DOCUMENT RESUME

ED 356 601 EC 302 041

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TITLE	Assessment, Intervention, and Program Needs of Lower Achieving and Multiply Disabled Deaf People Requiring Extended Transition Support.
INSTITUTION	Northern Illinois Univ., DeKalb. Research and Training Center for Traditionally Underserved Persons Who Are Deaf.
SPONS AGENCY	National Inst. on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.; Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE	92
CONTRACT	H133B00014
NOTE	31p.
AVAILABLE FROM	Department of Communicative Disorders, Research and Training Center, Northern Illinois University, DeKalb, IL 60115 ($8.50).
PUB TYPE	Information Analyses (070)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Adolescents; *Curriculum Development; *Deafness; *Education Work Relationship; Evaluation Methods; Independent Living; Individual Needs; Interpersonal Competence; Intervention; Job Skills; Mental Retardation; *Multiple Disabilities; *Program Development; Secondary Education; Student Characteristics; Student Evaluation; *Transitional Programs; Vocational Education; Vocational Rehabilitation; Young Adults

ABSTRACT

This paper begins with an overview of the population of adolescents and young adults with deafness. More detailed information is then provided on the characteristics of lower achieving deaf persons and those with multiple disabling conditions. School-to-community transition experiences of these groups are then discussed, with special focus on the findings of a project which gathered data on lower achieving and multiply disabled individuals with hearing loss from northwestern U.S. Relevant assessment instruments are reviewed, including the Transition Competence Battery and the rating scales from the National Independent Living Skills Project. Two promising curriculum approaches are described--job clubs and social problem solving skills. Two programs recognizing the need for extended services are also described--Lexington Center's Community Based Vocational Rehabilitation Consortium in New York City and Oregon's Connections Program. The paper concludes by highlighting critical areas for further research and development. Two tables present lists of employment skills and independent living skills. (Contains over 150 references.) (JDD)

ASSESSMENT, INTERVENTION, AND PROGRAM NEEDS of Lower Achieving and Multiply Disabled Deaf People Requiring Extended Transition Support

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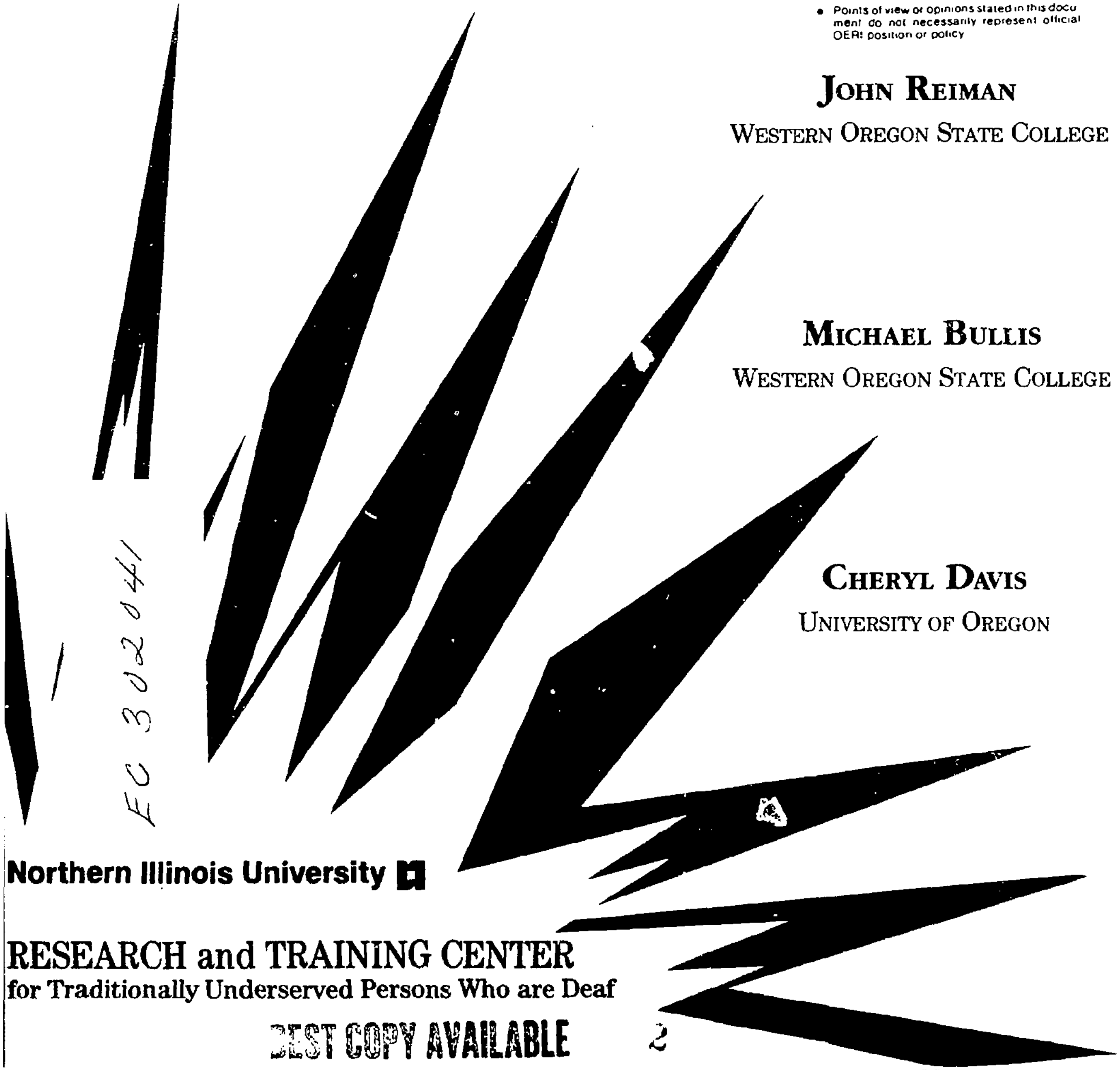

EC 302041

Northern Illinois University

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The preparation of this chapter was supported partially by a grant from the federal Office of Special Education Programs. This publication was supported by a grant from the U.S. Department of Education National Institute on Disability and Rehabilitation Research, Grant Number H133B00014. The opinions expressed herein are those of the authors and should not be attributed to the U.S. Department of Education.

The Commission on Education of the Deaf (COED) (Bowe, 1988) estimates that about 100,000 deaf people in the United States are unemployed or underemployed due to difficulties in language, vocational, social, and psychological development. This situation is compounded by two factors. First, statistical projections suggest that this group will increase in size on a yearly basis as an additional 2,000 deaf people leave school annually and do not enter employment, training, or further education (Bowe, 1988). Secondly, service providers, task forces, educators, and researchers uniformly maintain that there is a critical dearth of assessment, curricular, program, and personnel resources available to serve this population.

Variously labeled "low-achieving deaf", "non-feasible deaf", "multiple-handicapped hearing-impaired", "hearing-impaired developmentally-disabled", and "low-functioning deaf" (Federal Register, Vol. 55, No. 128, 7/30/90, p. 27595), this group has been difficult to describe clearly. There has been a recent call by Lauro F. Cavazos, U.S. Secretary of Education (ibid, p. 27595) to replace demeaning labels with more descriptive and accurate terminology. In addressing the above group's assessment, curricular, and program needs, this chapter avoids the use of a single broad categorization and instead describes the population in a bimodal manner.

One segment of the population, a group we call "lower achieving" deaf adolescents and young adults, are those who can achieve "gainful employment" and independent living success, provided they receive appropriate services and support. The term "lower achieving" reflects the authors' intent to use the most innocuous and least offensive term possible, while retaining a descriptor of functional utility. Specifically, this intentionally comparative term characterizes those who have achieved *less* in the spheres of independent living and vocational endeavors than the vast majority of deaf adults. Unlike the terms identified in the Federal Register cited previously, this *process*-based term avoids classifying people in an objectifying and fixed manner, and allows for the possibilities of growth, change, and accomplishment.

A second segment of the population is the deaf "multiply disabled" group. In addition to their deafness, this group of adolescents and young adults is characterized by developmental disabilities, learning disabilities, behavior disorders, and/or other challenging conditions, and presents its own set of transition issues and services needs. Individuals deemed multiply disabled refers to those who, in addition to meeting the "lower achieving" definition, experience further complications as a result of additional disabilities (a deaf-blind Gallaudet University graduate with cerebral palsy would not meet the "lower achieving" definition and would not be termed "multiply disabled" in this chapter). Transition for these persons is usually long term and members may not be viewed as meeting the "reasonable expectation for gainful employment" eligibility requirement for provision of Vocational Rehabilitation services (McGowan & Porter, 1967). For the remainder of this chapter, unless otherwise specified, the term "deaf" will be used in its most generic sense to refer to all adolescents and young adults whose hearing loss is sufficiently severe that they would be unable to benefit from ordinary classroom placements (Bowe, 1988). Subsequently discussed terminological inconsistencies necessitate this succinct, though overgeneralizing, characterization of an extremely heterogeneous population.

The chapter begins with an overview of the deaf population. Subsequent sections provide an in-depth description of the lower achieving and multiply disabled groups; a description of the school-to-community transition experiences of these groups; and a review of relevant assessment instruments, intervention packages, and service programs. This manuscript concludes by highlighting critical areas for further research and development.

Population Overview

Prevalence data for persons with hearing loss tends to reflect either the categorical or functional nature of the definitions used to characterize this broad population. Categorical definitions place people into groups based on specific characteristics or diagnoses (e.g. etiological, audiological) and are recommended for collecting demographic data (Kiernan, Smith, & Ostrowsky, 1986). Providing little information as to the abilities of individuals or the types of services required, categorical definitions tend to obscure the heterogeneity among group members. Defining hearing loss in etiological terms, for example, might yield a count of the number of people having conductive (localized in the outer or middle ear), sensorineural (localized between the inner ear mechanism and brain stem), or central processing (damage to brain stem or brain) types of loss (Breadle, 1982). Audiological definitions based on clinically assessed thresholds and measured in decibels (db) might yield counts of the number of persons classified as "deaf" (loss of 70 db and above) or "hard of hearing" (loss below 70 db). Functional definitions, on the other hand, group people according to their needs rather than to particular diagnostic criteria. A count using functional criteria might be determined by individuals' speech and educational needs (Frisina, 1974) or communication modalities (Jacobs, 1979). Another functional definition for a group of deaf people characterized by their distinctive language, values, rules for behavior, and traditions might be counted in a category called "Culturally Deaf" (Lane, 1987; Padden, 1980; Stewart, 1983).

Differences in the categorical versus functional definitions of deafness make describing the entire population of deaf people difficult (Higgins, 1980). The task is further complicated by other important variables (i.e., age at onset, hearing aid usage, hearing status of parents, etc.) that warrant consideration. With these definition limitations in mind, an overview of available prevalence data for this population is presented and summarized.

The most recent and best known census data on Americans with hearing loss was the National Census of the Deaf Population (NCDP) conducted in 1974 (Schein & Delk, 1974). The NCDP estimated that 13.4 million (6,603 per 100,000) persons had some degree of hearing loss. Over 1.7 million persons (873 per 100,000) were deaf, meaning they could not hear to comprehend speech. Of these, less than one-fourth fell into the prevocational category (hearing ability lost before age 19), and more than one-tenth in the prelingual category (hearing ability lost before age 3). In 1977, The National Health Survey found approximately 7,640 persons per 100,000 had some degree of hearing loss, though the percentage of people considered to be deaf was not available (Feller, 1981). Data on disability drawn from the National Health Interview Study of 1983-1985 (LaPlante, 1988), indicated that just over 21 million people had some degree of hearing loss. Of this group, 19.2 million were hard of hearing, and 1.7 million were deaf (an almost identical number to the 1974 NCDP census). It seems unlikely that the number of deaf people remained constant over a 20 year period and the latter figure underscores the equivocal descriptive utility of prevalence data.

These data lack information on minorities. Most demographic estimates are based on the white deaf population, while figures for minority deaf groups, such as African Americans, Hispanics, Native Americans, and Asian Americans, are generally not available (Vernon & Andrews, 1990). The available data indicate that approximately 2 million African Americans who have hearing losses significant enough to require medical or special educational services, about 22,000 are profoundly deaf (Hairston & Smith, 1983). Hispanic deaf persons account for 9.4% of the deaf school age population (Maestas y Moores, & Moores, 1984). Figures for other minority groups are nonexistent. Without such data, the needs of minority groups continue to be neglected.

Demographic data becomes more incisive when the spectrum of persons with hearing loss is narrowed and the focus is limited to the more easily accessed and countable school-aged population. Special education enrollment data for school-aged individuals with hearing loss are gathered using a variety of techniques that produce different figures (Moores, 1987). Sontag, Smith, and Certo (1977) reported roughly 110,000 students (of whom 45,000 were deaf and 66,000 hard of hearing) receiving special education services. Rawlings and Trybus (1978), who may not have considered students with mild-to-moderate hearing losses, estimated 69,000 students receiving such services. Craig and Craig (1985) reported 49,552 students with hearing loss enrolled in 793 programs in 1984.

Demographic data provides only a cursory overview of the deaf population. To conduct any type of meaningful service delivery to this population, a clear idea of the characteristics of the individuals is required.

Focal Populations

This segment of the chapter provides detailed information on the characteristics of both lower achieving deaf persons and those with multiply disabling conditions.

Lower Achieving Deaf Group

Each state is annually required to submit to the U.S. Department of Education a count of students with handicaps, who are served under Public Laws 94-142 and 89-313. For the 1982 to 1983 school year, Karchmer (1984) reports that approximately 75,000 students, ages 3 to 21, were reported under the "hard of hearing and deaf" category. According to Karchmer, this count included neither those students listed under the "deaf-blind" nor "multihandicapped" categories, and did not include those students not being served. Karchmer noted in Spring, 1983, that there were probably 90,000 children with hearing losses significant enough to warrant some type of special education or support services. The 1982 to 1983 Annual Survey of Hearing-Impaired Children and Youth (Karchmer, 1984), conducted by Gallaudet University's Center for Assessment and Demographic Studies, provided detailed demographic and hearing loss-related information on 55,000 of the 75,000 school-age students mentioned above. Selected characteristics of the students in this group follow:

- 32% of the subjects were of ethnic minority status.
- 94% of subjects had onset of hearing loss prior to age 3.
- Almost 44% of the group had hearing losses falling in the profound range.
- For 39% of the students the cause of deafness was unknown, though non-specific genetic factors were estimated to account for over 50% of the group's hearing loss.
- Maternal rubella accounted for 16% of the group's hearing losses (two-thirds of those with rubella etiology were born in 1964-1965).
- 31% of the group had physical or cognitive-behavioral conditions beyond their hearing loss. (Schildroth [1987] reported that, of those students with hearing loss who were 12 to 20 years of age and who had multiple disabilities, 32% were served in residential schools and 26% were served in public schools.)
- Over 48% of the students received some classroom instruction in a regular education setting (an increase from the past), and 28% of the group were in residential schools (a decline from the past). (Craig and Craig [1986] reported the number of students receiving regular education services at 68%.)
- Median academic performance on reading approximated scores obtained by hearing students in the third to fourth grade; only 25% of the students with hearing loss performed at levels higher than the average reading levels of hearing fifth graders.

- Students with greater residual hearing are better readers (reading achievement is strongly related to hearing level).

These findings suggest that a portion of the school-aged deaf population will face significant challenges as they make the transition from school to work and independent living. According to the Commission on the Education of the Deaf (Bowe, 1988), about 60% of deaf students leaving school each year, whether as graduates or dropouts, either enter low-skilled jobs or are unemployed and do not benefit from postsecondary education. Noting that appropriate rehabilitation training and related services are unavailable, the report estimates that 100,000 deaf persons will remain unemployed/underemployed due to language difficulties and psychological, vocational, and social underdevelopment. The report notes that this population will increase each year as approximately 2,000 deaf people leave school and do not enter employment, training, or further education.

Characteristics of Lower Achieving Deaf Persons. As a follow up on the COED report, a National Task Force on Low-Functioning Deaf Adults (Hurwitz, 1989) identified six characteristics of the population described above:

- *Insufficient social/interpersonal communication skills resulting from inadequate education and limited family support.* Whether through sign language, speech and speech reading, or reading and writing, expressive and receptive self-expression problems were noted.
- *Vocational weaknesses resulting from inadequate training experiences, and changes in personal/work situations.* Underdeveloped work attitudes, work habits, work goals, and job skills were noted.
- *Problems in behavioral, emotional, and social adjustment.* An underdeveloped sense of autonomy, low frustration tolerance, low self-esteem, and impulse control difficulties that combine to compromise social interactions were noted.
- *Independent living skill weaknesses.* A lack of money management, time management, health/nutrition, and parenting skills were noted.
- *Educational weaknesses.* A reading level at or below second grade, educational misdiagnosis/misplacement, nonsupportive home environment, and poor preparation for postschool work and living were noted.
- *Secondary disabling conditions.* Additional health, mental health, and in some cases, physical limitations were noted.

The Task Force report indicates that this group may be able to achieve higher levels of vocational, social, and personal adjustment with appropriate interventions to remediate ineffective education and training.

Effective interventions will be logically predicated on an understanding of the critical competencies needed for successful transition. Therefore, determining the target population's vocational and independent living skills areas requiring remediative attention is imperative.

Critical Competencies. In an initial study (Bullis & Reiman, 1989) of critical competencies necessary for deaf people to succeed in living and working in the community, the target population was defined as follows:

> In general, members of the subject population will be devoid of a secondary disability . . . possess limited academic ability (perform between the third and fourth grade levels on academic measures) . . . not go on to a four-year college . . . but may attend community college or vocational/technical training centers. Members of the sample . . . either drop out of high school or go on to . . . rehabilitation or community-based training programs. Finally, members . . . have little experience and/or training in employment and independent living skills (p. 232).

This population may be described as the vocational rehabilitation-appropriate transition group on the basis of our own research (Bullis, Bull, Johnson, Johnson, & Kittrell, 1990) and on a review of assessment-related empirical literature (Reiman & Bullis, 1987).

To ascertain the critical competencies needed by this group for employment and independent living success, a two-phase study (Bullis & Reiman, 1989) was undertaken. In the initial phase, 17 deaf and hearing rehabilitation counselors and work-study coordinators generated lists of important transition content areas through a modified nominal group process. The list of skills generated by participants in relation to the employment area are presented in Table 1. Lists generated in relation to the independent living area are presented in Table 2. In the second phase, these lists were organized into a national survey gaining responses from 307 people representing an expert group, secondary school programs, postsecondary educational programs, and state rehabilitation programs. The goals of the study were to (a) examine and compare different respondent groups' perceptions of each skill, and (b) identify, based on professional opinion, those competencies most critical for the target population.

Comparisons of the different groups' perceptions of employment skills revealed statistically significant differences on three competencies that are marked on the right side of Table 1. Significant differences between groups on four competencies in the independent living domain are marked on the right side of Table 2. Although there was general agreement among respondents across all five groups, the few statistically significant differences suggest that transition planning for this population must be undertaken by a broad spectrum of education and rehabilitation professionals.

See Tables 1 and 2 on the following pages.

Table 1. Employment Skills

Employment Domain		Grand Mean
Job Seeking Skills Subdomain		
E-1	The individual should be able to use an interpreter appropriately and effectively in a job interview.	I-3.6 P-2.9
E-10	The individual should have knowledge of the pay and benefits that can be expected for the job.	I-3.5 P-2.9
†E-14	The individual should be aware of legal rights in getting a job and in terms of job advancement.	I-3.2 P-3.4
E-16	The individual should display appropriate dress and hygiene when interviewing for a job.	I-3.7 P-2.4
†E-17	The individual should be aware of the language and terms that are used in the job application and in the interviewing process.	I-3.6 P-3.1*
†E-18	The individual should be able to respond to and ask appropriate questions in the job interview.	I-3.5 P-3.2
E-21	The individual should have knowledge of resources and agencies to use for help in finding a job.	I-2.8 P-3.4
†E-23	The individual should display appropriate assertiveness in searching for a job.	I-3.3 P-3.1
†E-24	The individual should be able to demonstrate appropriate resume writing skills and competence in completing job applications.	I-3.1 P-3.5
†E-25	The individual should demonstrate job-related reading skills.	I-3.5 P-3.1*
Work Adjustment Subdomain		
†E-3	The individual should be able to obtain training opportunities that are available through the current job.	I-3.3 P-3.3
E-5	The individual should be able to manage a work schedule to meet deadlines.	I-3.5 P-2.9
E-7	The individual should demonstrate appropriate dress and hygiene in the work place.	I-3.5 P-2.2
E-8	The individual should be able to understand and follow the work supervisor's instructions.	I-3.8 P-2.6
E-9	The individual demonstrate job-related mathematics skills.	I-3.3 P-2.8
E-12	The individual should have knowledge of work safety rules.	I-3.6 P-2.6
†E-13	The individual should be able to demonstrate appropriate procedures for quitting a job.	I-3.2 P-3.3
E-20	The individual should be able to work without direct supervision when appropriate.	I-3.6* P-2.6
E-25	The individual should be able to demonstrate job-related reading skills.	I-3.5 P-3.1*
Job-Related Social/Interpersonal Skills Subdomain		
†E-2	The individual should be able to accept criticism from work supervisors.	I-3.6 P-3.0
E-11	The individual should be able to communicate effectively with the work supervisor.	I-3.7 P-2.9
†E-19	The individual should display appropriate assertiveness on the job toward co-workers.	I-3.1 P-3.1
E-22	The individual should be able to keep personal concerns and worries under control in the work place.	I-3.4 P-2.8
E-26	The individual should have an awareness of co-workers' and supervisors' lack of knowledge about deafness.	I-3.3 P-2.9
E-27	The individual should demonstrate appropriate control and management of anger and frustration in the work place.	I-3.7 P-2.8

Table 2. Independent Living Skills

Independent Living Domain		Grand Mean
Money Management Subdomain		
IL-1	The individual should demonstrate independent-living related mathematical skills.	I-3.5* P-2.6
IL-2	The individual should be able to demonstrate effective comparative shopping skills (i.e., auto, clothes).	I-3.3 P-2.9
IL-3	The individual should demonstrate independent living reading skills.	I-3.6* P-2.9
†IL-8	The individual should be aware of appropriate skills in money management, budgeting, and bill paying.	I-3.8 P-3.1
†IL-21	The individual should be able to maintain accurate financial and personal records (i.e., taxes, warranties, medical).	I-3.3 P-3.4
†IL-25	The individual should have knowledge of how contractual agreements work (e.g., rental contracts).	I-3.3* P-3.5
Health and Home Subdomain		
IL-1	The individual should demonstrate independent-living mathematics skills.	I-3.5* P-2.6
IL-3	The individual should demonstrate independent-living reading skills.	I-3.6* P-2.9
†IL-9	The individual should be able to search effectively for housing.	I-3.2 P-3.0
†IL-12	The individual should have knowledge of insurance needs (auto, health, life, home).	I-3.2 P-3.3
IL-16	The individual should be able to maintain and care for personal belongings.	I-3.3 P-2.0
IL-18	The individual should be able to access emergency services (e.g., ambulance) in the community.	I-3.7 P-2.9
†IL-20	The individual should have knowledge of family planning and sex education.	I-3.7 P-3.1
IL-22	The individual should demonstrate appropriate cooking skills.	I-3.0 P-2.3
IL-23	The individual should demonstrate appropriate health related skills (nutrition, exercise, hygiene).	I-3.2 P-2.5
IL-28	The individual should have knowledge of drug and alcohol abuse.	I-3.4 P-2.9*
Community Awareness Subdomain		
IL-6	The individual should have knowledge of leisure/recreational options in the community.	I-2.8 P-2.5
IL-7	The individual should be able to communicate effectively with community workers (mail carriers, maintenance workers).	I-2.9 P-2.9
IL-10	The individual should be able to use public transportation.	I-3.4 P-2.2
IL-15	The individual should be able to use TDD and technical signaling devices that are available in the community.	I-3.5 P-2.3
†IL-17	The individual should demonstrate appropriate self advocacy skills with community service agencies (i.e., DVR).	I-3.3 P-3.1
†IL-24	The individual should be aware of legal rights in the community.	I-3.2 P-3.3

* Denotes a statistically significant difference in the rating between the five respondent groups
† Denotes a skill identified as critical

The second goal of the study was to identify the most critical competencies in both the employment and independent living domains. The survey called for respondents to rate each skill on a four-point scale in terms of (a) importance (its importance to the target population's employment/independent living success): 1 = not important, 2 = somewhat important, 3 = important, 4 = very important; and (b) presence (the percentage of the population possessing the competency): 1 = 100% to 75%, 2 = 74% to 50%, 3 = 49% to 25%, 4 = 24% to 0 %. Competencies selected as critical required the aggregate importance rating of a skill by all groups (grand mean) to be 3.0 or higher, and the aggregate presence rating by all groups (grand mean) to be 3.0 or higher. Skills identified as critical are identified on the left side of Table 1 and Table 2. A review of the 12 skills deemed critical in the employment domain emphasized job-related social behavior and personal assertiveness, along with work-related reading skills and establishment of career interests and goals. The 10 skills identified in the independent living domain highlighted a variety of issues including money management, personal advocacy, insurance needs, knowledge of contracts, and parenting. Although the study may not include all possible competencies needed for the target population to succeed in the employment and independent living areas, it is the first study of its kind and represents a beginning in the identification of requisite skill areas.

Multiply-Disabled Deaf Group

When describing any population, it is essential to clarify whether the group is being identified for a medical condition, or for the impact of that medical condition on their ability to function in the environment. Wright (1983) describes these two ideas conceptualized by the World Health Organization in 1980. Disability refers to a limitation in function resulting directly from an impairment at the level of a specific organ or body system, and can be of a mental, emotional, or physical nature. The term handicap, describes the actual obstacles, regardless of their source, that one encounters in the pursuit of his/her goals. Multiple disabilities refers to more than one impairment, and multiple handicaps refer to various areas of functioning affected. Whether a single disability results in several handicaps or no handicaps depends on individual characteristics, adaptations to the environment, and behavioral and social requirements in a particular setting. These two non-interchangeable terms differentiate between two very different concepts.

Descriptions of the population of deaf persons with multiply disabling conditions are often based on differences between education and rehabilitation terminology and on the use of the term "severe" (Bellamy & Horner, 1987). Severe disability, in special education terms, is defined by the extraordinary services needed by a student to benefit from special education services. The frame of reference for rehabilitation is the individual's ability to benefit from services in terms of employment. Thus, persons with mild developmental disabilities might receive minimal educational but maximal rehabilitation services, while individuals with profound developmental disabilities may receive intensive educational interventions, but not rehabilitation services.

These differences, occurring among agencies within a state and between states, are obstacles preventing a clear picture of the population of deaf persons with multiply disabling conditions. Limited descriptive or data-based information is available to describe the population of deaf persons with multiply disabling conditions (Davis & Bullis, in press). Data collection is impeded by difficulties in prevalence vs. incidence in reporting, lack of information about the institutionalized population, difficulty in testing such persons, and unclear boundaries between primary and secondary disabling conditions. Available studies must be scrutinized carefully since weaknesses in the assessment process can affect the veracity of resulting data. Specifically, these problems may include (a) the questionable validity of using assessment instruments that were developed for hearing individuals with the deaf population (Lane, 1988; Moores, 1978), (b) administration of these instruments by individuals who lack knowledge of language differences of people with hearing loss (Lane, 1988; Moores, 1978), (c) over-identification of minority groups as having mental retardation (Anderson, 1982; Wolff & Harkins, 1986), (d) ambiguous delineation among disorders (e.g., behavior disorders, learning disabilities, and developmental disabilities) (Kauffman, 1985; Powers, Elliott, & Funderburg, 1987; Stewart, 1974; Wolff & Harkins, 1986), (e) differentiation between developmental disability and ineffective teaching strategies (Babbidge, 1965; Bowe, 1988; Lane, 1988; Moores, 1978), (f) difficulties in assessing the hearing of individuals with severe disabilities (Schein, 1975), and (g) cultural biases of assessment instruments (Lane, 1988; Bullis, Reiman, & Davis, 1990).

While approximately 10% of students without hearing loss have been identified as having multiple disabilities, about 30% of children with hearing loss have been identified as having various physical and/or mental conditions (Wolff & Harkins, 1986). However, description of these persons is seldom made in the deafness literature, despite the fact that different secondary conditions may dictate a different intervention and service delivery approach. Accordingly, three groups of secondary disabilities have been selected for review since they represent major segments of the multiply disabled group and because of an emerging literature base. These groups are developmental disabilities, learning disabilities, and behavior disorders.

Developmental Disabilities. The original legislation describing developmental disabilities (Public Law 91-517) identified three groups for inclusion: persons with mental retardation, cerebral palsy, and/or epilepsy. Autism was added to the category in 1975 (P.L. 94-103). Even though it used a categorical definition, the intent of the terminology in this legislation was to identify persons with severe disabilities related to mental retardation (Kiernan, Smith, & Ostrowsky, 1986). P.L. 95-602 was the first piece of legislation that attempted to identify the target population by describing the needs of the individuals in the group (i.e., a functional definition) rather than developing a list of categories that would include all members of the intended population (Gollay, 1979). The criteria included chronicity, early onset, multiple impairment, and the need for ongoing services involving an interdisciplinary focus. Obviously, persons with a wide variety of disabilities (e.g., spinal cord injuries, deaf-blindness, bilateral deafness) could be considered developmentally disabled using this definition (Kiernan & Bruininks, 1986). Conversely, persons with controlled seizures or mild mental retardation were no longer included as developmentally disabled under the new legislation.

Relative to this issue are people with hearing loss and a developmental disability. In trying to identify information on this group, we search for similar terms (e.g., multiply disabled, multiply handicapped, severely disabled), or thoroughly analyze descriptions of populations studies in manuscripts, because the term "developmental disability" is rarely used in deafness-related literature (Davis & Bullis, in press). This method does not insure that all the people included in the alternative categories will have a developmental disability. When examining the literature, especially demographic data, the reader should keep in mind the definitions used for a particular label and extrapolate with caution.

In a review of the literature on the school-to-community transition of adolescents and young adults with both hearing loss and developmental disabilities, Davis and Bullis (in press) located 43 empirical investigations published since 1975. They noted the following major points in 10 critical transition domains.

Demographics. The prevalence of mental retardation, cerebral palsy, and epilepsy across several years of data from the Annual Survey of Hearing Impaired Children and Youth (an on-going research effort by the Office of Demographic Studies of school age children with hearing losses identified as having an "educationally significant handicapping condition") (Karchmer, 1985; Schein, 1975; Wolff & Harkins, 1986) averaged about 12%. Extrapolation suggests that about 6.9% of the non-institutionalized adult and child population may have a hearing loss and an additional developmental disability (Stewart, 1978). The studies offered no data on the number of such people in institutions, on post-deinstitutional trends, or on the number of students making the school-to-community transition and their needs.

Education. Though environmental influences on students (Wacker, Berg, Wiggins, Muldoon, & Cavanaugh, 1985) and selected educational program characteristics (Jones & Johnson, 1985) received some attention in the studies, there were severe deficiencies in the literature base. For example, the best educational practices, curricula, and classroom procedures were not addressed in the available empirical literature. No research related to the transition of this population (e.g., comparisons of vocational instruction methodologies), and none of the research compared benefits/efficacy of particular programs or procedures.

Career/Vocational Preparation. No studies were located that examined career/vocational issues for this group. This was surprising given the centrality of career education and vocational preparation to the federal emphasis on transition and the ultimate community integration of these persons.

Independent Living Skills. Several studies used single subject designs to train individuals to use their hearing aids (Tucker & Berry, 1980), to display appropriate restaurant skills (van den Pol et al., 1981), and to correct enuresis (Hanson, 1983). Topics such as health and home skills, community awareness, transportation use, attendant services, and self-advocacy were not addressed in the research literature.

Social/Interpersonal Behavior. Studies in this subject area centered almost exclusively on reducing aggressive, self-stimulatory, or self-injurious behaviors (Barton & LaGrow, 1983; Blount, Drabman, Wilson, & Stewart, 1982; Dorsey, Iwata, Ong, & McSween, 1980; Dorsey, Iwata, Reid, & Davis, 1982; Durand & Kishi, 1987; Luiselli, 1984; Luiselli, Myles, Evans, & Boyce, 1985; Reilich, Spooner, & Rose, 1984; Yarnall, 1980). No attention was given to building social networks, asking for assistance, or examining techniques for increasing appropriate social/interpersonal behavior.

Communication. Research on this topic centered on increasing sign language skills (Kleinert & Gast, 1982; Kopchick, Rombach, & Smilovitz, 1975; Schepis et al., 1982) and devising methods to determine which persons might benefit from such instruction (Wacker, 1981). Investigations of teaching techniques, communication systems, or interpreter usage have not been conducted. Also, no studies have focused on the potentially facilitative role of the non-developmentally disabled deaf community in the development of communication skills with this group.

Assessment. Articles in this section described various reinforcement conditions on test performance (Smeets & Striefel, 1975) and the development of an inventory of independent living skills (Illinois State Department, 1977). Most promising of the research that was conducted was the National Independent Living Skills Assessment System (Dunlap & Sands, 1987; Meacham, Kline, Stovall, & Sands, 1987) that is discussed later in this chapter. Absent were any investigations of assessing job skills, social behaviors, or the impact of student-staff interaction on the assessment process.

Family Issues. One article (Goode, 1984) presented an ethnographic case study of a family. A second study (Kershman, 1982), using factor analysis and other statistical techniques, identified major areas in which families wished training to improve the relationship with and the welfare of their child (family roles and interactions, health care and maintenance, behavior management, affective adjustment, and legal issues). Investigations of successful family adaptation, sibling relationships, positive family support, and the impact of families on the school-to-community transition period were not found.

Service Provider Training and Programs. With the exception of one article that focused on teacher training programs and standards (Tweedie & Shroyer, 1982), no research was located that addressed the training of education or rehabilitation professionals in the transition of people with both hearing loss and developmental disabilities.

Community Outcomes. Articles exist that describe the effects of deinstitutionalization (O'Neill, Brown, Gordon, & Schonhorn, 1985), a successful subsidized work program (Busse, Romer, Fewell, & Vadasy, 1985), and a program plan for provision of alternatives to deinstitutionalization (Freedman, 1978). No articles were found that described specific vocational or living outcomes for these people.

Learning Disabilities. In the United States, the percentage of hearing students identified as learning disabled rose from 1.79% to 4.57% between 1976 and 1985 (U.S. Department of Education, 1985). Identification of students with hearing loss and learning disabilities necessitates examination of several assessment (see previous section on multiply disabled deaf group) and definitional issues.

A learning disability, as defined in P.L. 94-142, is "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. **The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or of environmental, cultural, or economic disadvantage"** (authors' emphasis) (Section 5(b)(4), P.L. 94-142). This last section of the definition is referred to as the exclusion clause. Additionally, a child is deemed to have a specific learning disability if he or she has been provided with age- and ability-appropriate learning experiences, but has not achieved commensurately with those levels, or if there is a severe **discrepancy between achievement and intellectual ability** (authors' emphasis) in one or more of these areas: (a) oral expression, (b) listening comprehension, (c) written expression, (d) basic reading skills, (e) reading comprehension, (f) mathematics calculation, and (g) mathematics reasoning (Wallace & McLoughlin, 1988). Thus, the children identified by this definition should be those who have been given appropriate instruction for their needs, but who still do not achieve at the expected level.

The above definition is often misinterpreted in deafness and learning disability literature alike, and several important points require clarification. These include the exclusion clause, the use of IQ in identification, and the use of grade placement for achievement. First, the exclusion clause clearly states that other disabilities, or cultural or linguistic differences cannot be found to be the *primary* cause of the student's learning problems. This statement is included in the definition in an effort to prevent the over-identification of members of cultural minorities who may have difficulties with the English language as having a learning disorder *and* to prevent the inclusion of persons with other disabilities who may have learning problems due *solely* to that disability (e.g., mental retardation). It does not mean that individuals with learning disabilities cannot be multiply disabled or come from different cultural and linguistic backgrounds (Wallace & McLoughlin, 1988) Likewise, an intelligence score within the normal range is a requirement of the federal definition. Because this statement is so often misinterpreted, recommendations have been made to revise the definition to clearly state that people with other disabilities may simultaneously have a learning disability (Hammill, Leigh, McNutt, & Larsen, 1981).

A final point of clarification is the discrepancy between achievement and learning potential required for identification. Some authors refer to grade placement for achievement; other authors believe that the federal definition specifies a two-year discrepancy between the two. Neither of these interpretations of achievement is appropriate. In the former case, for example, a fourth grade student may be performing at the fourth grade level, but have been held back for two years. That is, a high school student may indeed lag two years in academic ability, but a primary student may be having problems just getting started (Wallace & McLoughlin, 1988). A one- to two-year discrepancy is a commonly used criteria, but it is not specified in the federal definition. As can be seen from the definition, much of the focus of identification is on expressive and receptive language. Without accurate assessment procedures, the implications for the over-identification of deaf children as learning disabled are tremendous. Although some authors believe that the exclusion clause results in under-identification of deaf children and that a new definition is needed (e.g., Powers, Elliott, Fairbank, & Monaghan, 1988), some research shows nearly twice as many deaf children as hearing children are labeled as such. For example, in research reported by Karchmer (1985) of Annual Survey data, 8.1% of the survey population was identified as having a learning disability. Again, with the problems in assessment, it is difficult to determine whether students with hearing losses actually experience a higher rate of learning disabilities than hearing students or even if learning disabilities are being under- or over-estimated in either population.

In some cases, brain damage has been targeted as the cause of the learning disability (see Wallace & McLoughlin, 1988 for a discussion). Since some conditions that result in brain damage could also cause hearing loss (e.g., high fever, trauma to the head) it may be that among specific portions of the deaf population there is a higher rate of learning disability. Additionally, although it is not fully understood, there may be a link between early, chronic otitis media and learning disabilities, especially in language skills, even though the resulting hearing loss may be minimal (Bennett, Ruuska, & Sherman, 1980; Downs, 1977; Masters & Marsh, 1978; McWilliams, 1983).

Behavior Disorders. There is general agreement in the field of deafness that deaf persons have a higher prevalence of mental health problems than hearing people, but the specific indices and types of syndromes experienced are subject to considerable speculation. Prevalence rates of deaf persons with mental health problems have been examined for school age children and youth and, to a lesser extent, for adults in the community; however, these data are highly variable and questionable.

Much of what is known about the prevalence of mental health problems experienced by deaf children and youth in this country stems from the yearly census of the school age population conducted by Gallaudet University's Office of

Demographic Studies. In this ongoing line of inquiry, questions are asked of representatives of school programs regarding the number of students with behavior or emotional problems. Prevalence rates of this condition are calculated by dividing the number of students reported to have behavioral or emotional problems by the total in the population for a particular year. Such an approach is subject to at least three problems. The denominator (the population total) is not invariant; consequently, some fluctuation in prevalence percentages results (Meadow, 1981). Second, participation in the study is voluntary, and data reflecting the participants may not be truly reflective of the actual population. Third, respondents are asked to estimate the number of students with behavioral or emotional problems, a technique that can be inaccurate, unreliable, and yield overinflated estimates (Jensema & Trybus, 1975; Kauffman, 1989; Lane, 1987; Quay, 1986).

Accordingly, published prevalence rates of deaf persons with behavioral disorders should be viewed with caution. In the first year of the Office of Demographic Studies data gathering (1968 to 1969), 12.4% of the deaf students surveyed were considered to have emotional *or* behavioral problems. In 1969 to 1970 the rate was 12.9%, in 1970 to 1971 the rate was 9.6%, and in 1971 to 1972 it was 9.2% (Gentile & McCarthy, 1973). Schein (1975) suggested combining the categories of behavioral and emotional disorders into one group. In doing this, and controlling for students who may be listed under both categories, a prevalence rate of 10.6% was found. More recently, prevalence rates have ranged between 9% to 10% in this survey (Jensema & Trybus, 1975; Meadow & Trybus, 1979).

Two studies conducted in the United States on the prevalence rates of behavioral and emotional problems for deaf students in residential schools deserve mention. Schlesinger and Meadow (1972) found that teachers and/or dormitory counselors considered 11.6% of 516 students in a residential school in California seriously disturbed and in need of treatment. Vernon (1969) examined a group of 1,468 students in residential settings whose deafness had been caused by heredity, Rh factor, prematurity, meningitis, or rubella. Their teachers were queried as to the psychological problems of this sample and records of the students were evaluated. Teachers estimated that 20.7% of the group exhibited psychological adjustment problems, and test results from the records indicated that 22.5% were emotionally disturbed.

In summary, estimates of prevalence rates of behavior or emotional disturbance among deaf children and youth range from 10% to as high as 20%. Of course, to have real meaning, these prevalence figures should be compared to those experienced in the hearing population. As with deaf people, there is variation in prevalence estimates of mental health problems among nondisabled people. The Joint Commission on Mental Health of Children has estimated that 2% are in need of psychiatric care, and 8% to 10% need some type of mental health assistance (see Kauffman 1989 for a discussion of these issues). Schlesinger and Meadow (1972) found that in the part of California in which they conducted their study, 2.4% of all school children were considered severely disturbed and 7.3% had behavioral problems. Rutter, Tizard, Yule, Grahm, & Whitmore (1976), in England, found a prevalence rate for mental health problems of 6.6% among nonhandicapped persons. By comparing the prevalence rates of behavioral problems for deaf and nonhandicapped persons, even a cautious interpretation would suggest that deaf children in the public schools experience more behavioral and emotional problems than their hearing counterparts.

The discussion of the prevalence of mental health problems now turns to the deaf adult in the community. Given the relatively high rates of behavioral or emotional problems among deaf children and youth, it is logical to expect that deaf adults will experience high rates of such disorders, as well. Unfortunately, clear descriptions of these problems and data documenting its existence are not widely available (Altshuler, 1971), for at least three reasons. First, students with mental health problems in school programs are labeled as behaviorally disordered or severely emotionally disturbed (Epstein, Cullinan, & Sabatino, 1977). The school-based classification approach is not directly related to psychological and psychiatric classes of mental health problems (e.g. schizophrenia, unipolar-depression) (MacMillan & Morrison, 1979). Prevalence rates on school age children may vary from those among adults, at least in part due to different classification and labeling approaches. Therefore, there is not a direct relationship in reporting methods between the two sectors of the service system. Second, school is a confined place in which students are subject to constant supervision and evaluation; thus, behavioral or emotional problems are apt to be detected. For adults, such intense monitoring is seldom the case and deaf persons needing psychological services may not be referred for psychological help. Deaf people in need of such assistance may not know where to seek help, or the services may not be available. Finally, it is difficult to gather information on deaf people in the community over a long period due to their communication differences from the English-dominant culture (e.g., Schroedel, 1979). Such problems (e.g., not being able to employ mailed or phone surveys) diminish the chances of gathering precise data on this population.

Nevertheless, several general conclusions are warranted on the status of emotional problems for adult deaf people in this country. It is probable that major mental illnesses (e.g. schizophrenia, depression) are found in the deaf population at the same rate as found in the hearing population (Greenberg, 1983). However, it is widely agreed that many deaf people when needing outpatient or preventative care are not receiving services because they are not aware of available programs, or suitable programs are not present in the community (e.g. Stein, Mindel, & Jabaley, 1981). However, it is clear that at least a portion of the deaf people in this country experience less dramatic emotional problems that tend to be pragmatic in nature, relating to community and personal adjustment issues (e.g. failure to find work, difficulties in living in a hearing world). For example, in a study of the school-to-community transition experiences of over 300 deaf persons (Bullis, Bull, Johnson, Johnson, & Kittrell, 1990) the deaf persons who were surveyed stated that they were less happy and had fewer friends than a comparison sample of hearing peers. Further, through correlational analysis a strong underlying social/interpersonal factor that undergirds community adjustment has been identified. It may well be that these results are precursors of future adjustment difficulties and emotional problems, but—at this time—such a conclusion is merely speculative.

From the reviews of both the lower achieving and multiply disabled deaf population it may be concluded that both present unique and important service delivery issues and needs. Moreover, it is likely that these people will be less successful than high achieving deaf or hearing peers in the school-to-community transition. An examination of the transition experiences of these two groups follows.

Transition Experiences

In recent years the school-to-community transition of people served by special education and rehabilitation has assumed a major national profile (Clark & Knowlton, 1987; Will, 1984). In particular, these people's community experiences (e.g. work, living, and social) after leaving the school setting (Halpern, 1990) has received attention. Through several studies of this entire population (Edgar & Levine, 1987; Wagner & Shaver, 1989), the experiences of deaf people have been addressed, at least to some degree. Data from these studies suggest that the drop-out rate among the deaf population is low (10%) relative to other categories (greater than 50% for behaviorally disordered students) and that between 60% to 70% of deaf persons continue with some type of postsecondary education. However, these studies do not target deaf persons.

Most investigations conducted in this area focus on the community experiences of deaf people from four-year colleges (Bullis, Bull, Sendelbaugh & Freeburg, 1987), a group that cannot be construed as lower achieving. An exception to this body of research is a three-year investigation (Bullis, Bull, Johnson, Johnson, & Kittrell, 1990) on the school-to-community transition experiences of deaf people in the Northwest. The project included all individuals with hearing loss from 20 school programs in Oregon, Washington, and Idaho, and focused on both the lower achieving and multiply disabled segments of the population. This is one of the few studies to gather data on these persons and offer an empirical base from which to view their transition process. We first discuss the research method used in that project, and then summarize the key findings.

Research Procedures

The majority of studies that have been conducted on the deaf person's adjustment in society have emphasized higher functioning deaf college students (Bullis, Bull, Sendelbaugh, & Freeburg, 1987) and have used mailed paper and pencil survey approaches (the most common research technique in the field of deafness, see King, 1989) requiring that the deaf person read and respond to a written form. This approach has great flexibility and ease of administration; however, its use and application with deaf people not proficient in English is inappropriate, i.e. the target population of this chapter. The average reading level of the adult deaf population is estimated to be at the fourth grade level (Trybus & Karchmer, 1977), thus making it difficult to gather accurate, meaningful data through mailed surveys. Moreover, studies using this method may over-represent deaf college students, skewing the results away from the actual experiences of the lower achieving and multiply disabled groups. This data collection approach tends to elicit responses from individuals who presumably achieve at a higher level in their work and living endeavors. Accordingly, we made every effort to include as many data sources as possible on the experiences of the people in the study and to gather data directly from the deaf person.

When dealing with a group of adolescents and young adults, minors' parents must be included in the process to secure the necessary legal assurances. Because members of this age group tend to be mobile, locating the parents is a good starting point in the data collection process. However, using parents as the sole source of information on the transition experiences of the subjects in the project is inappropriate. About 90% of deaf people are born to hearing parents (Schein, 1979; Schein & Delk, 1974) and a substantial portion of these parents have minimal sign language competence, so that the information exchange between parent and child is fragmented and unclear. This problem, in conjunction with adolescents' reluctance to share experiences with parents (Olsen, 1987) and the lack of awareness of some parents regarding the specifics of their child's transition process is a major reason for involving deaf people in the transition process as respondents.

We constructed questionnaires for parents of subjects in the deaf and comparison groups, and parallel instruments for the subjects (both deaf and hearing). The only difference in these forms was the phrasing of the questions (e.g., for parents, Is your son or daughter working?, and for subjects, Are you working?). These instruments included questions in the following major areas: vocational/work experience, independent living, social/personal experiences, secondary and postsecondary educational background, involvement with community agencies, and personal and family characteristics. Phone interviews of parents were administered by trained interviewers utilizing a Computer Assisted Telephone Interviewing approach. Protocols were administered to subjects through an individual interview (we termed this approach the "face-to-face" interview) administered by persons skilled in signed communication and trained to administer and code the responses in the interview format.

A central feature of this study was the inclusion of a control or comparison group of hearing peers. The primary purpose of transition studies was to determine whether or not students with physical or mental conditions are "successful" in their school-to-community transition. However, success usually cannot be described and judged in sufficient detail due to the absence of a comparison group(s) (Edgar, 1985; Fairweather, 1984a, 1984b). Fairweather (1984a) speaks to the importance of this feature of the research design:

> The principal argument for including some method for comparing research results for handicapped youth with results for nonhandicapped youth is that our concept of, for exam-

> ple, "successful transition" of handicapped youth can only be determined relative to what happens to nonhandicapped people. For example, without knowing that the typical vocational pattern of any youth recently graduating from high school is unstable we might draw incorrect conclusions about the vocational transition patterns observed for handicapped youth. This argument holds true for virtually all areas of concern to the Office of Special Education Programs, including the transition process, post-school outcomes (for example, is the employment rate for youth in particular handicapping conditions and across all conditions typical for youth in the 13-21 age range, or does it vary and by how much?), and services used (p. 33).

For this project, comparable groups of hearing students were randomly or quasi-randomly selected from schools in each geographic region included in the research. In each locale, we asked for the nomination of a particular school or school district that could supply hearing or comparison subjects to the study. These sites were contacted and student lists compiled in the same manner as lists of deaf subjects.

Results. Two separate studies, follow-up and follow-along investigations, were conducted. In the follow-up study data were amassed on persons who were three- to four-years out of high school. Data were collected at one time only on the subjects' transition and community based experiences after leaving high school. In the follow-along study students were identified in the spring of the first (1987) and second year (1988) of the project as they left high school. Data were gathered on these groups immediately before or upon leaving high school and then again approximately one year later.

For the purposes of this chapter, data are presented only on the follow-up investigation in a simple tabular and descriptive form for each of the key domains of the transition experience (e.g., employment, independent living, social/interpersonal) (see Table 3). Data are presented from the perspective of both the parents and the students, and we have divided the population into lower achieving deaf and deaf multiply disabled groups. These two groups, which represent only a portion of the total population investigated by this study, were derived by eliminating students who had attended a four-year college, students who had graduated from a two-year college, and students who had an academic major in their postsecondary education.

See Table 3 on following page.

These results indicate that, for some areas, parent and student responses provide different information. We have chosen to present both student and parent responses and suggest that they be viewed as complementary to one another. The results of the study must be interpreted cautiously as it did not include data from school files, did not interview vocational rehabilitation counselors nor other community-based service providers, and was limited to the geographical region of the Northwest. Still, the study was carefully conducted and offers one of the first empirical snapshots of the community experiences of this hard-to-study group. The following paragraphs highlight important findings from the project.

- The top tier of Table 3 presents data on the characteristics of the persons included in this study. In the study more parents than students were interviewed, the groups were roughly proportional in gender distribution, the comparison (hearing) subjects tended to be younger at the time of data collection, and a higher percentage of the comparison subjects were from families with annual incomes over $30,000 per year.
- The far left side of the second tier presents data on the high school experiences of the three groups. Parents were asked about the most positive and negative thing about high school for their child, and students were asked to name the most positive or negative thing about high school from their own experience. Parents of the deaf lower achieving and multiply disabled subjects indicated that interactions with peers was the most important aspect of high school for their child, while the most negative was poor educational programs. Students, on the other hand, gave different responses. Lower achieving deaf students indicated academics as the best thing about high school and deaf multiply disabled persons identified extracurricular activities as the most positive aspect.
- Working across the table in the second tier, the study shows that the majority of all three subject groups participated in some type of paid employment while in high school, but that a higher percentage of the comparison subjects worked year around and found their jobs by themselves or through a friend or family member (the self/family/friend network). Conversely, most deaf subjects worked during the school year only and found their jobs through school-based programs. As paid work experience in high school has been found to be correlated to vocational success for other groups of students (e.g., learning disabled) after leaving high school (Hasazi, Gordon, & Roe, 1985), this finding suggests that lower achieving deaf persons are not receiving the same vocational experiences, and presumably the same level of preparation, as their hearing peers.
- Engagement is an outcome variable we constructed to provide a gross index of community adjustment. Briefly, a person was considered to be "engaged" if he or she was working full time, going to school full time, or working and going to school part time. The data in the table indicate that a much higher percentage of the comparison subjects were engaged as compared to either group of deaf persons in this study.
- A higher percentage of the hearing subjects were employed in contrast to both groups of deaf persons. While the hearing subjects tended to make slightly more money per week, the average number of hours worked and the type of work that was secured among these groups were similar. Note that the majority of all three groups who were working indicated that they secured their jobs through the self/family/friend network. Since vocational rehabilitation personnel were not included in this project, this finding must be viewed with caution. Still, this result is consistent with the findings of other transition studies on the method of finding work for all

Table 3. Follow-up Transition Data

	PARENTS INTERVWD (N=532)	STUDENTS INTERVWD (N=236)	TOTAL SUBJECTS (N=540)	MALE %	FEMALE %	AGE MEAN	MAINSTREAMED HIGH SCHOOL % YES	FAMILY INCOME (OVER $30,000) %YES	FAMILY INCOME (OVER $30,000) N
DEAF/L.ACH.	155	92	158	57%	43%	22	46%	49%	118
DEAF/MULT..	68	32	68	57%	43%	23	29%	50%	54
COMPARISON.	309	222	314	54%	46%	21	N/A	60%	242

Key: **High School Experience**

Most Positive	*Most Negative*
1. Interactions—Peers	1. Poor Ed Programs
2. Academics	2. Living Situation
3. Happy/Self Esteem	3. Social Relations
4. Extracurricular	4. Faculty
5. Multiple Tie	

How Job Found—SFF (Self Family Friends), SCH (Through School)

Engaged—Full Sch. or 20+Hr Work, or part both

	HIGH SCHOOL								ENGAGED		CURRENT EMPLOYMENT								SUPPORTED	
	EXPERIENCE		EMPLOYMENT								CURRENTLY EMPLOYED		HRS WORK	PAY	TYPE JOB		HOW JOB FOUND		LIVING ARRANGEMENT	
	MOST POS*	MOST NEG*	PAID WORK % Y	PAID WORK N	FULL YEAR % Y	FULL YEAR N	HOW JOB FND %SFF*	HOW JOB FND % SCH	% Y	N	% Y	N	MED'N	MED'N	SERV OCCUP	CLER/ SALES	%SFF	%SCH	% Y	N
PARENTS DEAF/L.ACH.	(1)	(1)	80%	152	36%	121	34%	44%	54%	147	51%	153	40%	$155	25%	26%	63%	7%	43%	153
DEAF/MULT..	(1)	(1)	75%	67	43%	49	24%	49%	42%	65	43%	67	35%	$ 80	33%	22%	32%	10%	60%	67
COMPARISON.	(4)	(1)	82%	307	72%	251	87%	12%	90%	297	71%	309	40%	$169	32%	34%	74%	13%	32%	309
STUDENTS DEAF/L.ACH.	(2)	(1)	80%	91	32%	71	46%	39%	57%	91	55%	92	40%	$177	19%	23%	66%	6%	51%	91
DEAF/MULT..	(4)	(1)	84%	32	22%	27	38%	52%	53%	32	63%	32	30%	$115	21%	32%	55%	5%	66%	32
COMPARISON.	(1)	(1)	88%	222	76%	196	91%	6%	93%	222	74%	222	40%	$180	38%	38%	78%	15%	39%	221

	POST SECONDARY					SOCIAL EXPERIENCE				SERVICE AGENCIES											
	ENROLLED SCHOOL		TYPE SCHL		# SCH ATTND	POST HS COUNSELING*		UNHAPPY	NUMBER FRIENDS	DVR			SSI			PUBLIC WELFARE			JTPA		
			CC	VOC						REC'D SERV		UNHAP	REC'D SERV		UNHAP	REC'D SERV		UNHAP	REC'D SERV		UNHAP
	% Y	N	%	%	MEAN	% Y	N	%	MEDIAN	% Y	N	%	% Y	N	%	% Y	N	%	% Y	N	%
PARENTS DEAF/L.ACH.	13%	155	45%	55%	1.45	36%	36	33%	5.0	55%	148	44%	66%	152	24%	23%	149	19%	17%	144	17%
DEAF/MULT..	15%	37	40%	50%	1.70	54%	24	35%	3.0	74%	66	65%	90%	68	32%	42%	65	23%	21%	63	46%
COMPARISON.	53%	306	23%	8%	1.43	16%	106	14%	6.0	0%	308	N/A	2%	308	0%	5%	307	29%	1%	307	0%
STUDENTS DEAF/L.ACH.	10%	92	89%	11%	1.22	50%	22	23%	4.0	73%	43	43%	61%	92	54%	24%	90	55%	46%	91	30%
DEAF/MULT..	3%	32	100%	0%	2.00	44%	9	16%	3.0	78%	56	56%	81%	32	36%	41%	32	31%	44%	29	39%
COMPARISON.	57%	222	21%	9%	1.52	14%	72	7%	5.0	0%	221	N/A	1%	221	33%	5%	221	10%	1%	220	50%

categories of students (e.g., Edgar & Levine, 1987; Wagner & Shaver, 1989).

- A higher percentage of deaf subjects were living in supported or supervised living situations in school or community settings than were the comparison subjects.
- Between 60% to 70% of all deaf students continue with some type of postsecondary education (Bullis, Bull, Johnson, Johnson, & Kittrell, 1990; Wagner & Shaver, 1989) and completion of postsecondary education training has been associated with higher levels of vocational attainment for deaf people (Allen, Rawlings, & Schildroth, 1989; Welsh, 1986). In this investigation, a far smaller percentage of the lower achieving deaf and deaf multiply disabled subjects were in postsecondary training than their hearing peers. (The majority of the comparison subjects were in four-year colleges, a finding not shown on the Table since deaf subjects in this analysis, by definition, did not enter this type of training.)
- In contrast to the hearing subjects, a higher percentage of all deaf subjects indicated that they had received some type of personal counseling after leaving high school and that they were, in general, unhappy, and had few friends. These results suggest an increasing split between the deaf and hearing groups that may foretell future adjustment problems.
- Finally, it may be seen that high percentages of both deaf groups in this study reported that they had been affiliated with vocational rehabilitation agencies and social security, and to a lesser degree with programs sponsored under the Job Training Partnership Act and public welfare agencies. A much higher percentage of the lower achieving and multiply disabled deaf subjects had received assistance from public welfare than had comparison subjects, indicating a reliance on public resources to live in the community. Moreover, substantial portions of those who received services from all four agencies stated that they were unhappy with their contact and/or services that were received. In general, agencies that provided work services were regarded as not helpful and not communicative, while agencies that provided financial assistance were judged to offer too little monetary support.

In summary, these persons achieve at lower levels than what is acceptable for anyone who is striving to succeed in the community. Moreover, the lack of progress of deaf persons in both vocational (Passmore, 1983) and independent living (Ouellette, 1983) endeavors leads one to speculate that, if these same persons were surveyed again in 10 years, the differences among these groups would probably be even more pronounced. The question becomes, then, what can be done to correct this situation. The next section examines current interventions for these people that offer such hope.

Interventions

Intervention refers to those assessment, curriculum development, and program planning endeavors that lead ultimately to the target population's vocational and independent living success. In the sections that follow, contemporary developments in each of these areas are highlighted through descriptions of select instruments, curricula, and programs.

Assessment

Given the importance of vocational and independent living skill training, it is essential that reliable and valid assessment data be amassed to guide such interventions. Assessment information should serve to assist in structuring and evaluating instructional outcomes by documenting individuals' functional skills and abilities. A central assumption forms the foundation on which effective assessment is built. In order for assessment to be useful in structuring the transition program and guiding the student's move from the educational environment to the community, the instruments that are used and the data derived should relate specifically to the content of the transition process. Assessment procedures employed in transition programs should be related *directly* to the content and skills deaf students should know and perform in community settings. Clearly, this type of information will have relevance for instruction (i.e., determining what the student needs to be taught) and for planning the actual school to community transition of the student.

To date, there have been few, if any, relevant standardized assessment tools employed by rehabilitation or education professionals to measure deaf people's transition-related skills (Allen, Rawlings, & Schildroth, 1989; Reiman & Bullis, 1987; Reiman & Bullis, 1990c). The following descriptions of two recent research-based assessment measures show promise in the assessment of deaf persons who have independent living and work-related adjustment difficulties.

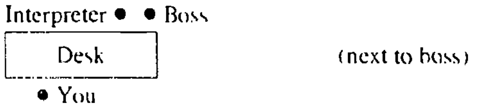
Transition Competence Battery. In 1986, a grant to develop and validate a functional measure of transition skill competence, specifically employment and independent living skills, for lower-achieving deaf persons was awarded by the federal Office of Special Education Programs to Teaching Research (Bullis, 1986). Using a domain sampling model of test construction (Nunnally, 1978), the skill areas identified in the two studies (see Tables 1 and 2) were used as a blueprint to define the content of the Transition Competence Battery (TCB) (Reiman & Bullis, 1990b). The TCB is a knowledge-based instrument comprised of 6 subtests (3 each in the broad domains of employment and independent living). The three employment subtests are Job Seeking Skills, Work Adjustment Skills, and Job-Related Social and Interpersonal Sills. The three independent living subtests are Money Management Skills, Health and Home Skills, and Community Awareness Skills. The instrument employs multiple, standard administration procedures and is designed for small groups (six to eight) of deaf adolescents and young adults through the combination of a signed videotape format and a simply worded and illustrated (third grade reading level) written test booklet. The student has the opportunity to watch the monitor for the signed question, refer to the booklet to review the question and the response options, and then respond to the question on the answer sheet. The videotaped presentation of each item is presented in a conceptually accurate Pidgin Signed English that utilizes American

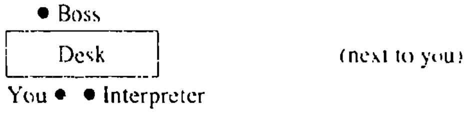
Sign Language (ASL) signs, ASL grammatical features, and an essentially English word order. Each subtest consists of between 25 and 35, three-option multiple choice items that reflect the content areas identified above. Examples of the written test questions are offered in Figure 1.

Figure 1. Sample TCB Test Questions

Example 1. You are at a job interview with a boss and you are using an interpreter. Where should your interpreter sit during your job interview?

A.


B.


C.


Example 2 Look at the check register below. What should you write in the blank space?

A. $ 89.50

B. $110.50

C. $100.50

Amount of Check		√ T	(-) Check Fee (if any)	Amount of Deposit		Balance	
						100	00
10	50					10	50
						BAL	?
						BAL	

The TCB was standardized in 1989 on 230 subjects representing 14 different mainstreamed and residential school programs from across the United States. Various statistical analyses reveal that the psychometric properties of the test battery (item statistics, subtest internal consistency reliability, and test-retest reliability) are, in general, adequate and support the instrument's use and continued development (Bullis & Reiman, 1990) (see Tables 4 and 5 for a summary of these characteristics). However, analysis of the data for each subtest reveals a clear trend of better performance on the three employment-related subtests than on the subtests on independent living. In fact, for subtest 4-Money Management and subtest 5-Health & Home, the mean proportion of the items answered correctly for both measures was slightly more than 50%.

See Tables 4 and 5 on the following page.

We believe that there are two possible explanations for this result. First, these activities, unless taught and practiced, will be unfamiliar to adolescents in high school, and people in this group can be expected to score poorly on such content. At the same time, these items *are* reflective of the kinds of actual math problems deaf people encounter in the community and are expected to know how to complete. Second, in reviewing the items, we believe that the group's performance is due, in part, to the fact that all of the items required a higher degree of English reading competence than that possessed by most of the target population. Most professionals believe that deaf people are, in general, proficient in math skills. However, in the community mathematics are of a pragmatic nature and are part of real problems requiring several layers of functional academic skills. We feel that these two suppositions are correct, and that a strong case can be made for teaching deaf adolescents functional math skills within the context of work and living problems. Similarly, the scores on Subtest 5, relating to personal health and home management skills, are related to the high school students' unfamiliarity with the content area. Again, these items represent real problems and issues that students will face in the near future and should be able to address in an effective manner to live successfully in the community. Accordingly, such skills and knowledge should be an integral part of the high school academic curriculum.

National Independent Living Skills Project. A battery of third party rating scales that were developed specifically for people with sensory losses (blind, deaf-blind, and deaf) are the measures from the National Independent Living Skills Project conducted at the Alabama Institute for the Deaf and Blind. The purpose of this project was to develop a set of measures that could be used to accurately assess the independent living skills of these people, and to direct focused intervention efforts. As a result of an intensive content development effort, three different instruments were developed, each with a different purpose: the Screening for Physical and Occupational Therapy Referral (Woolsey, Harden, & Murphy, 1985), the National Independent Living Skills (NILS) Screening Instrument (Iceman, Woolsey, Windham, & Sanders, 1985a), and the National Independent Living Skills Assessment and Curriculum Guide (Iceman, Woolsey, Windham, & Sanders, 1985b). In this chapter, only the screening instrument and the assessment and curriculum guide will be discussed.

The screening instrument is designed to be completed by a third party rater who assesses the individual on specific skills or competencies within seven functional skill areas: Health and Hygiene, Family Responsibility, Money Management, Community Awareness, Legal Awareness, Social/Interpersonal Skills, and Maladaptive Behaviors. The screening instrument consists of 162 items distributed across the seven areas. Based on the raters observation, or

Table 4. Subtest Characteristics

	Mean Item Difficulty (mean, sd)	Item-Total Correlation (mean, sd)	Mean Score (mean, sd)	Mean Percent Correct	Number of Items
Subtest 1: Job Seeking Skills for Employment (n = 230)	.677 .101	.374 .122	22.348 6.504	.677	33
Subtest 2: Work Adjustment Skills for Employment (n = 181)	.714 .121	.373 .143	22.144 5.824	.714	31
Subtest 3: Job Related Social and Interpersonal Skills for Employment (n = 230)	.725 .122	.404 .114	18.843 5.222	.725	26
Subtest 4. Money Management Skills for Independent Living (n = 190)	.507 .155	.247 .119	10.132 3.527	.507	20
Subtest 4: Health and Home Skills for Independent Living (n = 189)	.548 .170	.288 .092	15.884 5.036	.548	29
Subtest 5: Community Awareness Skills for Independent Living (n = 188)	.661 .140	.338 .126	15.851 4.560	.661	24

Table 5. Subtest Reliabilities

	Internal Consistency	Test-Retest
Subtest 1: Job Seeking Skills for Employment	.864	.896
Subtest 2: Work Adjustment Skills for Employment	.857	.828
Subtest 3: Job Related Social and Interpersonal Skills for Employment	.860	.849
Subtest 4: Money Management Skills for Independent Living	.668	.613
Subtest 5: Health and Home Skills for Independent Living	.777	.766
Subtest 6: Community Awareness Skills for Independent Living	.801	.844

through a structured interaction, the subject is assigned a score of these items. For many of the questions the score corresponds to a level of supervision needed to live independently, while for others the frequency of occurrence is marked. The subject is given a total score in every area that is then associated with the person's need for support, with low scores being associated with a greater need for assistance.

Once the performance profile of the individual is established, it is then possible to conduct more in-depth assessments within each of the seven content areas. These scales are longer than the screening device (in fact, the screening instrument was derived from these tools through statistical procedures) and require a more "in-depth" assessment of the person. The results are keyed to a number of commercially available independent living curricula and training materials. For example, if a particular individual exhibits problems in money management, the rater is directed to the intervention materials that can be used to train that individual in those skills

To date, the NILS has been field tested on 278 subjects and initial analyses of the inter-item correlations and the content of the scales have been completed. For each scale, the internal consistency reliability is adequate (.80 to .90). Through a lengthy and rigorous development process (Dunlap & Sands, 1987) the content validity of the scale is clear, and work is being conducted on its construct and criterion validity. NILS represents a positive step in the development of content-valid and reliable assessment measures with the potential of guiding intervention efforts with deaf persons. As a third-party rating instrument, it offers an additional dimension of assessment that, when combined with functional and self-report measures, provides a well-rounded portrayal of a client's independent living skills.

Curriculum

Curricular materials drawn from strong diagnostic data may lead a client toward vocational and independent living success. For deaf persons striving for greater achievement in these areas, there are very few training programs, trained professionals, or empirically-based and proven curriculum materials. Many deaf people are not receiving the training required for success in work and living settings. The following are descriptions of two curriculum packages that have shown promise in their application to deaf persons.

Job Club. One responsibility of the vocational rehabilitation counselor is job placement. Successful job placement marks the conclusion of the rehabilitation process and is the indicator of counselor effectiveness. Though job placement is a mandated service available to all rehabilitation clients, the methods of job placement vary greatly. In general, there are two methods of job placement, each with merit depending upon client needs (Rubin & Roessler, 1983). In the first method, the rehabilitation counselor makes contact with the prospective employer and arranges the placement. This approach is desirable when a variety of accommodations must be made in the work environment. In the second method the client is taught the skills needed to conduct the job search independently. One excellent example in this category is the Job Club.

The Job Club (Amrine & Bullis, 1985; Azrin & Besalel, 1980) is a model for teaching job-seeking skills based on principles from behavioral psychology. These principles include: (a) the *specification* of observable job-seeking behaviors (e.g., obtaining job leads through the use of the telephone book or the newspaper); (b) *learning* specific skills that will make the Job Club member successful in their job search through modeling, rehearsal, role playing, and practice; (c) *reinforcement* through praise from the Job Club counselor and other group members; and (d) a *behavioral contract* specifying the duties of the trainer (e.g., providing photocopying services, newspapers, helping the member develop a resume) and the member (e.g., attending the meetings on time each day, completing homework assignments, helping others in their job search).

The program is designed for 8 to 12 people to meet two to three hours per day for two weeks and is divided into six components. The *introduction* begins with a description of the Job Club and encourages members to treat the process of looking for a job as a full-time job. At the end of this session, the Counselor/Job Seeker Agreement is signed, and members are asked to identify several areas of vocational interest to guide their searches.

Obtaining job leads is another important component. Members are encouraged to solicit leads from friends, relatives, and acquaintances. Members are then trained in *contacting job leads*. Specific information to convey to the employer is prepared in advance and kept on a form for the member. Scripts and role playing are used to practice the procedure. Phone calls are considered the best method for contacting leads.

The final components include *documentation of work history* and the *employment interview*. Members are trained on filling out applications, developing resumes, and presenting themselves in a courteous, confident manner in the interview. After the interview, members complete a checklist that is reviewed by the trainer. Praise is given for successes and assistance is given for trouble spots.

While several studies indicate that the Job Club is a successful approach to teaching job seeking skills (e.g., Azrin & Phillip, 1979), some modifications for deaf clients are necessary. A program developed for this purpose is the Florida Deaf Services Project (Justl, McMahon, & Lewis, 1983), which is summarized by Amrine and Bullis (1985). The basic concepts of the Job Club are followed in the Florida model with additions and adaptations for use with deaf job seekers. For example, diagrams, simplified descriptions, and self tests are provided to insure understanding for persons with limited reading skills. While members are taught to make job contacts through letters of application or phone calls, personal visits are recommended as the preferred method. Work adjustment information is provided (e.g., arriving to work on time and calling the employer if an emergency arises) as well as specific information that can be supplied to the employer concerning the individual's hearing loss and accommodations that may be necessary. Although more research is needed, pilot studies of the approach are encouraging (Justl, McMahon, & Lewis, 1983).

The Southwest Center for the Hearing Impaired (SCHI) program (Torretti & Hendrick, 1986) also uses the Job Club approach as a basis, but adapts the curriculum for the needs of multiply disabled deaf persons. At the SCHI, the additional disabilities most often include vision impairments, behavior disorders and learning disabilities. The Job Club model is used in combination with a work-oriented curriculum with adaptations made to meet the language needs and learning problems of their client population. Some of these adaptations include: a lengthier program. components broken down into the smallest elements possible, and extensive use of repitition and practice. In addition, their program does not necessarily expect the client to take on full responsiblity for finding a job. The program is set up to be a cooperative effort between the counselor and the client.

The Job Club approach has particular merit for enabling people who have not been afforded the opportunity to make autonomous and informed decisions regarding the conduct of their lives. Deaf adolescents and young adults, frequently bypassed in their personal decision making process by well intentioned but paternalistic hearing adults, would likely benefit from such an approach.

Employer Development. Another potential solution to deaf people's unemployment and underemployment is the development of proactive strategies that center on providing deaf individuals and their counselors/teachers with information related to the employment process. Recent research by the University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment (RT-31) sought information from employers and deafness rehabilitation counselors for developing interventions aimed at assisting deaf people with initiating, maintaining, and advancing in employment (Johnson & Long, 1988). Two parallel surveys of employers (1,044 various sized employers from across the United States) and rehabilitation personnel (800 professionals identified by state rehabilitation agency directors) were conducted to identify key issues that influence employers to hire, maintain, and promote deaf workers.

Employers were questioned about their perceptions of growth trends, desired information about deaf workers, types of services from deafness professionals, and key work performance attributes for the kind of work done by their company. Rehabilitation professionals were queried regarding demographics, caseload activity, placement efforts and systems, and marketing strategies. Through both surveys, information was gathered to assist counselors in organizing their employer development activities, providing employers with precisely the types of information they preferred, developing marketing strategies, and responding to employers' concerns. Specifically, a training package was developed containing the following components (Long & Johnson, 1990):

- *Developing Employer Confidence (DEC)*

A skill-building training program during which rehabilitation professionals learn and practice the following skills for use in face-to-face contact with employers:

A. References for credibility
B. Handling employer objections
C. Positive image building
D. Selecting compatible interaction styles

- *Managing Employer Development (MED)*

A skill-building training comprised of the following three components designed to structure employer development:

A. A 10 minute rehabilitation services marketing videotape
B. A promotional brochure describing rehabilitation services
C. A resource manual for organizing activities

During field testing with professionals from the Illinois Department of Rehabilitation Services, knowledge pre- and post-tests, role play, pre- and post-evaluations of skills, and a three month follow-up questionnaire uniformly produced highly encouraging results. The findings suggest that skills and knowledge for effectively interacting with employers can be acquired. Acquisition of these skills by rehabilitation professionals working with deaf people can serve to proactively confront a problematic employment picture that is unlikely to improve without systematic research and development efforts.

Social Problem Solving Skills. The previous sections describe curricula focusing on job attainment: teaching job-seeking skills and employer and job development. A third important component of successful employment and community integration involves social and interpersonal skills. Boone and Johnson (in press) report on the efforts of the Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment in developing and evaluating a curriculum and assessment package dealing with interpersonal problem solving skills with adaptations for use with deaf consumers. Applicable to both job and community settings, the problem solving skills taught in this curriculum might be used in a variety of situations for deaf people requiring remedial problem solving interventions.

In the first phase of the project, Boone and Johnson (1988) conducted two national surveys of independent living and rehabilitation programs, which (a) identified the need for training and assessment materials in the social interpersonal and problem solving skills areas as a program priority and (b) identified curricula currently in use, along with the strengths and weaknesses of these materials. The second phase targeted the development of a curriculum that included components for assessment of interpersonal problem solving skills and training in skill deficit areas.

Basing his work upon an existing strategy developed for persons with psychiatric disabilities [Assessment and Training of Interpersonal Problem Solving Skills (Donahoe, Carter, Bloem, & Leff; 1987)], Boone (1989) developed the Interpersonal Problem Solving Skills (IPSS) Assessment and Training Curricula. The procedures used in these curricula are based on the social problem solving model of social skills originated by Wallace et al. (1980) and target receiving, processing, and sending skills. Long, Boone, and Rosten (1986) describe these skills:

"... receiving skills include the individual's ability to accurately perceive interpersonal problem situations and cues. Processing skills enable the individual to generate and choose various response alternatives for a specific stimulus situation. Sending skills involve the individual's ability to deliver a response in an effective manner using both verbal and nonverbal means, as well as incorporate subsequent feedback regarding the impact of the behavior" (p. 341).

The IPSS package is divided into two main components: Assessing Interpersonal Problem Solving Skills (AIPSS) and Teaching Interpersonal Problem Solving Skills (TIPSS). The AIPSS consists of an Assessor's Manual and a Stimulus Videotape of 13 common social situations (based on Donahoe, Carter, Bloem, & Leff, 1977, but modified for deaf users) rated across eight scales by 10 rehabilitation professionals and 10 comprehensively certified interpreters as being appropriate for the targetd population. In addition to 10 vignettes requiring the use of problem solving skills, three "no problem" vignettes help distinguish situations in which a person might perceive a problem where no problem exists. These vignettes include situations with (a) two deaf persons communicating in sign language with each other, (b) a deaf person who prefers signed communication interacting with a hearing person who does not sign, and (c) a deaf and hearing person interacting through an interpreter. In the assessment, the testee views a vignette and then is asked whether or not a problem exists, what the problem is, and what he or she would do in that situation. The testee is then videotaped (for scoring purposes) acting out his or her response.

The TIPSS is the training component of the materials package. It includes a trainer's manual, a participant workbook, and a video modeling tape designed to assist trainees in acquiring interpersonal problem solving skills. The TIPSS curricula is divided into several lessons, including: Pay Attention, Describing Problems, Thinking of Ideas for Solutions, and Putting Solutions into Action. In addition to the video components, this multimodal training package includes practice exercises, homework, role playing, and feedback for each lesson.

An evaluation of the IPSS curriculum has been conducted using a two-group (experimental and no-training control), pre-post quasi-experimental design with 46 trainees participating. The characteristics of the group were as follows: 65.2% deaf, 24.8% hard of hearing, 72% prelingually deafened, average reading performance 4.67 (measured by the Adult Basic Learning Examination), and mean age of 17.9. In a preliminary analysis of their data, Boone and Johnson (in press) report that the psychometric properties of the AIPSS were excellent, including scoring reliability, internal consistency reliability, and concurrent validity; and that the experimental group exhibited enhanced social problem solving skills in comparison with the no treatment control group, whose scores remained stable. Specific information as to the details of the psychometric properties are not yet available.

Programs

When effective assessment and curricular materials are combined and placed with multidimensional programs striving to meet the needs of lower achieving and multiply disabled deaf individuals, the potential for positively impacting large numbers of persons exists. Both of the programs described below recognize the need for extended services and design their programs accordingly.

Lexington Center's Community Based Vocational Rehabilitation Consortium. The report of the Task Force on Low-Functioning Deaf Adults (Hurwitz, 1989) underscored the need to develop comprehensive service centers that would:

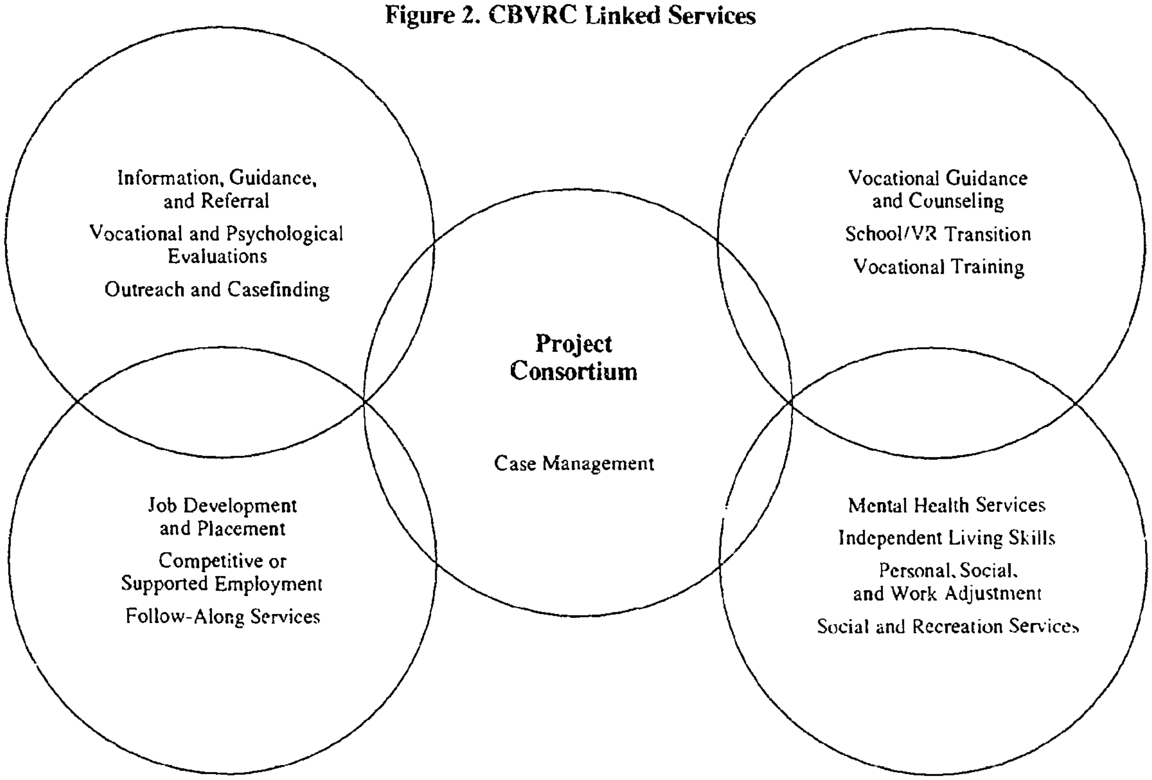
1. Serve as national research, development, and training centers on the special needs of lower achieving and multiply disabled deaf individuals.
2. Provide comprehensive rehabilitation services to these individuals with emphases on (a) evaluation services and vocational training, (b) personal and work adjustment training, and (c) independent living skills training.
3. Develop networks for linkages to local service programs, referral, and aftercare services (including placement with or without supported employment).

The Lexington Center, Inc. in New York City has recently received funding from the federal Rehabilitation Services Administration to develop a Community-Based Vocational Rehabilitation Consortium (CBVRC)(Chartock, 1990) that will respond to the Task Forces' three mandates listed above. The center will develop a comprehensive service delivery system for lower achieving and multiply disabled deaf persons that will include a wide range of quality services and provisions for continued availability of services on a long-term basis in the person's home community.

A three-fold approach will be utilized to implement a complete array of educational and rehabilitative services for the large population of lower functioning and multiply disabled deaf adolescents and young adults in the New York metropolitan area. First, a consortium of 25 programs will be formed and coordinated to maximize existing staff resources and programs. Second, consortium staff will be provided with consultation, training, and technical assistance to increase their knowledge, skills, and capabilities in serving the target population. Third, project staff will be deployed to link consortium agencies with the client population whom they will serve. The CBVRC will provide 15 linked services as identified in Figure 2. Access to all of these services will be monitored through use of a tracking mechanism designed to ensure that clients do not "fall through the cracks."

See Figure 2 on the following page.

Figure 2. CBVRC Linked Services



The Consortium expects to serve 400 to 500 lower achieving and multiply disabled deaf persons. It is expected that over 70% of the clients served will represent ethnic minority groups, will be receiving SSI benefits, and will be living in households with subpoverty level incomes.

Lexington's CBVRC puts the concept of extended transition services into operation by building its model around long-term, community-based service delivery. In so doing, it provides the possibility for the target population to achieve more satisfactory personal, social, and vocational adjustment. To ensure replicability of its efforts, CBVRC will develop training materials, provide local and national training symposia, and develop and disseminate a procedural manual on planning, developing, and conducting a community based vocational rehabilitation consortium.

Oregon's Connections Program. The Individualized Written Rehabilitation Plan (IWRP) developed for each vocational rehabilitation client is perceived as the most expeditious and cost-effective route to gainful employment. Rarely does the Plan forecast or allocate resources for necessary transition services and interventions beyond a two-year time period. Oregon Vocational Rehabilitation, however, had the foresight to recognize that the treatment and training period necessary for serving deaf persons with mental and emotional disorders, would require a period of between two and five years. That is, instead of transition being viewed as an *outcome* following two years of service delivery, an extended transition model was conceptualized with emphasis on a *process* of planned service delivery requiring up to five years of intervention and training.

In 1989, the Oregon Divisions of Vocational Rehabilitation and Mental Health funded a comprehensive project (the Connections Program) to serve deaf adults with mental and emotional disorders. Persons accepted into the program must be deaf or hard-of-hearing. Vocational Rehabilitation clients identified as either experiencing significant psycho-social adjustment difficulties, or as having a diagnosis from the Diagnostic and Statistical Manual of Mental Disorders-Revised (DSM-IIIR) (American Psychiatric Association, 1987). Further, eligible clients must willingly commit to participate in the program and to assume full responsibility for self-administration of medication. Clients deemed not appropriate for Connections are those with recent episodes of self-injury or assault, antisocial personality disorder, primary substance abuse, suicidal preoccupation, or a developmental disability.

The program has four key components. A five-bed residential program for those unable to live independently is located in small cottages behind the program office/drop-in center. In this semi-independent setting, the emphasis is on clients receiving services (i.e., cooking, budgeting, self-care) in their own apartments from on-site (housed in a separate apartment) staff. Clients may occupy apartments alone or with roomates depending upon availability. In the second component, services are provided to an additional five clients who are living away from the central site and require varying levels of supervision. Clients served by this community-based component of the program receive the same services as those housed in the cottage setting. Third, the program operates a drop-in center where deaf people from the greater community, who are experiencing varying levels of psycho-social adjustment difficulty, can gather for recreation, socialization, and other services. Finally, vocational services are integrally interwoven with the residential and independent living skill component. Available services include vocational assessment, job development, on-site training, communication facilitation with employers, job-site modification, follow along/follow up contacts, and a 24 hour on-call emergency response capability.

Connections' multidisciplinary staff includes a residential program coordinator, a mental health program coordinator, vocational trainers, independent living skill trainers, and an interpreter/advocate. Together, this staff provides an integrated program of advocacy, counseling, and vocational and independent living skill training.

What marks this program as unique, when compared to many others of its general design, is its working definition of extended transition. To allot a period of up to five years for the rehabilitation-supported transition process with the population described above, appears to be an idea that may reduce the long term problems of client recidivism and associated cost-beneficial service delivery. The extended transition period may also contribute, in the long term, to a more positive perception of vocation rehabilitation services by deaf consumers (see Community Experiences section). That is, if consumers perceive that the duration of rehabilitation services is determined as much by their actual needs as by status-code time constraints, they may report greater satisfaction with services. Measurement of the potential benefits of an extended transition model, at least in the context of the Connections program, will have to wait, however, since the program has been operational for less than two years.

Areas for Further Research

In addition to empirical investigations into the efficacy of the assessment tools, curriculum models, and program services described herein, opportunities exist to examine other innovative intervention approaches. The following are brief descriptions of three emergent areas of inquiry corresponding to areas of need highlighted in this chapter.

Learning Potential Assessment

Most assessment practices are based on a "product" or "static" orientation. That is, the great majority of tests try to measure what an individual knows (How many pints are there in a quart?) or can do (Can you balance the ledger in this book?). While this approach has merit (e.g., achievement testing of college students), it is not suited to the assessment of the work and living skills of lower achieving or multiply disabled persons who are deaf. Often, these people do not have English language skills, and may consequently experience isolation from hearing people. These people may not have the expressive or receptive sign skills to communicate substantively with others in the deaf community. This isolation limits the individual's enculturation and the opportunities to learn work and living competencies. Consequently, if these people are assessed on what they know or can do, the likely result of that assessment would indicate that he or she is unfamiliar with the test's content. Although true, the result would not tell much about the way in which the persons should be taught to learn those skills nor provide an indication of his or her potential in those subject areas.

Because of this limitation of traditional modes of assessment, a growing number of researchers are turning to a "process" or "dynamic" approach to assessment (see the seminal work by Feuerstein, 1979, 1980; or a recent review of the current approaches by Lidz, 1987). Essentially, this technique assumes that everyone can learn to perform certain skills, if they are assessed in a way that guides the intervention and if the intervention focuses on developing their cognitive problem-solving abilities. The assessment method is then interactive between the examiner and subject, and seeks to establish not merely whether an individual can perform a task, but how he or she can be prompted or assisted to perform the task. By establishing such a learning profile it is then possible to structure interventions in the most effective manner. For example, through a learning potential approach it would be possible to not only identify what type of money management skills cause problems for an individual, but through a progressive and standard assessment format, to clarify the best way to intervene with the person.

At this time the learning potential method has not been applied to the assessment of work and living skills with deaf people described in this chapter. The technique has been applied to the assessment of academic skills of these persons (Keane & Kretschmer, 1987). Thus, the potential of the method is exciting, and its application to the assessment of functional work and living skills with this group should be encouraged.

Job Related Social Skill Training

Despite the generally acknowledged importance of social behavior to the work success of deaf persons (Anderson, 1986) little research has been conducted on this subject (Boone, Long, & Long, 1987; Greenberg and Kusche, in press). An exception to this is the previously discussed Interpersonal Problem Solving Skills (IPPS) Assessment and Training Curricula (Boone, 1989). Although many deaf workers do not advance through the job hierarchy after locating employment (Passmore, 1983; Schroedel, 1986) and a major problem is social skill weaknesses specific to the work setting (Emerton, Foster, & Royer, 1986; Foster, 1986), there are virtually no published studies addressing remediation of the problem. For example, in a comprehensive review of the transition literature in deafness (Bullis, Bull, Sendelbaugh, & Freeburg, 1987), only seven data-based manuscripts published in the past 12 years, discussed the social behavior of deaf persons in independent living or vocational settings. Of these, two were needs assessments of college students, one was a quasi-experimental study conducted with college students, one was a case study of homosexual deaf persons, one was a single subject study of a deaf person with other disabilities, and the remaining two were correlational analyses of large data bases.

Another exception to the dearth of literature is Greenberg, Kusche, Calderon, Gustafson, & Coady (1983) model social problem solving curriculum for deaf children. The model is based on the concept that central to effective social understanding and skills for deaf students are:

(a) the capacity to understand and communicate about social events and emotional responses, (b) the capacity to control one's behavior through internal dialogue, (c) the capacity to take another's point of view, and (d) the capacity to identify with communicatively responsive adults for learning of social rules and norms (Greenberg, Kusche, & Smith, 1982). An excellent social-cognitive training program, Providing Alternative Thinking Strategies (PATHS) (Greenberg, Kusche, Calderon, Gustafson, & Coady, 1983), has been developed for use with deaf children in grades two to six. Taught by trained classroom teachers for 30 minutes each day for 20 to 25 weeks, the PATHS program includes the following five topic areas: (a) Affective Understanding (vocabulary and cause-effect attributions); (b) Self-Expression (creative expression through art and drama); (c) Self-Control; (d) Interpersonal Understanding, Role-Taking, and Empathy Training; and (e) Decision-Making and Problem-Solving Skills. This systematic procedure increases student access to a wider variety of activities and may considerably reduce social and academic isolation. Academic achievement may also be improved as an outgrowth of heightened self-control (Greenberg, Kusche, & Smith, 1982).

Much of Greenberg's work in PATHS could serve as a springboard from which curricular materials could be derived for the populations highlighted in this chapter. Using a similar social problem solving approach, a parallel curriculum could focus on an older population of deaf persons with a host of transition-related concerns (Reiman & Bullis, 1990a) and special linguistic requirements.

Supported Work and Supported Living Programs

Despite federal initiatives on both supported work and independent living, there have been surprisingly few projects or publications on these topics for lower achieving or multiply disabled deaf persons. Buckley, Mank, and Cioffi (1988), in a comprehensive review of federally funded supported work programs, noted that while there were supported work entities serving persons who would be classified as lower functioning, there were not, at least at that time, programs specifically for these individuals. In fact, independent living programs for this population tend not to be empirically based or widespread. A publication that is now 10 years old (Ouellette & Lloyd, 1980) acknowledges the need to conduct research on skills training methods and to develop effective training materials and programs, but to date there has been little progress in this direction (Davis & Bullis, in press; Dunlap & Sands, 1987). The issue becomes, "What to do to change the status quo?"

There is a pressing need to develop and *test* instructional methods and content-based work and independent living skill training materials specifically for this group. From contact with many school and community programs for these people located across the country, we believe that there are locally developed curricula that appear to address the vocational and living areas for lower functioning persons—but are they really effective? Without data to support the impact of the curricula no such claim can be made. Moreover, given the need to conduct experimental manipulation of these intervention materials, the heterogeneous nature of the population, and their reliance on manual communication, it is clear that survey research procedures that dominate the deafness literature (King, 1989) are simply not called for. The field does not need another "state-of the art" survey, unless that information can be used to base intervention materials. Further, despite the need to conduct evaluations of interventions that are developed, we also doubt the relevance of classic experimental or quasi-experimental research procedures (Campbell & Stanley, 1966; Cook & Campbell, 1979) for this population and for many of the questions that need to be addressed. Simply, the heterogeneity of these persons and the requirement that we examine the impact of such training on the actual work and independent living behaviors of these persons dictates that single subject research approaches be used (Hersen & Barlow, 1976), procedures that have seldom been used with a deaf clientele (Bullis & Anderson, 1986; King, 1989).

It would be an error to not acknowledge that there are exemplary service programs providing supported work and supported living services to lower functioning deaf persons (see the descriptions of the two programs provided earlier in this chapter). At the same time, services of this type are seldom described in readily available publications, so their structure and characteristics are difficult to delineate and replicate. It would seem most expedient to conduct case analyses of programs that are thought to be "exemplary" to isolate their key variables. Through such specification, it would then be possible to develop new or to revise existing programs from this "blueprint." Programs of this type must be developed, evaluated, and improved if lower achieving and multiply disabled deaf persons are to realize their potential. Supported work and supported living programs are practical vehicles for *extending* the continuum of support that is frequently suggested in this chapter.

Conclusion

Within the greater community of deaf adolescents and young adults who achieve in the vocational and independent living arenas at levels commensurate with their hearing peers, there are an increasing number of individuals whose achievement in these areas is limited. Whatever the sources of these limitations, it is clear that avenues to transcend these problems are few. Opportunities must be created both by improving individuals' transition skills for self-support, and by developing service delivery systems that respond to the actual work and living needs of lower achieving and multiply disabled deaf individuals. At both the individual and systems level, temporal extension of the continuum of rehabilitation services is essential. "Short-term" and "transition", for the population described in this chapter, are contradictory notions that, if not replaced by a model of extended services, will continue to limit the achievement potential of a group of deaf people denied the opportunities they legally and logically should have access to.

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