. The surroundings are familiar to the child; the teacher knows what is his usual behavior versus what is abnormal behavior for that particular day. We do find that many of these children do not have consistent behavior day in and day out and the teacher can experiment with different types of instructional materials and techniques. A deaf-blind child, as stated previously, is an individual; what works on one does not necessarily work on another. To a large extent, teaching him is a trial and error situation. The low functioning deaf-blind child is not an adaptable child, that is, he can not adapt to new types of communication or new types of learning as easily as a normal child. Therefore, it is easier for the teacher to adapt to his level. This should be taken into consideration in all evaluation procedures and in all teaching procedures with the deaf-blind child.

Professional eye examinations certainly give the teacher a lot of information and help. It should be remembered that in the traditional professional evaluations a child is taken from his familiar environment in which he is comfortable to a strange office with strange surroundings and strange personnel. We cannot expect a child who is handicapped to give his usual responses under these circumstances.

There are three areas of vision a teacher must take into consideration

in evaluating her low functioning deaf-blind child. This presentation is primarily aimed toward the low functioning child. Although many of these techniques are applicable for the higher functioning, I am aiming primarily for the low functioning child in this presentation.

The first area of vision has to do with sensation. This primarily is whether the child is seeing anything--is anything registering on his retina? We generally break sensation down into discrimination, recognition, and interpretation. In evaluating these skills, a teacher should be in the environment the student usually is in. The teacher should utilize materials that motivate the student in evaluating the sensation area of vision, such as flashlights, bright toys, and so forth. Most deaf-blind children are stimulated by light. For example, if you walk into a room with low functioning deaf-blind children, many times you will see them with their necks bent back and heads up in the air looking at the fluorescent or incandescent lights. They are seeking visual sensation by way of the light. A teacher can utilize this same motivation by using a small flashlight to motivate the child, gradually widen the span and determine many things. She can move the light very close to the child's eye to see if he gets an eye-blink reflex, making sure that he is seeing the light. We watch to see whether he still maintains contact in the upper field, the lower field, and each of the side fields, to make certain that he is seeing in all directions. We may put colored cellophane up to the light to determine whether he is attracted more to plain white light or to green light or to red light or to yellow light. Many times a child likes one color more than another and this can be a valuable tool in helping to develop these skills, if the teacher knows it. The teacher next utilizes non-illuminated objects to determine whether the child is seeing. A bright toy, such as a yellow car, can be moved in his direction to see whether a child reacts. Visual acuity is included in the sensation skills. In order to determine a low functioning child's distance acuity, we can tell whether he responds to his mother or a person he likes when they walk in the door and whether he can discriminate this person from another person. At near point a similar type of recognition skill can be utilized. A teacher likes to determine whether a child has distance visual acuity and to what degree; near point acuity and to what degree; to determine whether the child sees small objects, sees objects when you drop them; is able to maintain eye contact and for how long a period of time.

The second area of vision includes visual motor skills, in which the student has a motor response to his vision. That includes reaching for objects, distance judging, and visual tracking, among other skills. Eye contact is very important in this area. There are twelve oculomotor muscles attached to the two eyeballs and they must be coordinated in a manner that the student can fixate both eyes on what he is looking at. Many techniques can be utilized in determining and in training eye-contact skills. One of my favorites is operant conditioning, sometimes called behavior modification. One of the better places to attempt this is during mealtime. Find a favorite food that the child likes. Feed it to him if he is unable to feed it to himself. The only time you put it in his mouth is when he looks you in the eyes. Over a period of time you can build the eye-contact skills and this can carry over into other situations besides just feeding. With low functioning children, one good method of determining visual motor skills is to hold a toy or something the child likes in front of him. If he reaches for it, he is coordinating his eyes with his hands. Check his accuracy, whether he touches it the first time or not. Then let him hold it if he reaches for it.

Watch him to see whether he looks at it, or just holds it in his hands. If he looks at it, at what distance does he hold it; in which part of the visual field does he hold it; does he have to hold it in the upper right-hand corner of his field to see it? Many of these deaf-blind children only have partial sight in certain areas. Use different colored objects to see whether he reaches for one over the other. Evaluate to see whether he throws something down or gradually sets it down. See how accurate he is with his visual tracking, that is, is he able to maintain eye contact with an object while it is being moved in the horizontal field, in the vertical field, in the diagonal field, or is he operating in the most difficult, which is rotational.

The third area of vision includes using cognitive skills that are coordinated with visual motor responses. This includes the student's building and dismantling objects and figuring out how objects work. Piaget's model of cognitive development is an excellent one to be followed in this area. Piaget builds a cognitive model in scaling the child's skills. He starts off in the sensori-motor level, which he claims is between birth and 18 to 24 months of age, in which this is broken down into a number of different steps, beginning with reflexive behavior. The child then progresses into more complex types of cognitive levels which can be utilized in functional vision, because the visual part relates very closely to Piaget's model of cognitive development. Tools to determine this level of vision include elementary form boards, complex form boards, color matching, visual discrimination, and any type of material in which the child has to use more than just sensation or visual motor. Montessori techniques of education many times can be utilized and this works very well with building cognitive skills and visual motor.

These three areas combined form the field of functional vision. The teacher must have an understanding of the normal growth and development in addition to abnormal growth and development. She must realize that a child who is severely handicapped basically follows the same steps as a normal child in his visual development but on a much delayed scale. Whereas the normal functioning child may learn a skill at one month of age, the abnormal child may not learn the same skill until he is six years of age. A good teacher not only understands visual development but must know how to evaluate it; how to find out what motivates a child, what reinforces him, and what type of materials to use. The teacher must not get frustrated when the best-laid plans backfire and what she thinks will work will not. She must have alternative plans. Persistence pays off in working with the low functioning child.

A DIAGNOSTIC AND EVALUATIVE MODEL FOR DEAF-BLIND CHILDREN: A RESEARCH PROJECT

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Introduction

The purpose of this paper is to inform the interested reader of one of the research efforts underway in the South Atlantic Regional Center for Deaf-Blind Children. The target of the research effort reported herein is the development of a diagnostic and evaluative model for use by Deaf-Blind Evaluation Teams functioning in the various states which comprise the South Atlantic Region.

Philosophy

The major tenet in the philosophy behind the research effort is that there is now a felt need for such a model. As a system or program develops, it learns and becomes more sensitive to the tasks at hand. The nature of the Deaf-Blind program has changed drastically since its inception in 1968. It was extremely embryonic at inception, but grew rapidly in the next five years. It is now at the point where some professionals in the area feel that minimum standards are required. The research effort reported herein probably could not have been conducted as shortly ago as 1970, for not enough Deaf-Blind children had been evaluated at that time, nationally speaking, to develop the necessary experience base. Moreover, not enough professionals were involved in the evaluative process at that time. Growth of the program on a national level is predicted to continue for some time. However, in an era of stringent funding, a diagnostic and evaluative model which could provide maximum utilization of resources is not only suggested, it is demanded.

A second tenet for the model is that it should be a workable one. That is, it should allow for the vast individual differences that are now being found in the current deaf-blind population and those expected in the yet unidentified one. It should not be so rigid that it would preclude the applicability to each child, regardless of the syndrome he might manifest. Further, it should be a subjective model, one which allows for the expertise of each specialist in each evaluation team to come into play. Emphasis should be upon setting minimum requirements, not maximum ones.

Research Techniques

Initial planning for the research began in the Fall of 1973 when the regional coordinator of the South Atlantic Region approached members of the University of South Carolina's Task Force for Perceptual Research with the need for the development of such a model. After a careful study of the

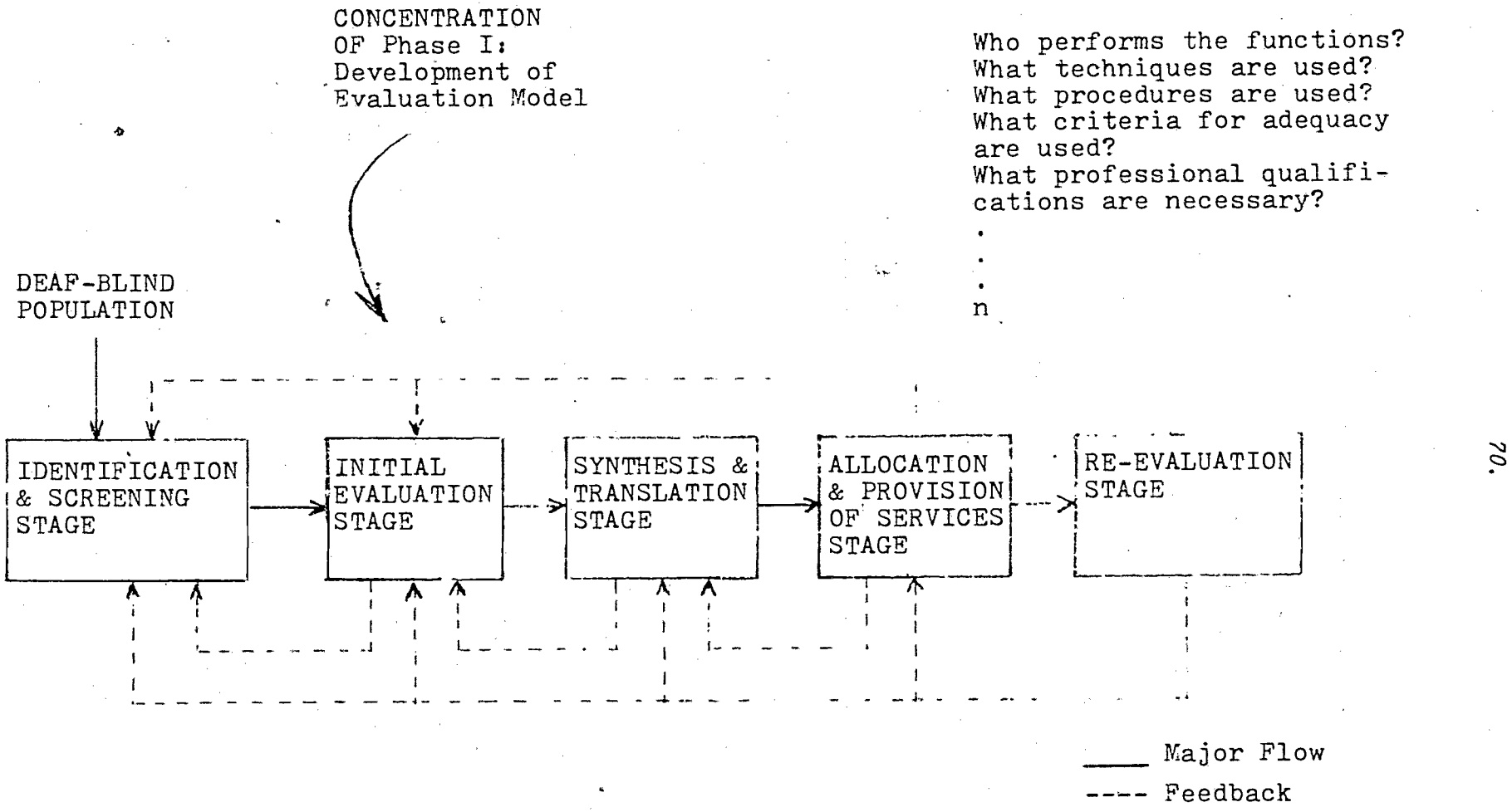
problem, a mutual agreement was reached on the desirability of developing a diagnostic and evaluative model. It was further agreed that the model should include medical, social, educational, and functional considerations.

Five stages comprising the national program for providing services to deaf-blind children were conceptualized. The first stage consisted of the identification and screening of deaf-blind children from their population at large. The second stage consisted of the initial evaluation, diagnosis, and prescription provided by the evaluation teams functioning in each state within each regional center. Equally of importance was a third stage which consisted of the synthesis and translation of the evaluative, diagnostic, and prescriptive aspects provided by the initial evaluation teams. Next was a fourth stage which allocates and provides the services called for by the previous stage. Lastly, a re-evaluation stage existed which provides validation not only of the allocation and provision of services stage, but also of each of the other stages in the process. The major stage of concern to the development of the model described within this report was the second or initial evaluation stage. Figure 1 illustrates these major stages.

Further thought on the focus of the effort ascertained that no absolute criteria were available for evaluating deaf-blind children. Consequently, an experimental approach was explored. It was concluded that such an approach would be feasible with the assistance of (1) those professionals currently performing initial evaluations within each of the eleven regional centers in the United States, and (2) the National Advisory Board for Deaf-Blind Children located in Washington, D.C.

A two stage design was explored. The first stage would consist of querying each evaluation team member functioning in each of the Regional Centers for Deaf-Blind Children in the United States. The data collection instrument would be the questionnaire. Each professional who conducted initial evaluations as a member of an Evaluation Team for Deaf-Blind Children would receive a specially designed instrument tailored for his/her professional specialty. The data sought would consist of precisely what each team member currently does in his/her evaluation of deaf-blind children in terms of medical, social, educational, and functional aspects. In addition, data concerning what is needed, in each professional's opinion, to assist him/her in performing better evaluations, would also be requested.

The data collection instrument would be a questionnaire especially designed for each professional team member. For example, if only the three professional specialties currently required by federal regulations, viz., pediatrician, ophthalmologist, and audiologist, functioned in X team in Y state in W region, then each of these would receive a separate questionnaire developed especially for his specialty. The criteria to be used in responding to each questionnaire would be the expert opinion of the specialist. Upon receipt of all questionnaires from all respondents, an analysis would be performed. Those practices, techniques, procedures, checks, tests, apparatus, etc., which were common to each specialty within the teams would be tabulated. Any additional needs that the specialists identified would also be tabulated. From these analyses, a prototype model would be developed. Such a model would reflect not only what was currently being done by all evaluation teams, but also what was yet needed. Further, these parameters would include medical, social, educational and functional aspects.


CONCENTRATION
OF Phase I:
Development of
Evaluation Model
Who performs the functions?
What techniques are used?
What procedures are used?
What criteria for adequacy
are used?
What professional qualifi-
cations are necessary?
.
.
.
n
DEAF-BLIND
POPULATION
IDENTIFICATION
& SCREENING
STAGE
INITIAL
EVALUATION
STAGE
SYNTHESIS &
TRANSLATION
STAGE
ALLOCATION
& PROVISION
OF SERVICES
STAGE
RE-EVALUATION
STAGE
Major Flow
Feedback

S L I D E N O . 1

The second stage would consist of submitting the experientially derived prototype model to an external, but select, criterion group of experts, viz., the National Advisory Board for Deaf-Blind Children in Washington, D.C. The data sought during the second stage would be the minimum standards for each evaluation team member, by specialty, as deemed advisable for use in the evaluation of deaf-blind children. The data instrument would be the prototype model itself. The criteria to be used by the National Advisory Board members would be expert opinion.

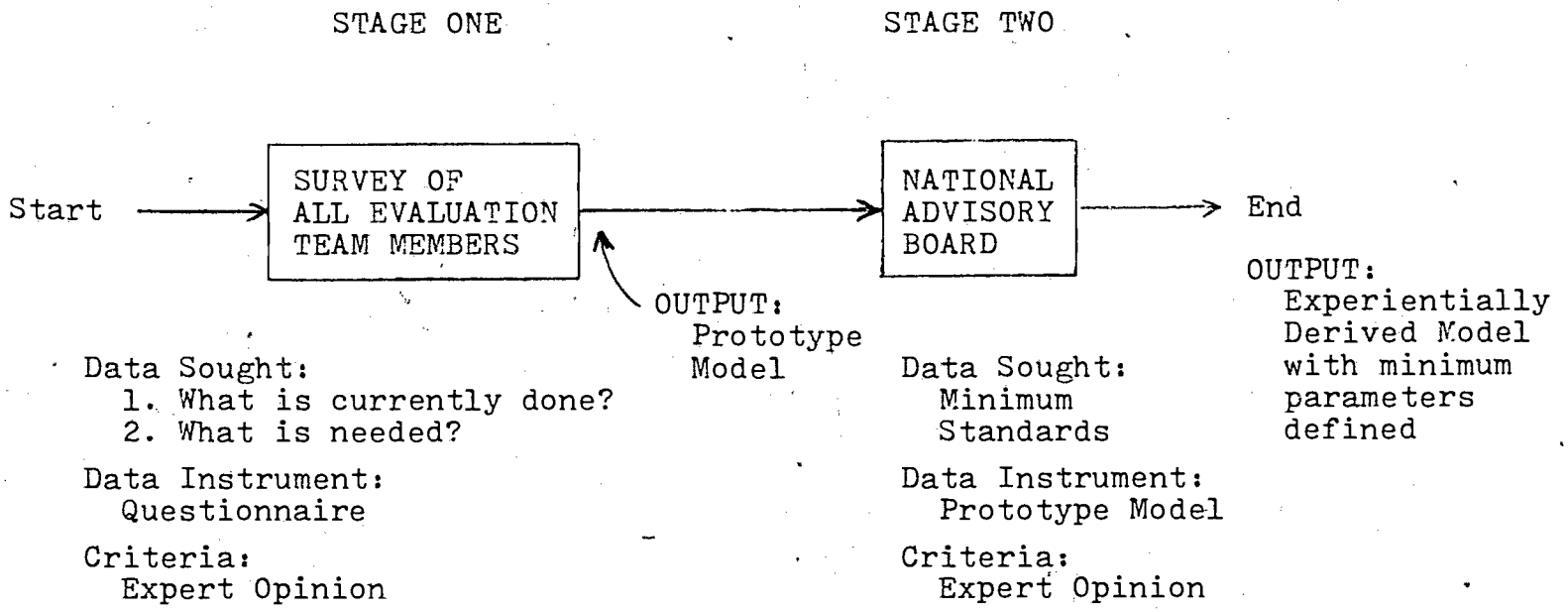
The output of Stage Two would be an experientially derived model for the evaluation of deaf-blind children. Those elements considered to be the minimum requirements for evaluation by the criterion group would be retained as salient to the basic model. Judgements of techniques, routines, tests, specialties, etc., above the minimum requirements would be retained in the model for selected use. Thus, a basic model containing minimum requirements for each specialty in terms of medical, social, educational, and functional aspects and experientially determined maximal parameters would be developed. The power of such a research design is enhanced by the fact that the criteria would be ascertained by two expert groups, viz., (1) professionals currently functioning in the area of deaf-blind evaluations throughout the United States, and (2) that select group of professionals comprising the National Review Board for Deaf-Blind Children. Figure 2 illustrates the rudiments of the proposed two stage research design.

Status of Project

The research effort was undertaken formally by the University of South Carolina's Task Force for Perceptual Research in mid January 1974. The first major task consisted of the development of the data collection instruments. It was accomplished during January, February, and March 1974. Two sources were used to accomplish this task. First, depth interviews were conducted with the various specialists who comprise the South Carolina Deaf-Blind Evaluation Team. Second, a review of the technical literature concerning Deaf-Blind evaluations was conducted. Data derived from the interviews and literature search provided the bases for the development of multiple questionnaires; one for each specialty providing evaluations on deaf-blind children. The questionnaires were designed to collect a maximum amount of information in a minimum amount of time. The average administration time sought was approximately 45 minutes. The use of simple "Yes, No, Sometimes" type items plus open-ended items in each instrument allowed the achievement of the targeted administration time.

During the month of April 1974, the data collection instruments were pretested. A sample was drawn from those professionals available in the Columbia, South Carolina area. The instruments were administered to the sample. Refinements relating to syntax, semantics, technical content, and administrative aspects resulted from the pretest.

The next research task relates to a mail query of the selected sample of respondents, that is, those specialists currently performing deaf-blind evaluations in all eleven regional centers in the United States. Since evaluation teams do change in composition and number each year, the original concept of using the entire population was modified as follows. Only those


STAGE ONE
STAGE TWO
Start
SURVEY OF ALL EVALUATION TEAM MEMBERS
NATIONAL ADVISORY BOARD
End
OUTPUT: Prototype Model
OUTPUT: Experientially Derived Model with minimum parameters defined
Data Sought:
1. What is currently done?
2. What is needed?
Data Instrument: Questionnaire
Criteria: Expert Opinion
Data Sought: Minimum Standards
Data Instrument: Prototype Model
Criteria: Expert Opinion

S L I D E N O . 2

team members who are now (circa 1974) members of evaluation teams and who evaluated three or more children in 1973 would be requested to respond.

Regional Coordinators in each of the eleven Regional Centers for Deaf-Blind Children have been contacted for information regarding the composition of team members by specialty, name, and address. When this information is received from the eleven Regional Coordinators, a national mailing to respondents will be executed. Figure 3 illustrates the research tasks completed and those yet remaining along with their time estimations.

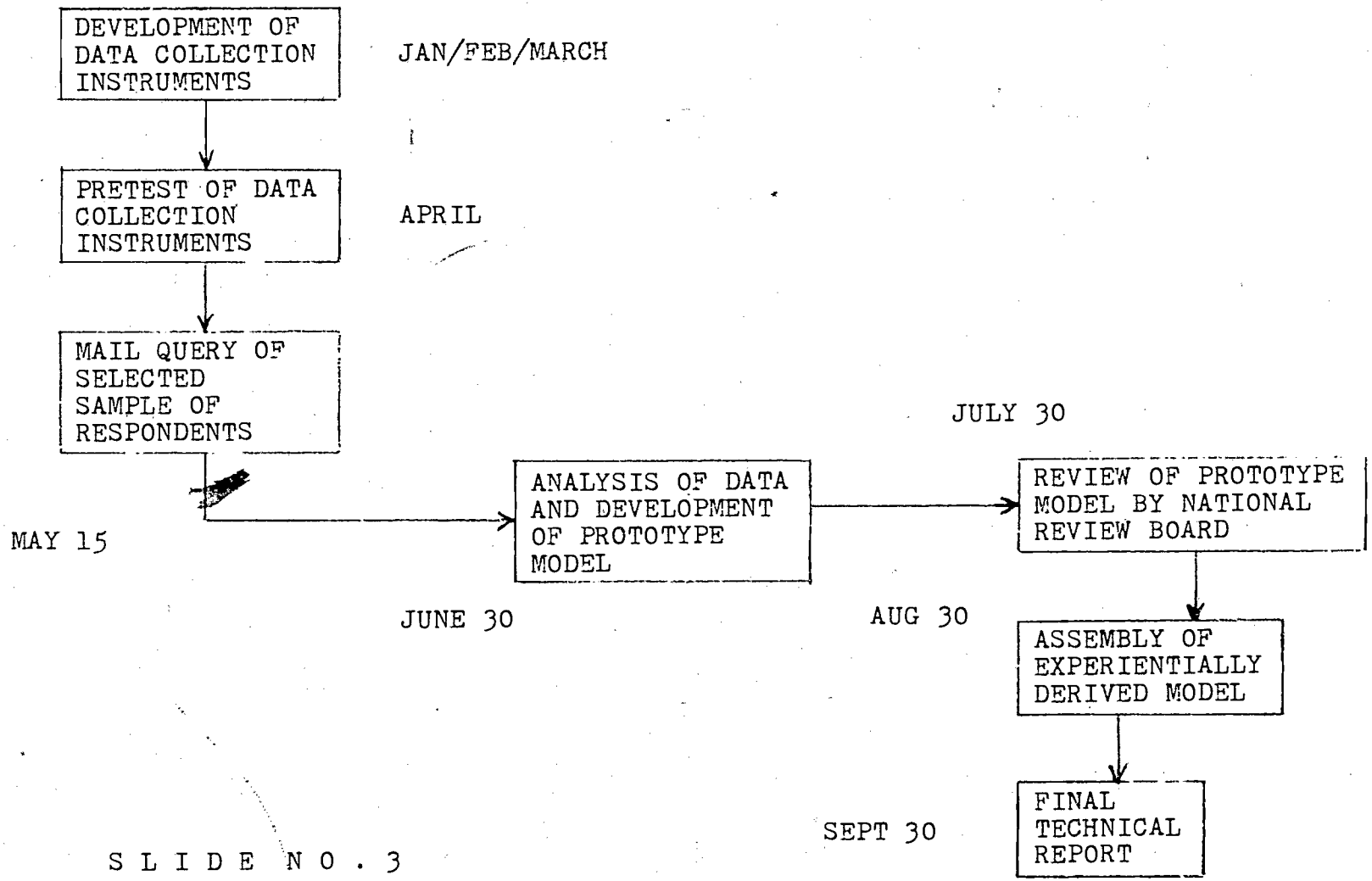
The time shown for uncompleted tasks are predicated on the timeliness and completeness of the requested information from the eleven regional centers. The projected target date for national querying has been set for May 15, 1974. By June 1974, it is expected that at least 75% of respondents will have returned their questionnaires. Seventy-five percent is the minimum percentage of responses that the analyses will be based on. It is felt that this percentage will assure sufficient sampling of the experiential base that is required for development of the prototype model.

Data analyses are expected to be completed by July 30, 1974. At that time the prototype model will be submitted to the National Review Board. A target date of August 30, 1974, is being sought for the return of the prototype model from the second criterion group. During the month of September 1974, the output from the National Advisory Board will be assembled into the final model. A technical report containing the model and how it was developed will be completed at that time.

End Product

The end product of the current research effort will be a diagnostic and evaluative model that contains medical, social, educational, and functional aspects. It will be an experientially derived model--one that has been derived from assessing the state-of-the-art as determined by a sample of professionals who are currently performing evaluations on deaf-blind children throughout the United States. It will contain minimum requirements for each professional specialty as determined by the National Advisory Board for Deaf-Blind Children. In addition, it will contain procedures, techniques, tests, etc., that exceed minimum requirements and which may be used on a selective basis.

The model will not be operational until validation through usage is accomplished. It is anticipated that a verification or validation phase will follow the developmental (current) effort. In such a phase, the model will be employed by one or more Deaf-Blind Evaluation Teams in the South Atlantic Region for a period of time. A comparison of the team(s) using the model and the team(s) using current, non-model procedures would then be made. If validation were to be accomplished, the model would then be operational and could be adopted by other teams in other states and in other regions.


DEVELOPMENT OF DATA COLLECTION INSTRUMENTS
JAN/FEB/MARCH
PRETEST OF DATA COLLECTION INSTRUMENTS
APRIL
MAIL QUERY OF SELECTED SAMPLE OF RESPONDENTS
MAY 15
ANALYSIS OF DATA AND DEVELOPMENT OF PROTOTYPE MODEL
JUNE 30
JULY 30
REVIEW OF PROTOTYPE MODEL BY NATIONAL REVIEW BOARD
AUG 30
ASSEMBLY OF EXPERIENTIALLY DERIVED MODEL
SEPT 30
FINAL TECHNICAL REPORT

S L I D E N O . 3

CURRICULUM DEVELOPMENT FROM 0-6 YEARS

Dr. Verna Hart
University of Pittsburgh

Guidelines for curriculum development have been around for a long time. It is interesting to look at the books of today that give the "how to" of developing a curriculum and find that the same model is presented as in the books written sixty years ago. The format may vary, the language is different, and the examples are more modern, but the steps in development remain the same.

The first step in developing a curriculum is to specify the objectives you wish to achieve. It is at this point that our philosophies, biases, and personal prejudices appear. If we think our students should be well versed in art and music, our objectives clearly show this. If excellence in sports is important, objectives will reflect that bias. If we strongly believe in a classical education, the objectives will be such that our students are exposed to the body of knowledge that comprises a classical education.

After the objectives of a curriculum are identified, methods and strategies must be developed to enable the students to meet those objectives. These methods, strategies and activities should be such that they select and organize the experience which will foster concepts leading to attainment of the objective. If appreciation of different art forms is our objective, strategies that we would develop should expose the students to the specific art forms in our objectives. Students might visit museums, study pictures, sculptures and paintings. They might paint or sculpt themselves. They might copy the works of masters. Methods and means of exposing the students to art forms would reflect our creativity as teachers and our ingenuity in coming up with activities to generate enthusiasm by presenting interesting information and making the acquisition of knowledge exciting.

Important to the activities are the materials to be used. These materials would have to relate directly to the activity to be undertaken - paint brushes for art activities and slide rulers for math problems. The more appropriate the materials, the easier to carry out the activity. A wide brush is difficult to use when you want to paint a very fine line. This may seem like oversimplification, but it is most important to be thorough in material selection and to assume nothing. Initially, activities would be quite specific. Later, they would be planned to determine if the students could generalize their knowledge and apply it to other activities.

And, finally, as the last step in planning our curriculum we must analyze or evaluate the activities to see if they do indeed help the students reach the objective.

These steps of curriculum development: the identification of objectives, planning activities and materials, and evaluating the activities are all used no matter what curriculum is planned.

Let's now apply these same steps to developing a curriculum for deaf-blind children from birth to six years of age. The first step must be to identify our objectives. What do we want for our children? To learn to be independent in their daily living skills? To learn to communicate? To work?

It's here that many curriculum developers have difficulty, because a curriculum will only be effective in reference to the identity of objectives. If we have narrow objectives, our curriculum will be narrow. If we specify only self-care skills, our curriculum will reflect only activities leading to attaining self-care skills. It is important, then, to think as comprehensively as we can so we can develop our children as broadly as possible.

Those who have studied normal children and their growth have identified several areas of development: gross and fine motor, social and emotional, percept and concept, communication, and self care. If we think of the "whole child", we'll have to have each of those areas reflected in our curriculum objectives.

If we select objectives in each of those areas, our activities must then be based on and relate to the objectives. A curriculum can break down at this point if the activities do not reflect these objectives and if the child himself is not considered. If we're teaching a child to use a spoon, the task is much easier if he likes food than if he prefers a bottle. The activity must match the child.

The activity must consider the stage of development of the child. Spoon behavior is not appropriate for a child functioning at the six month old level because he has not yet established good hand to mouth movement with grasp and release. The sequence of growth becomes important. Does he have the prerequisite developmental skills needed? If he doesn't, the activity will fail, no matter how much time we spend in preparation.

Most of us aren't too familiar with the sequence of development of each of the areas of child development. I've included the sequences here for easy reference. It is most important that we plan activities to allow the children to progress from one stage to the next. Our handicapped children have so much to learn and they begin so far behind normal children that we must not waste time in getting them to their highest level of functioning.

The sequence of development can be our objectives in curriculum development as well as our criteria for evaluation. If a child is sitting, what must he learn before he can walk? If we consider the sequence of motor behavior, we can see that standing becomes our objective in the motor areas. Our activities and teaching materials are then all geared to standing. When he has standing balance, we can then work on walking.

As soon as he masters any step, we check that step off and look to the next one for our teaching objective. Our activities and materials then become specific for a particular level of development.

We can only say that a child is functioning at a specific level of development if he has learned all of the tasks listed for that age level. Why? Because one of those tasks at that level may be a prerequisite for attainment of a higher level. By assuming he is at a certain level because he has attained most of the skills, we would begin programming curriculum at too high

a level for him. This would lead to frustration for both the child and ourselves as teachers. It is far better to let the child experience success as he sequentially goes from one stage to the next.

It's important to stress here that the child's program should be dictated by his functioning level. When it comes to curriculum development, the activities should be geared to where he is, not how old he is. Many handicapped children are above six years chronologically, and still retain areas where they function as children between birth and six. They will not make maximum gains until we go back to where they are and take them sequentially from that point. So forget how old they are and plan developmentally.

A problem that is foremost in the minds of all of us as we develop curriculum for deaf-blind children is handling the problems that the deafness and the blindness present when we try to help our children go through the developmental sequence. We cannot ignore or skip the percepts and concepts that are visually and auditorally formed by normal children. The curriculum task is manifested at the activity level where we must choose strategies that will help the children gain the concepts needed to sequentially go to the next stage. Ear-hand coordination will have to be developed if a blind child has useful residual hearing. Tactual, kinesthetic, olfactory, and gustatory senses will all have to be used to get the concepts across. Gestures and formal signs substitute for oral speech. Residual vision is supplemented by all of the senses. All of our resources are brought to play to help children attain those skills that are necessary for future stages.

There are many curricula on the market. Some have been developed specifically with and/or for deaf-blind children and others have not. Some that have been developed for other types of handicapped children can be used with our deaf-blind children if the activities are altered to account for the vision and hearing loss. The objectives remain the same; the activities and/or materials may differ. Examples of developmentally sequenced materials that can be used with deaf-blind children are the Memphis Project, Portage Project and Northcott materials.

It is not important what specific curriculum you use. Of importance is whether the objectives cover the whole child, whether activities and materials are matched to the child and to his level of development, whether the activities take him sequentially to the next step, and whether the activities are appropriate to reach the objectives. Rather than recommend a specific curricula from the many developed for deaf-blind, I leave you with the criteria for good curriculum development and encourage you to evaluate the materials, and to do it on a continuing basis.

DEVELOPMENTAL CHECKLIST

Child's name: _____

Date of birth _____

Date of first evaluation: _____

Child's chronological age at first evaluation: _____

Date of second evaluation: _____

Child's chronological age at second evaluation: _____

Date of third evaluation: _____

Child's chronological age at third evaluation: _____

Date of fourth evaluation: _____

Child's chronological age at fourth evaluation: _____

Developmental Age

	First Evaluation	Second Evaluation	Third Evaluation	Fourth Evaluation
Gross Motor				
Fine Motor				
Perceptual				
Conceptual				
Social				
Emotional				
Communication				
Self Care				
Eating				
Toileting				
Dressing				
Other				

Gross Motor

___ 8 weeks ___ Readily lifts chin from face down position

___ 12 weeks ___ Raises head and shoulders with forearms when on stomach

___ 16 weeks ___ Holds head up when sitting supported

___ 20 weeks ___ Rolls over on side from back position
___ Sits supported in high chair

___ 32 weeks ___ Begins to sit unsupported
___ Can support entire weight on legs for short period when held up

___ 36 weeks ___ Sits steadily unsupported for a long time
___ Raises body to crawling position and may crawl backwards

___ 40 weeks ___ Pulls self to sitting and standing positions

___ 44 weeks ___ Creeps forward on hand and knees with stomach off the floor

___ 48 weeks ___ Can turn and pick up object while sitting
___ Walks sideways using support or forward with two hands held
___ Lowers body from standing to sitting by holding on to support

___ 11 months___ Beginning of hip rotation - leads with hips when turning over

___ 13 months___ Stands alone

___ 15 months___ Stands self up without using support
___ Creeps upstairs

___ Less than 1 year to 18 months___ Walks alone with immature gait

___ 18 months___ Climbs stairs holding rail
___ Goes down stairs creeping backwards
___ Pulls and pushes toy while walking
___ Can throw ball without falling
___ Pushes chair about and climbs on it

___ 21 months___ Walks backwards
___ Begins to run
___ Begins to jump

___ 2 years ___ Walks up and down steps alone, 2 feet per step
___ Can kick a ball
___ Climbs on chair to reach object out of reach

___ 2½ years ___ Walks on tiptoes
___ Jumps down with both feet

___ 3 years ___ Can stand on one foot for a few seconds
___ Jumps off floor with feet together
___ Goes upstairs with one foot per step
___ Catches large ball with arms out straight
___ Rides tricycle
___ Walks a line for 10 feet
___ Hops on 1 foot

___ 4 years ___ Runs, stops, starts, turns
___ Can carry a cup of water without spilling it
___ Catches a large ball with arms bent at elbows
___ Alternates feet going downstairs, 1 foot per step

___ 5 years ___ Skips with both feet
___ Marches in time to music
___ Shifts body to keep balance when throwing a ball
___ Can climb on and off a bus unaided

Fine Motor Development

___ 1 month	_____	Thumb has characteristic curled - in, position
___ 3 months	_____	Disappearance of grasp reflex; no longer are hands tightly closed
	_____	Holds rattle voluntarily when it is placed in his hand
___ 4 months	_____	Thumb doesn't participate when grasping a cube
	_____	Hands come together at midline as he plays
	_____	Plays with rattle placed in hand for prolonged period
	_____	Mouths objects (Puts everything in mouth)
___ 5 months	_____	Approach to objects is two handed
	_____	Grasp is limited to large objects
	_____	Reaches
___ 6 months	_____	Uses hands to reach, grasp, crumble, bang, and splash
	_____	Makes scooping motion with hand in grasping pellet
	_____	Thumb opposes in grasping cube
___ 7 months	_____	Transfers objects from one hand to the other
	_____	Hands cross the midline
	_____	One hand approach
___ 9 months	_____	Uses pincer grasp (thumb and forefinger with one hand in picking up object
___ 10 months	_____	Begins to release, lets object go deliberately, not accidentally
___ 12 months	_____	Places cube into a container
	_____	Pincer grasp (thumb and forefinger) of small object
	_____	Mouthing stops
	_____	Palmer hold of crayon (holds crayon across palm of hand)
___ 15 months	_____	Helps turn book pages
___ 18 months	_____	Holds two objects in one hand
___ 2 years	_____	Begins to extend fingers toward point of writing instrument
	_____	Turns door knob, unscrews lids
___ 3 years	_____	Can pluck object from table without touching table top
	_____	Reaches for object without having to look directly at it
___ 4 years	_____	Holds hand above or to one side so as not to obstruct view of what he builds
	_____	Independent use of both hands in building
	_____	Improved steadiness of hand, timing and release of objects
	_____	Cuts with scissors
___ 5 years	_____	Grasps in adult manner with two little fingers curved into palm
	_____	Grasps and places object in one continuous movement

Drawing

___ 18 months	_____	Scribbles spontaneously
	_____	Imitates Vertical
___ 24 months	_____	Imitates Horizontal
	_____	V Stroke
___ 36 months	_____	Copies circle
	_____	Imitates cross
	_____	Draws man
___ 48 months	_____	Copies cross
	_____	Traces diamond
___ 54 months	_____	Copies square
___ 60 months	_____	Copies triangle
	_____	Copies diamonds and
	_____	Rectangle with diagonal

Cube Building

___ 15 mo.	_____	2 cube tower
___ 18 mo.	_____	3 cube tower
___ 21 mo.	_____	5 cube tower
___ 24 mo.	_____	6 cube tower
	_____	3 blocks horizontally
___ 30 mo.	_____	8 cube tower
___ 3 yrs.	_____	9-10 cube tower

Puzzles

___ 18 mo.	_____	Round shape
___ 3 yrs.	_____	Square shape
	_____	Triangle shape
	_____	Turns pieces to fit

Perceptual Development

___ 1 month
- _____ Follows horizontal movement of light or bright object to midline
- _____ Responds to loud noises by crying or startling (newborn)
- _____ Quiets and reduces activity because of approaching sounds

___ 2 months
- _____ Eyes fixate, converge and focus
- _____ Long waves (red, orange, yellow) are perceived first
- _____ Follows vertical movement
- _____ Accepts loud noises as part of environment--doesn't react violently

___ 4 months
- _____ Looks intently at objects in hand or in front of him
- _____ Responds massively (head, shoulders and arms) to an object dangling in front of eyes
- _____ Lateral head and eye movement in search of sound (beginning of localizing response)

___ 6 months
- _____ Fixates where object disappears
- _____ Localizes sound by moving head and eyes laterally and upward

___ 7 months
- _____ Looks for fallen object
- _____ Finds partially hidden object
- _____ Localizes sound by moving head and eyes in sweeping arc to source

___ 9 months
- _____ Picks up string or object the size of a small pea between finger and thumb

___ 10 months
- _____ Looks around corner for objects
- _____ Imitates gestures (waving bye-bye) and facial expressions

___ 1 year
- _____ Perceives roundness, puts finger or rod in round hole

___ 18 months
- _____ Shows interest in pictures and can identify objects in pictures
- _____ Responds to two simple commands

___ 2 years
- _____ Increase visual memory span-looks for missing toys, recalls events of previous day
- _____ Can select named object from group of objects or pictures
- _____ Repeats 3-4 syllable sentences
- _____ Repeats 2 digits in one of three trials

___ 3 years
- _____ Puts two halves of pictures together even when rotated 180°
- _____ Imitates building of bridge, i.e., horizontal and vertical
- _____ Matches forms by inserting circle, square and triangle in cut-out forms even with reversal of position
- _____ Matches mounted colors (red, yellow, green, blue)
- _____ Repeats three digits, not in counting sequence, one out of 3 trials

___ 4 years
- _____ Can supply 3 missing parts to a drawing of an incomplete man
- _____ Makes comparative size discriminations consecutively
- _____ Discriminates length of lines regardless of orientation
- _____ Can match eight of ten forms
- _____ Traces diamond shape between 2 parallel lines
- _____ Copies circle more accurately with ends joining

Perceptual Development Continued. . .

___ *4 years* _____ *Uses plurals*
_____ *Repeats 12-13 syllable sentences*
_____ *Repeats 3 digits, three out of three trials*
_____ *Discriminates noisemakers*
_____ *Matches sound blocks by loudness*

___ *5 years* _____ *Perceives details visually and asks about them*
_____ *Puts diagonals together: 2 triangles to make a rectangle*
_____ *Matches ten forms*
_____ *Can insert sequence of nesting cups*
_____ *Names four colors*
_____ *Carries a melody*
_____ *Claps to rhythm of song or drum*
_____ *Perceives detail auditorally: selects a word from a sentence and asks about it*
_____ *Repeats 4 digits, two out of three trials*
_____ *Can grade sound clocks by loudness*

___ *6 years* _____ *Repeats five digits*

Conceptual Development

___	1 month	_____ Basic sensory responses (vision, hearing, touch)
___	4-8 months	_____ Intention and means/end are beginning to develop; Child shakes a rattle to hear
		_____ Beginnings of object permanence: He looks, for a short time, for object removed from field of vision. Out of sight object still exists.
		_____ Puts "motor meaning" to objects. Shakes head at sight of rattle
___	8-12 months	_____ Beginning of symbolic meaning: Uses actions to represent object
		_____ Overpermanence of objects - Child watches you hide an object in one hand and finds it. Watches while hidden in other hand but looks in first hand
		_____ First indication of causality: If I do this, something happens
		_____ Applies what has worked in one situation to new situations
		_____ Responds to "no"
		_____ Responds to name
___	12-18 months	_____ Overpermanence disappears
		_____ Development of space perception
		_____ Modifies what has worked in one situation to fit new perceptions
		_____ Trial and error processes begin
		_____ Causality - child uses string to pull object to him
___	18-24 months	_____ Can point to own body parts (2-3)
		_____ Formulates negative judgement. "Fork is not a spoon."
		_____ Says "no" on high plane of logic
		_____ Object permanence - child looks behind couch for ball that rolled under front
___	24-30 months	_____ Understands concepts, <u>in</u>, <u>under</u>
		_____ Knows 4 body parts
		_____ Can answer, "What do you do with _____?"
		_____ Listens to stories
___	3 years	_____ Understands concepts <u>in front of</u>, <u>behind</u>, <u>on</u>
		_____ Comparison of lines: can pick out the longest
		_____ Verbs - can answer, "Show me sitting."
		_____ Adjectives - <u>big</u>, <u>little</u>, <u>hard</u>, <u>soft</u>
		_____ Can classify objectives on the basis of physical attributes
		_____ Can make a choice of two alternatives
		_____ Comprehends hunger
___	4 years	_____ Comparison of weights - can find the heaviest
		_____ Knows colors
		_____ Understands money is for purchasing
		_____ Defines objects by their use

Conceptual Development Continued. . .

___	4 years	_____ Can tell stories without pictures
		_____ Can classify on the basis of groups - "These are all animals."
		_____ Counts pointing to 3 objects (Concepts to 2)
		_____ Understands opposites: hard-soft, hot-cold, big-little
___	4½ years	_____ Can classify on the basis of function
		_____ Can answer "Is it hot in winter?"
___	5 years	_____ Can make aesthetic comparison "Which is pretty?"
		_____ Can make application of "many-to-one" but not "one-to-many" ("these all are fruit" but not what they might have in common)
		_____ Follows and repeats sequence of a story
___	5½ years	_____ Can classify by association - rattle goes with baby
		_____ Developing right-left concept

Emotional Development

___	4 weeks	_____ Emotional response of distress begins
___	1 month	_____ Quiets when picked up
___	6 weeks	_____ Smiles at mother in response to her smiles, voice, physical care
___	12 weeks	_____ Babbles when spoken to
___	16 weeks	_____ Laughs aloud, smiles and sobers
___	20 weeks	_____ Emotional responses becoming relative to specific situations
___	24 weeks	_____ Stretches arms out to be taken
		_____ Fear response to loss of support, sudden loud noises
___	28 weeks	_____ Plays peek-a-boo with mother
		_____ Responds to name
		_____ Pats image of self in mirror
		_____ Distress differentiates into more specific responses of fear, disgust, anger
		_____ Delight differentiates into elation, affection
___	9-10 months	_____ Stranger response, shows distrust
		_____ Sleeps through the night
___	1 year	_____ Agressive interaction with environment begins
		_____ Willfully disobedient
		_____ Expressions to fear, anger, affection, anxiety and sympathy in keeping with situations causing them
		_____ Distinguishes between <u>you</u> and <u>me</u>
___	2 years	_____ Separates readily from mother when handled properly
		_____ Curious and busy
		_____ Uses I, me, you
		_____ Emotional arousal sudden, intense, brief--temper tantrums
___	3 years	_____ Shows sympathy in response to bandages, crying, accidents
		_____ Develops jealousy toward siblings
		_____ May rage at difficulties he experiences in dressing
		_____ Fear of dark, bugs, and strange situations like nursery school
		_____ Sacrifices immediate satisfaction on promise of later privilege
		_____ Begins to use words to express feelings
___	4 years	_____ Genital fixation and exploration--likes to go to bathroom with others to satisfy his curiosity
		_____ Aware of attitudes of peers
		_____ Shares possessions
		_____ Fabricates, alibies, rationalizes
		_____ Separates readily
___	5 years	_____ Sensitive to social situations, aware of status, feels shame if he doesn't live up to his own expectations of others
		_____ Shows ability to delay gratification
		_____ Accomplishes in wielding tools and meaningful toys
		_____ Loyal to playmates and devoted to teacher
		_____ Proud of school accomplishments, satisfied with artistic production
		_____ Sparked into increased activity by rivalry
___	6 years	_____ Beginning of value judgments about his own behavior, setting up standards for himself

Social Development

___	1 month	_____ Eye contact
___	12 weeks	_____ Knows mother and recognizes her _____ Enjoys evening play with father
___	16 weeks	_____ Spontaneous social smile - laughs aloud
___	20 weeks	_____ Cries when someone leaves him
___	24 weeks	_____ Smiles and vocalizes at mirror image _____ Discriminates strangers
___	23 weeks	_____ Goes towards familiar persons for companionship
___	32 weeks	_____ Withdraws from strangers
___	40 weeks	_____ Waves bye-bye and pat-a-cakes
___	44 weeks	_____ Drops objects deliberately so that they will be retrieved
___	1 year	_____ Gives object to another on request _____ Anticipates body movements when nursery rhyme is being said (Pat-a-cakes)
___	13 months	_____ Hugs and shows affection toward doll or teddy bear _____ Plays near other children, not directly with them
___	21 months	_____ Mimics household chores
___	2 years	_____ Can call himself by his own name _____ Knows his common body parts _____ Calls all men and women Mommies and Daddies, children Baby _____ Cannot play with more than one child without direct supervision _____ Snatches, grabs objects from others
___	2½ years	_____ Calls women Lady and men Man _____ Knows he is a boy like father and that he is different from girls and mothers _____ Says "I need", "I don't like"
___	3 years	_____ Can tell difference between boys and girls but makes no distinction in his play _____ Talkative
___	3½ years	_____ Interest in marriage and marrying _____ Imaginary playmates _____ Child plays the role of animals
___	4 years	_____ Plays well with 1 child or in supervised group _____ Tendency in play groups for a division along sex lines _____ Beginning of strong feeling for family and home _____ Bossy, criticizes, calls names
___	4½ years	_____ Capable of playing in small groups without supervision
___	5 years	_____ Spurred on by rivalry

Communication

___	1 month	_____	Change in pitch - sign of bodily discomfort
___	2 months	_____	Babbling begins, coos, gurgles
		_____	Reflex activities produce sounds
		_____	Repeats sounds for physical pleasure and auditory stimulation
___	3 months	_____	Cry changes with body state
		_____	Differentiated crying. Mother can tell pain cry
___	5 months	_____	Vocal play
___	6 months	_____	"Talks" and gestures to objects
		_____	Jargon with changes in tone
___	7 months	_____	Vocalizes emotional state
___	8-12 months	_____	Meaningful attempt at conversation
		_____	First word
		_____	Understands phrases and wholes
		_____	Responds by action to command
		_____	Echolalia - repeats words exactly as you say them
		_____	1 word sentences (5-6 word vocabulary)
		_____	Responds to own name
		_____	Understands gestures
___	15 months	_____	Indicates needs by pointing or vocalizing
___	18 months	_____	Jargon directed at people
		_____	1.5 word sentence, 15-20 words
		_____	Understands simple questions
		_____	Pulls toward food
___	18-24 months	_____	Understands most linguistic units - not yet separated into word units
		_____	Pulls to communicate
		_____	Imitates animal environmental sounds
		_____	Uses one word for many unrelated things - extension of meaning
		_____	Uses 100-200 words, recognizes 120-275
___	24-30 months	_____	Verbalizes simple experiences and emotions
		_____	Speech with pointing
		_____	Speech has become a tool as well as warning and safety value
		_____	1.8 sentence
___	30-36 months	_____	Comprehends time words
		_____	Uses compound and complex sentence structure and plurals
		_____	Questions begin
		_____	3.1 word sentences, 3---500 word vocabulary
		_____	Responds by action to commands, <u>an</u>, <u>under</u>, <u>up</u>, <u>down</u>, <u>run</u>, <u>walk</u>
		_____	Names objects

Communication Continued. . .

___ 3 years
- _____ Says full name
- _____ Final consonants appear, sound begins to include blends, speech 90-100% intelligible
- _____ Uses 2-word phrases, 600-1,000 words
- _____ Asks questions about persons, things, and processes
- _____ Uses pronouns, some adjectives, adverbs, prepositions

___ 3-6 years
- _____ Repetitions are frequent
- _____ Relates experiences with understanding of sequence
- _____ Asks why but not for knowledge

___ 4 years
- _____ Normally fluent
- _____ Advancing sentence structure, uses articles, 4-6 word sentences
- _____ Alludes to objects, persons, events outside immediate environment
- _____ Follows 2-stage command

___ 4-6 years
- _____ Reverses order of sound
- _____ Spontaneous grammar correction

___ 5 years
- _____ Relates fanciful tales and present and past events
- _____ Language becomes symbolic
- _____ Uses all basic sentence structures
- _____ 5-6 word sentence length, 1,500-2,100 vocabulary, understands 2,500-2,800 words
- _____ Counts to 10, knows age, name, primary colors
- _____ Follows 3-stage command

Self-Help Skills

Eating

___	6 months	_____ Holds bottle
___	7 months	_____ Feeds self biscuit
		_____ Chews food
___	10 months	_____ Accepts new solid food
___	15 months	_____ Grasps spoon and inserts into dish
		_____ Holds cup with finger grasp but apt to tip it too quickly
___	18 months	_____ Fills spoon and feeds self in part, spills much
		_____ Lifts cup to mouth and drinks well
		_____ Hands empty cup to mother
___	21 months	_____ Handles cup with ease, lifting, drinking, and replacing
___	2 years	_____ Stops turning of spoon before it gets to mouth, still needs help in feeding
		_____ Holds small glass in one hand as he drinks
___	2½ years	_____ Little spilling in self feeding
___	3 years	_____ Pours well from a pitcher
		_____ Clears and cleans table
___	4 years	_____ Likes to serve self at table
		_____ Eats with fork
		_____ Uses knife
		_____ Rarely needs assistance to complete a meal

Toileting

___	15 months	_____ Does not indicate toilet needs but does indicate wet pants
___	18 months	_____ Toilet regulated in day time - both bowel and bladder
___	21 months	_____ Asks for food, toilet, and drink by gesture or word
___	2 years	_____ Dry at night if taken up at least once
		_____ Verbalizes or signs toilet needs consistently
___	2½ years	_____ Tends toilet without help except for wiping

Dressing

___	15 months	_____ Cooperates in dressing by extending arm or leg
___	18 months	_____ Can take off mittens
		_____ Can take off hat
		_____ Can take off socks
		_____ Can unzip zippers
		_____ Tries to put on shoes
___	2 years	_____ Pulls on simple garments, finds large armholes and thrusts arms into them
		_____ Can remove shoes if laces are untied
		_____ Removes coat
___	3 years	_____ Puts on shoes
		_____ Puts on underpants and slacks
		_____ Unbuttons front and side buttons by pushing them thru buttonholes

Self-Help Skills Continued. . .

___	*4 years*	_____ *Dresses and undresses if lightly supervised*
		_____ *Distinguishes front and back of clothes and puts on correctly*
		_____ *Laces shoes*
___	*6 years*	_____ *Ties shoe laces*

Other

___	*2½ years*	_____ *Puts things away*
___	*3 years*	_____ *Washes and dries hands*
		_____ *Sleeps at naptime 'til 3 years*
___	*3½ years*	_____ *Puts away toys with some supervision*
		_____ *Washes and dries hands and face*
___	*4 years*	_____ *Brushes teeth*
		_____ *Puts away toys by himself*
		_____ *Goes on errands outside of home*
___	*5 years*	_____ *Can safely cross streets, if not too hazardous and can help a younger child to cross street*
		_____ *Combs and brushes hair*

CURRICULUM DEVELOPMENT FOR THE DEAF-BLIND CHILD AGE 6-12

Virginia Alexander

When I think of a normal child six to twelve years old, I think of children in first grade, second, fifth, right on up to seventh grade. What a range! When I tried to relate this high-range functioning to the deaf-blind children I have known and know now, the two just didn't mesh. But, when I think of any deaf-blind child and the problems and needs, there are commonalities in methods of planning regardless of the child's age. However, there are some specific needs relative to the child's age which I will touch upon as I continue.

To begin, each deaf-blind child is different from every other. His learning problems and needs and his best modes of learning are a little different from any other child. And, as is finally becoming recognized on a national level, the child need not be molded nor boxed to fit the curriculum. The curriculum must be planned and adapted to fit the needs of the child.

Second, the deaf-blind child is a child first, then he is deaf-blind. Those of you who work with rubella children may know that this is sometimes hard to remember. When you tried to praise him or show affection physically with a hug or a pat, you may have been ignored. When you tried to reward him with a piece of candy or some other special "goodie", you may have been pushed away. This child may prefer to self-stimulate all day; he may prefer to light gaze or finger flick, to eye poke, to masturbate, or to rock. He may be saying in his own non-verbal way "This is my world, and I like it this way - you keep out!" But we believe there is something that we as persons and as teachers have to offer this child; we believe that other persons have something to offer him. If we did not believe this, why not over-protect him? Why not allow him to self-stimulate and just have his own way?

But we believe even more. We believe the child, too, has something to offer. He has something to offer to himself beyond physical self-stimulation. He has something to offer us and to significant others in his life. He can take part in family life. He can learn to participate in activities that give pleasure, self-satisfaction, and joy to himself and others.

Believing these things, we must take action. We must communicate with the child. Perhaps this will take a tactual form: the child may learn to read braille, or he may learn to understand fingerspelling in his hand. The child may learn visually: he may learn manual communication such as gestures or more formal signs, or he may learn to read large print.

Some children learn auditorily and can learn to discriminate spoken language. Finally, with some children we will have to use some combination of methods. In any case, we must learn to get our meaning across to the child.

Second, we must teach the child to communicate [illegible] cant others in his life. Here again, the method [illegible] the important thing is the exchange of ideas [illegible] child to become more interdependent with [illegible] for me and more independent in [illegible] to function in his environment. [illegible] to encourage his development in the areas [illegible] tainment of these goals.

So, we have certain beliefs and know [illegible] velop a curriculum. Just what do I mean by a curriculum? [illegible] word curriculum in this context, I mean the total [illegible] loped specifically to meet the needs and abilities of [illegible] However, I am not referring to a 12 year plan [illegible] the educational system. I am referring to a plan [illegible] (those we are working on right now) and long term [illegible] expect to work on three months or a year from now. [illegible] made educational plan for one child. What are [illegible] plan?

1. Provisions for Evaluation. The curriculum must [illegible] evaluation of the child's developmental level [illegible] this point, the teacher would check medical, psychological, social, and educational histories, keep observational data, and [illegible] determine the child's skills and needs.

2. Provisions for the "Total Child". The curriculum must provide for the child as an individual functioning in an environment. The curriculum must recognize the child's interests, his age, and [illegible] example, two deaf-blind children might at first appear to have similar skills and needs based on their developmental profiles. They might both be functioning on an overall developmental level of [illegible] However, if one child is nine years old and the other is [illegible] needs for the near future will be very different. [illegible] years in the educational system, while the other [illegible] the "outside world".

3. Provisions for Areas of Development. Specialists in the [illegible] the normal child have divided normal development into [illegible] which the child develops skills in learning to [illegible] environment. These areas may differ from one expert [illegible] another. I think the important thing they do [illegible] thinking into logical areas so that we can design the [illegible] needs and with all the areas together, we will [illegible] necessary to his development. In working with deaf-blind children, I use seven areas. Each area is made up of [illegible] skills in several sub-areas.

   a. Personal-Social-Emotional Development. This area includes development of self-concept and self control, the traditional areas of [illegible] education, and development of social and recreational skills.

   b. Adaptive Daily Living Skills. This area [illegible] self-feeding and dressing, on up to the higher level skills of personal management or what would traditionally be called "home economics". It would also include development of attention span and [illegible] and skills.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

The area had been divided into North and South Dakota. Each of the two Outreach workers was assigned the responsibility of obtaining all information available on the children in her district.

The list was gradually reduced as the Outreach workers determined some of the children to be ineligible; those children were referred to local agencies who could meet their needs. However, many children still remained questionable. Due to the expense involved and the limited professional resources available in the state, the necessary evaluation workups were obtained slowly. The children who were still unidentified were maintained as suspected deaf blind children until further evaluation enabled them to be referred to appropriate agencies. For the children that remained as identified deaf blind children, a program was developed to provide those services at home, or through a local agency when available.

The following program was developed for those deaf blind children who were at home and for whom no program was available because of their rural location. This "at home" program is conducted by the family with the assistance of the Outreach person who makes monthly contacts with those families, works with the child and provides necessary information to the family.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Program Summary Report

I. [illegible]

A. [illegible]

B. [illegible]

Note. In this section the evidence of child growth as reflected from the various [illegible] would provide the input for some generalized conclusions about a given program concerning strengths and weaknesses.

II. Program Recommendations

A. Personnel - In this section recommendations would be made for personnel needs which would be strongly supported by the child data available. Such recommendations may be for teacher and/or aides, or they may be for specialist involvement. A rationale