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ABSTRACT

This collection of papers examines instructional environments for students with severe disabilities. It points out that two principles should guide the selection of all instructional environments for all types of learners at all stages of instruction: the environment should be the least restrictive environment possible and it should be the most instructionally effective. Papers have the following titles and authors: "Selecting Instructional Environments for Students Having Severe Multiple Handicaps" (David Baine); "Community-Based Instruction: Its Origin and Description" (Marg Csapo); "Searching for the Criterion Environment: Issues in Theory and Research" (Dick Sobsey); "Guide to the Development and Evaluation of Community-Based Instruction" (David Baine); "Integration Models for Students with Moderate to Severe Disabilities" (Cathi Hill); "Behavior Management of Individuals with Severely Challenging Behavior in Rural Community Settings" (Linda McDonald and Stewart McDonald); "Behavioral Support: A Transition from Residential to Outreach Services" (Larry MacDonald and Barry Brazier); "Quality of Life for Adults with Developmental Handicaps: Some Issues for Discussion" (Roy I. Brown); and "Behavioral Assessment of Community Living Skills: Considerations for Practitioners" (Dickie Yu and Maurice Feldman). References are provided for each paper. (DB)

INSTRUCTIONAL ENVIRONMENTS

for Learners having Severe Handicaps

Edited by David Baine

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Several chapters in the book are based on presentations made at the Shaping Alternative Futures: Strategies for Effective Integration Conference held in Edmonton, Alberta, May 23-25, 1990.

Dedication

This book is dedicated to Dick Sobsey and his incredible energy, knowledge, humanity, and collegiality. Thanks for sharing.

Foreword

Currently, a debate rages among members of school boards, between parents at advocacy meetings, between special educators at universities, and in the literature related to students with handicaps. The issue being debated is, "Should students with handicaps be educated in integrated or segregated environments?" Proponents of both points of view frequently argue their opinions like religious zealots. Often support for these arguments is in the form of testimonials, philosophic points of view, and opinion.

What is an integrated education? What are its relative advantages and disadvantages? Are there any advantages to segregated education? Are there other types of instructional environments that should be considered, for example, community-based instruction? Has the Cascade Model of service delivery restricted thinking of instructional alternatives? For example, given the vertically organized Cascade Model, are people inclined to consider either level 1 *or* level 2, (e.g., either integrated *or* segregated instruction), rather than some combination of levels (e.g., integrated *and* segregated *and* community-based instruction)? Is there definitive research evidence that may be used to guide the selection of an appropriate instructional environment or combination of environments?

Should the focus of attention be shifted from instructional environments to the instructional needs of individual learners? Is the purpose of education to teach the skills learners require to fulfill the social, physical, sensory, cognitive, emotional, and communication task demands of the least restrictive, contemporary, and future school, domestic, community, recreational, and vocational environments? If yes, then instructional environments must be selected that will best facilitate the acquisition, maintenance, and generalization of the skills required to perform those tasks. If relatively controlled environmental conditions are required for initial skill acquisition, and if newly acquired skills often fail to generalize from controlled classroom environments or from simulated conditions to natural environments, then perhaps different environments are required at different stages of instruction.

If the focus of a student's program varies with the age and development of the student, for example over time, a program may shift from an academic to a life-skills, vocational emphasis, then a corresponding shift in instructional environments may be appropriate. The combination of instructional environments at one age level and stage of instruction may not be suitable at another. Similarly, students with some types of disabilities, for example, those exhibiting extreme behavior disorders, may require a different number and type of instructional environments at various stages of instruction than are required by students with other types of disabilities.

The appropriate combination of environments may depend on the age, functional level, type of handicaps, and the stage of instruction of individual students.

For all types of learners, at all stages of instruction, two principles should guide the selection of all instructional environments. First, the instructional environment selected should be the least restrictive environment possible. That is, given the choice of two or more instructional environments in which a student can equally well learn essential skills, the instructional environment(s) selected should be the most normative. Secondly, the instructional environments should be the most instructionally effective. That is, given a choice, the instructional environment(s) selected should be those in which a student can most effectively acquire, generalize, and maintain essential functional skills. Both of these principles must be considered in the selection of instructional environments.

One of the key words in the foregoing discussion is *choice*. A variety of instructional environments should be available from which to choose. The chapters that follow describe a variety of instructional environments.

In Chapter 1, Baine reviews some of the advantages and disadvantages of instructing students with severe, multiple handicaps in segregated, integrated, and community-based environments. Based on this evidence and on the instructional needs of students having severe, multiple handicaps, recommendations are made regarding the selection of suitable instructional environments. The chapter also describes essential criteria for the selection of instruction in various environments.

Csapo, in Chapter 2, begins with a fascinating review of the social, political, legal, technological, and philosophical factors that influence the selection of educational options. The discussion then focuses on community-based instruction. The author reviews the characteristics of community-based curricula, ecological inventories, IEPs, instructional techniques, and team work among parents, teachers, and therapeutic personnel.

In Chapter 3, Sobsey discusses traditional, segregated special education classrooms, instructional technology based on behavioral psychology, integrated regular classroom instruction and the need for community-based simulated and intensive educational settings, expanded instructional technologies and research on a number of critical issues.

Baine returns in Chapter 4 with a comprehensive checklist of various considerations related to the development and evaluation of community-based instruction. He discusses: selection, preparation and management of instructional environments; environmental inventories; administrative considerations: legal, financial, and policy; type and training of personnel; transportation; program goals, objectives and IEPs; social validation; and instructional considerations: delivery, grouping, scheduling, as well as reinforcement and correction procedures.

In Chapter 5, Hill describes the evolution and nature of two successful models of integrated instruction of students having moderate to severe handicaps, the cluster model, and the neighborhood school integration model. In the cluster model, groups of students with handicaps were integrated into regular schools in Manitoba. In the more recently developed neighborhood school integration program, students in Manitoba were integrated with their chronological-age peers in regular education classrooms, in their local community schools, on a ratio proportionate to that expected in the general population.

Chapter 6, provides a discussion by Linda and Stewart McDonald of the integration of individuals with extreme behavior disorders into small, rural communities. The purpose of the program was to provide support so that individuals who were self-abusive, aggressive, destructive, and noncompliant could live and work in their home communities. The discussion provides a detailed description of methods of recruiting, training, and maintaining qualified staff; methods for establishing relationships with the community and educating the community; developing nonaversive strategies to assist individuals with severely challenging behaviors; and using proactive methods of behavior management.

Chapter 7 also addresses the needs of individuals having severe behavior problems. MacDonald and Brazier discuss an early residential treatment facility, the later development of a specialized family home as a halfway house between a residential program and a family placement program, and the subsequent replacement of these programs with an outreach program. The outreach program provided on-site consultation, intensive support, and workshops to parents and personnel in community agencies. The authors describe several problems associated with residential programs and a number of useful evaluation procedures and instruments to ensure effective service delivery.

Two chapters address issues related to the assessment of program effectiveness. In Chapter 8, Brown discusses evaluation of the quality of life. Data is reported from the administration of the Quality of Life Questionnaire to persons having handicaps. The author also describes a new model of intervention designed to enhance the quality of life of persons with handicaps. In Chapter 9, Yu and Feldman discuss considerations in the assessment of adaptive behaviors, life skills, functional skills, and community living skills. The authors discuss behavioral assessment, criterion-referenced testing, and psychometric considerations. Guidelines are provided for selecting the most appropriate and efficient assessment instrument to meet the needs of practitioners.

Chapter 1
Selecting Instructional Environments for Students Having Severe Multiple Handicaps*

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This chapter reviews some of the advantages and disadvantages of instructing students with severe, multiple handicaps in segregated, integrated, and community-based environments. Based on this evidence and the instructional needs of students having severe, multiple handicaps, recommendations are made regarding the selection of suitable instructional environments. The paper also describes essential criteria for the evaluation of instruction in various environments.

There is an increasing trend in education to integrate students with severe, multiple handicaps into regular classrooms. What is integrated instruction and what are its advantages? Are there disadvantages of integrated instruction? Are there advantages of segregated instruction? Is community-based instruction an alternative to classroom instruction?

These questions are not easily answered. A review of the literature indicates that integrated and segregated instruction have been inconsistently defined. For example, in some cases, integration has been defined as movement from a segregated institution to a community school in which special classrooms for students with severe handicaps alternate with classrooms for nonhandicapped students. In this situation, interaction with nonhandicapped peers may be extremely limited (Hanline & Murray, 1987). In other cases, integration has been defined as placement of single students having severe, multiple handicaps into a regular classroom with nonhandicapped students. Because of these differences in the definitions used in research studies comparing the effects of integrated to segregated instruction, and because much of the reported research has been conducted with less severely handicapped students, it is difficult to draw definitive conclusions from the literature as to the relative benefits of integrated instruction for persons having severe handicaps. In the absence of substantial evidence, decisions regarding placement are often made on the basis of philosophy

*An earlier version of this chapter, having the same title, was published in the *B.C. Journal of Special Education*, (1990), *14*, 120-132.

and opinion. For example, Schutz, Williams, Iverson and Duncan (1984) suggested simply that if elementary students (normal functioning) receive all of their instruction in a self-contained classroom, then a similar arrangement is justified for students having severe handicaps.

Two extremes of the range of segregated-integrated classrooms are described below. Of course, there are various degrees and types of integration-segregation between these extremes. Community-based instruction is also described as an alternative or adjunct to classroom instruction.

Segregated Classroom Environments

In the extreme, these programs may be described as homogeneous, categorical groupings of students having severe handicaps in special schools, or in self-contained, special classes in segregated wings or floors of regular schools, where there is little, if any, direct interaction between students having severe handicaps and nonhandicapped students. Often the programs have separate bathrooms, lunchrooms, transportation, and playground areas. Characteristically, the teacher has been specially trained to work with students having handicaps. In principle, a segregated classroom environment is defined as one in which a teacher, having specialized skills, can instruct students in a self-contained setting in which control can be exercised over environmental conditions, instructional methods, materials, and consequences.

Integrated Classroom Environments

In the extreme, these programs may be described as noncategorical placements of one or two students with severe handicaps into a heterogeneous, regular classroom with nonhandicapped students of the same chronological age. There are frequent and varied interactions between the students having severe handicaps and the nonhandicapped students. The teacher may have little, if any, special education training. This type of integration (referred to as the *Regular Education Initiative* REI), is quite controversial (Gaylord-Ross, 1989). In an integrated classroom, students may relate to the curriculum and instruction in various ways. Students with severe handicaps may be given the same, similar, or different instructional stimuli as the nonhandicapped students and may be taught to respond in the same, similar, or different ways. In addition, the students may be instructed concurrently or at different times and places in the classroom, by the teacher and/or by an instructional aide. For example, Hill and Whiteley (1985) describe a program in which survival reading, leisure, life-skills, and consumer mathematics were taught to students with severe handicaps during the same time period as language arts and mathematics were taught to the nonhandicapped students. Other areas of the program, social studies, science, health, and physical education were reportedly adapted to accommodate the students with multihandicaps (Hill & Whiteley, 1985). In an integrated classroom, students with severe handicaps and nonhandicapped

students may or may not relate to each other in various ways. A variety of interactive relationships have been described (Hamre-Nietupski, Branston, Ford, Gruenewald, & Brown, 1978). *Helping relationships* are those in which nonhandicapped students provide various types of direct assistance (social, physical and/or academic) to students having severe handicaps. In *reciprocal relationships*, students having handicaps and nonhandicapped students have more equal (nonhelping) roles and complement each other in various activities such as playing a game. In *proximal* situations, the students, although performing side-by-side, may not directly interact with each other.

Community-based Instruction

Community-based instruction (CBI) is instruction conducted in the natural environment(s) where the behaviors being taught are eventually expected to be performed. CBI involves teaching an individual to perform in the presence of naturally occurring variations of initiating stimuli, social and physical conditions, materials, and performance consequences. When skills are taught under conditions that are different from those found in natural environments, generalization of the skills from the training environment to the natural environment may be severely limited (Haring, 1988). One of the major goals of CBI is to overcome problems of limited generalization; when training is conducted in criterion environments, no generalization is required. CBI may be used as an alternative or adjunct to classroom instruction.

The following discussion reviews *some* of the advantages and disadvantages to students with severe, multiple handicaps of instruction in segregated, integrated, and community-based environments. The list of advantages and disadvantages is not intended to be exhaustive but merely provides a basis for the discussion that follows. Keep in mind during the discussion that researchers have not used consistent definitions of integrated and segregated classrooms and, as described above, each environment may vary in many different and significant ways. As a result, the research findings in one integrated classroom may not apply to another integrated classroom.

Advantages of Integrated Classroom Instruction

Some of the advantages of integrated classroom instruction are listed below.

(a) Nonhandicapped peers provide normative, social, role models (Brinker & Thorpe, 1984).

(b) Preschoolers having severe handicaps exhibited fewer inappropriate play behaviors in an integrated setting (Guralnick, 1981).

(c) The communication and social skills of students having severe handicaps were enhanced. For example, McHale and Simeonsson (1980) reported that autistic children displayed more self-initiated social interactions after a week of integrated play experiences.

(d) Well organized and structured interactions between nonhandicapped and severely handicapped students can:
   - increase the knowledge of nonhandicapped students about students having severe handicaps (McHale & Simeonsson, 1980), and
   - improve the attitudes of nonhandicapped students toward students having severe handicaps (Voeltz, 1980, 1982).

The key to successful integration is structured interactions between students with handicaps and nonhandicapped students (Hanline & Murray, 1987). For example, peer tutors (Noonan & Hemphill, 1984) can teach students with severe handicaps to respond appropriately to a social greeting, to play an age-appropriate game, or to make a purchase at a neighborhood store. A special friend (may involve special training [Campbell, 1989]) focuses more on social interactions than on formal instruction (Hanline & Murray, 1987). Voeltz et al. (1983) have published a Special Friends Training Program. Noonan and Hemphill (1984) claimed that peer tutoring establishes an inequitable relationship in which the tutor has control and the tutee is a passive recipient; once established, the relationship is difficult to change to a reciprocal relationship. In social prompting, nonhandicapped students are trained to initiate interactions with students having severe handicaps to engage in appropriate behavior (Campbell, 1989). Cooperative learning has also been used to enhance participation (Gaylord-Ross, 1989). In this approach, students with various levels and types of abilities are organized into groups so that different students, working toward a common goal, engage in different subtasks according to their abilities.

Disadvantages of Integrated Classroom Instruction

Some of the disadvantages of integrated classroom instruction are listed below.

(a) Hill and Whiteley (1985) found that in integrated classrooms (levels, K, 3, and 6), the nonhandicapped students interacted predominantly with each other, while students with severe handicaps interacted primarily with staff. As was mentioned earlier, it is necessary to arrange structured interactions between nonhandicapped students and those having severe handicaps.

(b) Although normative forms of behavior may be modeled in integrated environments, students with severe handicaps may have difficulty learning from variable, incidental, and relatively unstructured circumstances that children commonly exhibit in natural settings. Alternatively, if a student with severe handicaps does learn from these relatively nonstructured, incidental circumstances, could the student learn more efficiently from highly structured, instructional conditions, specially designed to fit his or her needs? Specific interventions may be required to enhance imitation of behavior modeled by nonhandicapped peers (Certo, Haring, & York, 1984).

(c) Generally, the regular education teacher and the teaching aide have few, if any, of the specialized skills required to teach a student having severe and multiple handicaps.

(d) Although each student with severe handicaps can participate "in some manner" in any curriculum, for example, "point to the red one" during an advanced chemistry class, the type of participation may not lead to the acquisition of skills that would be functional in the natural environment; there may be little demand for pointing to the red chemical in the natural environment. In addition, given the characteristic difficulty students with severe handicaps have generalizing skills from one set of conditions to another (Haring, 1988), the ability to point to the red chemical may not generalize to the discrimination of red traffic lights. In general, the more intellectually handicapped a student, the lower the likelihood that skills acquired in one environment will be performed acceptably elsewhere (Brown et al., 1983). School instruction alone is not likely to result in the acquisition of skills that will be performed acceptably in nonschool environments (Brown et al., 1983). Given the difficulties with generalization, functional skills should be taught directly in the form in which they must ultimately be performed in the natural environment.

(e) The constraints of the integrated, regular classroom may preclude optimum use of instructional time. For example, Ford and Davern (1989) describe a program in which two hours each morning were devoted to language arts in a second grade classroom. During this period, a portion of time was devoted to independent reading. Tina, a student with severe disabilities, was reportedly beginning to show signs of interest in pictures. Therefore, Tina and a peer chose a book which the peer read to Tina and drew her attention to the pictures. Initially, this activity may appear quite satisfactory. Tina was involved along with a nonhandicapped student in an activity that appears to have instructional merit. However, the value of the activity should be evaluated in view of the response to several questions. What is the relative priority in Tina's life of learning to look at pictures? Is the activity simply a convenient way to involve Tina with little instructional intent? Are there other skills of higher priority that should be taught to Tina during this period of time? How well were the picture viewing skills being taught? There is substantial research data showing that picture viewing among students with intellectual handicaps is a complex and difficult skill to teach (e.g. Travers, & Alvarado, 1970; Zeaman, & House, 1963). Is Tina learning any inappropriate skills related to picture viewing or general instruction?

(f) In a regular classroom, although the curriculum may be chronologically age-appropriate, the majority of skills being taught to the nonhandicapped students will not be functional to students having severe handicaps; the academic skills are not those that will be re-

quired in the individual's life, now or in the future, while those skills that are essential to students having severe handicaps are often not a part of the regular curriculum. Since large parts of a teacher's instruction of nonhandicapped students may not be relevant to students with severe handicaps, these students may be inadvertently taught not to attend to the teacher. Frequently too, time is wasted teaching skills that are not required anywhere but in school.

(g) Given the constraints of the regular classroom environment, the curriculum, the diversity of students, and the schedule, teachers and/or aides may be unable to provide a sufficient number and type of trials to facilitate acquisition, fluency, maintenance and generalization of skills being taught to students with severe handicaps. The more intellectually handicapped a student, the greater the number of direct instructional trials are needed to acquire skills at meaningful performance criteria (Brown et al., 1983). Opportunities should be provided for massed trial training to assist acquisition of difficult skills, distributed practice to enhance maintenance, and the sequencing of skills within naturally occurring sequences of daily activities (Snell & Browder, 1986).

Advantages of Segregated Classroom Environments

Some of the advantages of segregated classroom environments are listed below.

(a) Ideally, a segregated classroom provides a specially trained teacher, skilled in, for example, physical, behavioral, and sensory management, as well as specialized methods of assessment and instruction. There is a low student to teacher/aide ratio. A controlled and adaptable environment, with specialized equipment, provides opportunities for simulation of the natural environment, reduction of distractions, and intensive, individualized instruction.

(b) Ideally, segregated classrooms provide opportunities for group and individual instruction. Students may be given a relatively large number of teaching trials on the same task within a short period of time to achieve acquisition and fluency of skills that are difficult to learn.

(c) Skills of various types may be brought to acceptable levels of performance under controlled conditions before students are introduced to less controlled and less accepting nonschool settings. This approach may be applied to the reduction of serious behavior problems and to an improvement of functional skills. According to Brown et al. (1983) some behavior and some methods of instruction are not appropriate to dental offices, grocery stores, and public washrooms.

Disadvantages of Segregated Classroom Environments

Some of the disadvantages of segregated classroom environments are listed below.

(a) Special education classrooms are, by definition, special. Everything that makes them special makes them different from the conditions found in natural environments. The more differences there are between natural and special environments, the more likely it is that skills learned in the classroom will not be generalized and maintained in natural environments.

(b) When a student is placed exclusively with students who exhibit impaired communication, inappropriate social behavior, and inadequate work-related behavior, and if the student learns by imitation, then these are the behaviors he or she will likely learn.

(c) Although students may learn specific vocational s[illegible] n segregated classrooms, there is ample evidence (Chadsey-R[illegible]86; Walker & Calkins, 1986) to demonstrate that they may not [illegible]e subtle social skills required to be successful in vocational pla[illegible]nts. The subtle and pervasive skills of selecting the right social distance and stance during discussion, of looking at a speaker in an appropriate manner for a suitable period of time, and of nodding and smiling at the right time may not be readily learned in a segregated environment where subtle normative behaviors are not repeatedly modeled. This problem requires additional research.

Advantages of Community-Based Instruction

Some of the advantages of community-based instruction are listed below.

(a) According to Horner, McDonnell and Bellamy, (1986); Nietupski, Hamre-Nietupski, Clancy and Veerhusen, (1986); and Voeltz, (1984), best practice suggests that integrated, community environments provide the most powerful contexts for teaching functional, generalized skills. Students having severe handicaps typically do not generalize learning from an artificial or school setting to real community contexts such as shopping malls, banks, and restaurants (Gaylord-Ross, 198[illegible]; Haring, 1988; Voeltz, 1984). Direct instruction in the actual environments where a student is being prepared to function must be provided (Brown et al., 1983).

(b) One of the goals of community-based instruction is that responses will be cued by naturally occurring stimuli rather than by stimuli provided by teachers (e.g., prompts and requests, Snell & Browder, 1986). Community-based instruction provides students with access to a wide variety of natural reinforcers (Schultz et al., 1984), correction procedures and contingencies, on a continuing basis (Voeltz, 1984). Skill training must be conduced in real-world settings in the presence of nonhandicapped people, with naturally occurring materials, people, and cues (Hamre-Nietupski et al., 1982). A students' community becomes the expanded school environment serving both as the source of curriculum content and as the location for training (Hamre-Nietupski et al., 1982).

(c) McDonnell and Ferguson (1988) found that students with severe handicaps (11-14 years of age) who received general case, in-vivo instruction required fewer training trials to criterion, made fewer errors, and required less training time than did students who received general case simulation training plus in vivo training. In addition, the overall costs of the general case, in-vivo instruction were lower than those of the general case simulation plus in-vivo training. The results of the study indicated that both general case, in-vivo and general case simulation plus in-vivo training were effective in producing generalized performance. The data are consistent with previous studies showing that traditional classroom instructional formats or formats that simulate natural settings, used in isolation, do not lead to generalized performance in community settings (McDonnell & Ferguson, 1988).

(d) The presence of numerous nonhandicapped models in the community provides opportunities for observational learning, as well as an opportunity to change community attitudes toward persons with handicaps (Schultz et al., 1984).

(e) After extensive experience in a community-based program in Iowa, Hamre-Nietupski et al. (1982) concluded that community-based instruction is suitable for students having moderate to severe handicaps.

Disadvantages of Community-Based Instruction

Hamre-Nietupski et al. (1982) have described six common barriers to the establishment of community-based instruction and have offered suggestions for overcoming each barrier. Three of these barriers and the related recommendations are described below.

(a) *Limited staff.* Community-based instruction requires a teacher to pupil ratio of from 1:1 to 1:4 depending on the complexity of the skills and the functional level of the students. Hamre-Nietupski et al. (1982) suggested that variations in traditional staffing should be considered. For example, team teaching could be used to relieve individual teachers from the classroom to permit them to conduct intensive community training with a small number of students. In addition, other support staff, for example, occupational and speech therapists, as well as art and music teachers, could be employed for instruction. For instance, a speech therapist could conduct speech therapy in natural community environments. In addition, volunteers, peer tutors, senior citizens, and college students could assist instruction.

(b) *Transportation.* Transportation could be costly and inconvenient in community-based instruction. Hamre-Nietupski et al. (1982) suggest that these problems may be reduced by delivery of students directly to a community placement rather than delivery to school before going to the community; by using placements located a short distance from

the school (community group homes and student homes); by having parents provide transportation; and by having the bus company provide free transportation during off hours.

(c) *Scheduling.* Concern is sometimes expressed that community-based training of functional skills will reduce the amount of time taken to train traditional academic skills. Hamre-Nietupski et al. (1982) suggested that this problem could be overcome through incorporation of regular curriculum content into domestic living, general community, and vocational training.

(d) Complex and changing community environments may not be suitable for initial instruction; less complex, more controlled, and stabilized conditions may be required for early skill instruction.

(e) Community environments may not be suitable for some types of instruction. Natural conditions may not provide enough opportunities to practice a skill during the acquisition and fluency stages of instruction. Massed trial practice may not be possible. In the general community, some types of instruction may appear curious and quite stigmatizing.

(f) Some commonly exhibited behavior of persons with severe handicaps may prevent participation in various community environments, may result in stigmatization, and may interfere with performance. Most or many of these behavior can be replaced with more acceptable behavior before individuals are introduced to community-based instruction.

An Alternative: Multiple Environment Instruction

It is apparent that each instructional environment, integrated, segregated, and community-based, has significant advantages and disadvantages. Rather than consider exclusively one environment over the others, benefit may be derived from combining the advantages of all three instructional environments. According to Brown et al. (1983), it is obvious that students with severe handicaps benefit most when provided direct and systematic instruction in both school and nonschool environments.

The U.S. Education for All Handicapped Children Act (EAHCA, 1975) and Section 504 of the Rehabilitation Act require provision of services in least restrictive settings. The Act states that handicapped children should be educated with nonhandicapped children to the maximum extent possible (Schultz et al., 1984). Gent and Mulhause (1988) pointed out that, to date, the judicial interpretations of the EAHCA contain no expressed or implied requirement that schools maximize the potential of children with disabilities; the emphasis is on equal access (Gent & Mulhause, 1988). Where students are placed seems to be the primary criterion for determining the least restrictive environment, rather than considering what transpires after a placement has been made (Donder & York, 1984).

Rather than choose between integrated or segregated instruction, Brinker and Thorpe (1984) suggested seeking a balance between access to the opportunities of the everyday, social world and access to specialized services not typically found in regular school environments that may be necessary for optimal development of handicapped individuals. Schutz et al. (1984) recommended that direct instruction and skill performance evaluation should be conducted in a variety of integrated community settings. It appears that public schools and community settings, in general, should be considered jointly as less restrictive settings for the provision of appropriate educational services to persons with severe handicaps.

Brinker and Thorpe (1984), after studying 245 severely handicapped students (ages 3-22), integrated to various degrees in 14 sites (13 school districts), concluded that

> clearly, many IEP goals required specialized teaching in settings uniquely designed for severely handicapped individuals. Such settings often require one-to-one instruction to establish basic skills in very limited behavioral repertoires. No one doubts the necessity for such individualized, specialized, educational techniques for educating severely handicapped students. The present results suggest that integration can be an addendum to *individualized specialized, educational settings* and that integration can have positive educational benefits. (p. 173, italics added)

In the previous paragraph, the words *individualized, specialized, educational setting* draw attention to an important consideration. Although there are advantages to both segregated and integrated *classrooms*, perhaps a classroom, whether segregated or integrated, is not the ideal place to provide instruction. What is needed is an *individualized, specialized, educational setting* which may be quite different from a classroom. Depending on the outcomes, placement of a student with severe handicaps in a regular *classroom*, with nonhandicapped peers, may be quite inappropriate.

Making Decisions About Instructional Placements

Given the evidence available, the following recommendations appear justified.

(a) Determining individual instructional goals in various current and likely future domains is prerequisite to the selection of optimum instructional environments.

(b) Selection should be made of the least restrictive and *most effective* instructional *environments*, and the least intrusive *and most effective* forms of *intervention*. It follows that, if *effective* programming can be provided in an integrated environment (not necessarily in a classroom), then placement in a segregated environment is inappropriate.

(c) Alternatively, persons with severe handicaps who cannot be served effectively in integrated environments, even with adaptations, should have temporary access to specialized, individualized, controlled, and adaptable environments (including equipment, personnel, and techniques) for instruction of specific, functional skills, designed to permit

the students to adapt to the least restrictive environments, to the maximum extent possible, at the earliest opportunity.

(d) To the maximum degree possible, instruction should be provided in the environments (e.g., shopping centers, community buses, supermarkets, public bowling alleys, swimming pools, and homes) where the skills being taught are ultimately expected to be performed

(e) To the maximum extent possible (based on an evaluation of instructional effectiveness) a variety of activities (recreational, social, and educational) should be conducted in the presence of nonhandicapped persons. Wherever necessary and possible, well organized and structured interactions should be arranged between nonhandicapped persons and students with severe handicaps.

(f) The least restrictive, most effective, instructional environment should be selected based on the results of testing the individual's actual performance in less restrictive environments. It cannot be assumed that an individual who behaves inappropriately in one environment will also behave inappropriately in another, less restrictive environment (Brown et al., 1983).

(g) Various *combinations* of *individualized, specialized, educational settings*, integrated, instructional environments, and community-based instruction may be appropriate to individual students at various times depending on the specific skills being taught, the stage of learning, and the effectiveness of instruction.

Evaluating Instructional Placements

Given the evidence available, a number of general considerations should be made in evaluating instructional programs in which persons with severe handicaps may be placed. Note that all of these criteria are not of equal importance. The importance of any consideration is relative to a number of variables such as the age and functional level of the student; the number, nature, and extent of his or her handicaps; the number and type of skills mastered; and the number and type of skills targeted for instruction.

(a) The programs should optimize the amount of time the student is involved in a meaningful way with the environment (e.g., other people, objects, and events).

(b) The program should provide individualization of goals, instructional methods, materials, and schedules.

(c) The program should provide for social accessibility. There must be opportunities for frequent and varied social, recreational, and task-related interactions with a variety of nonhandicapped persons, both chronological-age peers and people of various ages, playing a variety of roles in the public domain. Subtle, social behavior (e.g., social orienting [eye contact], social distance, and social responsiveness [e.g., nods and smiles]) should be taught directly and through incidental modeling.

(d) The curriculum should provide instruction in a suitable blend of functional skills: (a) recreational, vocational, communication, social, and academic skills required by the students; and (b) contemporary and likely future environments: residential, community, instructional, and vocational.

(e) The curriculum should teach skills permitting each student to perform as normatively, independently, and chronologically age-appropriately as possible in an optimum number and type of integrated environments.

(f) Curriculum content should not be selected from a normative developmental sequence, but from an ecological inventory and task analysis of the functional tasks students are required to perform in their contemporary and likely future residential, community, home, vocational, and educational environments.

(g) Instructional methods should:
- teach an optimum number and type of skills in the most effective manner, for example, requiring the least amount of personnel and student time, effort and expense;
- be personally cost-effective. That is, the amount of time and effort put into teaching and learning skills should be in proportion to the relative functional value of the skills to the particular student (Brown et al., 1983);
- be based on a continuous evaluation of the acquisition, fluency, generalization and maintenance of skills;
- teach skills in the least intrusive, most positive, and most effective manner possible;
- provide opportunities for massed trial training to assist acquisition of difficult skills (those requiring more training trials for mastery than other steps in a chain) and distributed practice to enhance maintenance (Snell & Browder, 1986);
- teach functional skills directly in the form in which they must eventually be performed in the natural environment;
- teach functional skills in the variety of natural environments in which they must eventually be performed;
- teach combinations of various functional skills in the natural sequences in which they characteristically occur in the natural environment, for example, in combination, teach the social language, motor and academic skills required to make a purchase in a corner store (Brown et al., 1983);
- compensate for motor, and sensory handicaps to permit optimum reception and expression of information and affect;
- test for generalization and maintenance of skills in the environments in which they must eventually be performed; whether skills are initially taught in segregated or simulated conditions, ultimately, sufficient practice must be provided

under the usual variation of naturally occurring conditions (Brown et al., 1983), and

- define the minimum acceptable standards of skill performance based on normative comparison of acceptable performers in natural environments (Snell & Browder, 1986).

(h) The transdisciplinary model of service delivery should be employed so that there is ready and continuing access, as required, to the skills, techniques, consultative services, and direct intervention of specialized personnel such as physical, occupational and speech therapists, psychologists, and medical personnel who work in coordination with the teacher.

In Chapter 4 of this volume, the author describes a "Guide to the Development and Evaluation of Community-Based Instruction."

References

Brinker, R.P., & Thorpe, M.E. (1984). Integration of severely handicapped students and the proportion of IEP objectives achieved. *Exceptional Children, 51*, 168-175.

Brown, L., Nisbet, J., Sweet, M., Donnellan, A., & Gruenewald, L. (1983). Opportunities available when severely handicapped students attend chronological, age-appropriate regular schools. *Journal of the Association for Persons with Severe Handicaps, 8*(1), 16-24.

Brown, L., Nisbet J., Ford, A., Sweet, M., Shiraga, B., York, J., & Loomis, R. (1983) The critical need for non-school instruction in educational programs for severely handicapped students. *Journal of the Association for Persons with Severe Handicaps, 8*(3), 71-77.

Campbell, P.H. (1989). Students with physical disabilities. In R. Gaylord-Ross (Ed.), *Integration strategies for persons with handicaps*. Baltimore: Brookes.

Certo, N., Haring, N., & York, R. (1984). *Public school integration of severely handicapped students: Rational issues and progressive alternatives*. Baltimore: Brookes.

Chadsey-Rusch, J. (1986). Identifying and teaching valued social behavior. In F. Rusch (Ed.), *Competitive employment issues and strategies*. Baltimore: Brookes.

Donder, D.J., & York, R. (1984). Integration of students with severe handicaps. In N. Certo, N. Haring, & R. York (Eds.), *Public school integration of severely handicapped students*. Baltimore: Brookes.

EAHCA (1975). *Education for All Handicapped Children Act* 612(5) as amended by 20 U.S CA 412(5) (B).

Ford, A., & Davern, L. (1989). Moving forward with school integration: Strategies for involving students with severe disabilities in the life of the school. In R. Gaylord-Ross (Ed.), *Integration strategies for persons with handicaps*. Baltimore: Brookes.

Gaylord-Ross, R. (Ed.). (1989). *Integration strategies for persons with handicaps*. Baltimore: Brookes.

Gent, P.J., & Mulhause, M.B. (1988). Public integration of students with handicaps Where it's been, where it's going, and how it's getting there. *Journal of the Association with Persons with Severe Handicaps, 3*(13), 188-196.

Guralnick, M.J. (1981). The social behavior of preschool children at different developmental levels: Effects of group composition. *Journal of Experimental Child Psychology, 31*, 115-130.

Hamre-Nietupski, S., Nietupski, J., Bates, P., & Maurer, S. (1982). Implementing a community-based educational model for moderately/severely handicapped students: Common problems and suggested solutions. *Journal of the Association for Persons with Severe Handicaps, 7*(4), 38-43.

Hanline, M.F., & Murray, C. (1987). Integrating severely handicapped children into regular public schools. *Phi Delta Kappan, 66*, 273-276.

Haring, N.G. (1988). *Generalization for students with severe handicaps: Strategies and solutions.* Seattle: University of Washington Press.

Hill, C.A., & Whiteley, J.H. (1985). Social interactions and on-task behavior of severely multihandicapped and non-handicapped children in mainstreamed classrooms. *Canadian Journal for Special Education, 2,* 199-210.

Horner, R.H., McDonnell, J.J., & Bellamy, G.T. (1986). Teaching generalized behavior: General case instruction in simulation and community settings. In R.H. Horner, L.M. Meyer, & H.D. Fredericks (Eds.), *Education of learners with severe handicaps: Exemplary service strategies.* Baltimore: Brookes.

McDonnell, J.J., & Ferguson, B. (1988). A comparison of general case in vivo and general case simulation plus in vivo training. *Journal of the Association for Persons with Severe Handicaps, 13*(2), 116-124.

McHale, S., & Simeonsson, R. (1980). Effects of interaction on non-handicapped children's attitudes toward autistic children. *American Journal of Mental Deficiency, 85,* 18-24.

Nietupski, J., Hamre-Nietupski, S., Clancy, P., & Veerhusen, K. (1986). Guidelines for making simulation an effective adjunct to in vivo community instruction. *Journal of the Association for Persons with Severe Handicaps, 11*(1), 12-18.

Noonan, M.J., & Hemphill, N.J. (1984). Comprehensive curricula for integrating severely disabled and non-disabled students. *Focus on Exceptional Children, 17,* 1-11.

Schutz, R.P., Williams, W., Iverson, G.S., & Duncan, D. (1984). Social integration of severely handicapped students. In N. Certo, N. Haring, & R. York (Eds.), *Public school integration of severely handicapped students.* Baltimore: Brookes.

Snell, M.E., & Browder, D.M. (1986). Community-referenced instruction: Research and issues. *Journal of the Association for Persons with Severe Handicaps, 11*(1), 1-11.

Travers, R.M., & Alvarado, F. (1970). The design of pictures for children in elementary school. *AV Communication Review, 18,* 47-64.

Voeltz, L.M. (1980). Children's attitudes toward handicapped peers. *American Journal of Mental Deficiency, 84,* 455-464.

Voeltz, L.M. (1982). Effects of structured interactions with severely handicapped peers on children attitudes. *American Journal of Mental Deficiency, 86,* 380-390.

Voeltz, L.M. (1984). Program and curriculum innovations to prepare children for integration. In N. Certo, N. Haring, & R. York (Eds.), *Public school integration of severely handicapped students.* Baltimore: Brookes.

Voeltz L., Hemphill, N.J., Brown, S., Kishi, G., Klein, R., Fruehling, R., Levy, G., Collie, J., & Kube, D. (1983). *The Special Friends program: A trainer's manual for integrated settings.* Honolulu: University of Hawaii/Manoa.

Walker, H., & Calkins, C. (1986). The role of social competence in the community adjustment of persons with developmental disabilities: Processes and outcomes. *Remedial and Special Education, 7,* 46-53.

Zeaman, D., & House, B. (1963). The role of attention in retardate discrimination learning. In N.R. Ellis (Ed.), *Handbook of mental deficiency.* New York: McGraw-Hill.

Chapter 2
Community-Based Instruction: Its Origin and Description

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The author begins by putting community-based rehabilitation and community-based instruction in an historical perspective by describing a number of influential social, political, legal, technological, and philosophical factors that have shaped contemporary special and regular education. The characteristics of community-based instruction, community-based curricula, and community-based IEPs are discussed in detail, as are methods for developing and implementing community-based instruction. Instructional techniques, ecological inventories, discrepancy analyses, and methods for rating the relative importance of skills are reviewed. The author also discusses practical and logistical issues related to community-based instruction, as well as the need for effective team work among parents, teachers, and therapeutic personnel in establishing and conducting effective, individualized, community-based instruction Guidelines for community-based research are also discussed.

Community involvement in rehabilitation has a long history. The best known example is that of Gheel, in Belgium, where, since the fifth century, as a therapeutic measure, citizens have accepted into their homes people with mental illness (Burggraeve, 1867). However, for a long period of time, the concept of community-based intervention in rehabilitation remained an isolated alternative, and usually less humane options have been used that excluded the handicapped from the life of the community, and severely restricted their contacts with nonhandicapped members of society.

Not until the 1980s and 1990s have Community-Based Rehabilitation (CBR) and Community-Based Instruction (CBI) become buzzwords in education and health as methods of service delivery to persons with handicaps. Both of these concepts are closely interrelated; one was coined by health professionals, the other by special educators.

The roots of community-based instruction tap philosophies, trends, and technology, developed and popularized during the last three decades, revitalizing attitudes toward the handicapped, their rights, and their place in society. A number of clearly identifiable factors have contributed to this

revolution, among them are: (a) the philosophy of normalization (Bank-Mikkelsen, 1969; Wolfensberger, 1972); (b) the emphasis on consumerism; (c) deinstitutionalization; (d) demedicalization; (e) the black and women's civil rights movements; (f) legislation mandating education for all children; (g) international policy statements; (h) the spread of physical and instructional integration; (i) the introduction of community-based rehabilitation in developing countries; (j) the development and spread of behavioral technology and research; (k) better understanding of the nature of the learning process of the handicapped student, and (l) the expressed desire of the handicapped for paid employment, productive work, and independent living in the community. All these factors have contributed directly to radical changes in the manner of thinking about and delivering educational and health services to people with handicaps. A new era in special and regular education has evolved.

The philosophy of normalization, as defined by Bank-Mikkelson (1969), formed the core of society's changing attitudes toward handicapped people by permitting persons with mental handicaps to live in proximity to, and in a manner similar to, the rest of the *normal* population. The emphasis on consumerism in the 1960s enabled persons with handicaps to question existing methods of service delivery and to advocate alternative options. No longer clients, but consumers, people with handicaps gained the right to validate alternative methods of service delivery and to select and use their own options to live independently (Budde & Bachelder, 1986).

The resulting deinstitutionalization, demedicalization, and deprofessionalization allowed educators and paraprofessionals to assume greater responsibility for preparing the individual with handicaps for normalized community living. Low-cost, *user-friendly*, neighborhood rehabilitation schemes emerged and community placement became a primary goal of education, health, and social welfare.

The black and women's civil rights movements also highlighted the lack of civil rights of other minority groups, including persons with severe handicaps. The rights of the handicapped to equality was considerably strengthened and promoted by legislation in the United States, such as Public Law 94-142, the Education for All Handicapped Children Act (Public Law, 94-142, 1975) and its amendments P.L. 99-457, the Education of the Handicapped Amendments Act (Public Law 99-457, 1986), mandating integration of students with severe handicaps with nonhandicapped peers. In Canada, provincial school acts and policy papers advocated education for all and the integration of students with handicaps into the mainstream of school life.

School integration, the placement in age-appropriate neighborhood and community schools and classrooms (Grenot-Scheyer, Coots, & Falvey, 1989), including physical, functional, social and societal integration, is seen as crucial for students to learn to function together and become inter-

dependent and productive members of their community (Voeltz, 1983). The strong commitment during the 1980s toward providing instruction in the most enabling, least restrictive environments resulted from serious concerns about the efficiency of segregated settings. It was apparent that placement decisions were often made on the basis of philosophy and opinion rather than on substantial evidence (Baine, 1990).

Community-Based Rehabilitation (CBR), conceived by the World Health Organization (1982) as part of the program, Health for All by the Year 2000, further demystified the rehabilitation process and linked it to primary health care for handicapped people in developing countries. CBR is based on the political premise that communities must share responsibility for the (re)habilitation of their handicapped members to enable them to participate fully in the life of the community. CBR builds on the resources of the community, including those of people having disabilities. The aim of community-based rehabilitation is to train people having handicaps to adapt to their environments and interact with society as a whole, to facilitate their social integration, and change the attitudes of society toward people having disabilities (Swedish Institute for the Handicapped, 1989).

Two major principles form the basis of CBR: (a) that it is more important to bring about small improvements among the masses than to provide high standards of care for a privileged few, and (b) that paraprofessionals can deliver crucial services (O'Toole, 1989). An experimental manual on rehabilitation and disability prevention for developing countries, written in simple language with illustrations, was published (Helander, Mendis, & Nelson, 1979). The manual had three basic features: (a) focus on community involvement, (b) use of simplified rehabilitation technology, and (c) service delivery (Helander, 1984). The revised edition of the manual is entitled *Training in the Community for People with Disabilities*. The World Health Organization (1982) described CBR as an "effective, feasible and economically viable approach to provide the most essential rehabilitation services" (p. 83) to disabled people who were not otherwise receiving services. The manual is aimed at community-based workers: health care workers, teachers, rehabilitation workers, and so forth. CBR has become part of the grassroots struggle for equal rights and opportunities for the disabled with a high potential for reducing disabling conditions and promoting integration (Nabuzoka, 1991). The strategy was initially tested in nine countries; by 1984, 25 countries had introduced CBR. It was recognized that many existing resources could be mobilized through existing structures to reach the majority of the disabled population.

International policy statements on human rights such as the Rights of the Mentally Retarded (U.N., 1971), and the Rights of Disabled Persons (U.N., 1975) emphasized the right of handicapped people to full participation in their communities. The International Year for Disabled Persons (IYDP) had three main goals: (a) full participation and equality, (b) social

integration, and (c) solidarity, focusing world attention on improving the quality of life for the handicapped. The movement of self-advocacy took on an international character in 1981 when the Disabled People International (DPI) was officially inaugurated.

To accomplish normalization and successful community living, educational techniques were needed to teach necessary adult living skills. Applied behavior analysis provided a finely tuned technology for influencing behavior change, for documenting the impact of intervention, and for assessing individual accomplishments and learning outcomes.

The education of severely handicapped students often consisted of teaching a variety of isolated skills or skill clusters in the hope that these skills would increase the students' independence in various environments (Rainforth & York, 1987). However, these programs had limited success because students having severe handicaps characteristically learn slowly, integrate and generalize information poorly, and forget unused and unreinforced skills (Brown, Ford, et al., 1983; Haring, 1988). In general, the more severe the cognitive handicaps, the less likely students will be able to transfer skills from one environment to another (Brown, Nisbet, et al., 1983). Research has shown that generalization is best achieved when natural teaching cues and reinforcement are used and when target behaviors are taught in the setting in which they will be required (Stokes & Baer, 1977). It has been further demonstrated that students learn more effectively, and maintain and generalize functional skills better when taught with real materials in the actual settings where these skills are to be performed (Storey, Bates, & Hanson, 1984) when compared with training in simulated settings such as classrooms (Nietupski, Hamre-Nietupski, Clancy, & Veerhusen, 1986). Preliminary research supports the effective teaching of functional skills to students having severe handicaps in natural settings, using systematic instruction (Giangreco, 1986).

Community-Based Instruction

Community-based instruction is an educational method providing instruction in the natural environments frequented by students, their families, and by nonhandicapped peers. The approach focuses on the acquisition of functional skills. This method of teaching emphasizes the environment as an important variable in social adaptation (Landesman-Dwyer, Berkson, & Romer, 1979). Normalization of one's environment contributes to the maximization of individual abilities, enhances adaptive functioning in the community, and improves the quality of life (Hull & Thompson, 1980). Community-based instruction is a recognition that community environments provide the most powerful settings for teaching functional skills to severely handicapped students who have difficulty transferring skills from an artificial to a natural environment (Haring, 1988). Community-based instruction allows students to learn the natural consequences of appropriate

and inappropriate behaviors within community environments in order to become active members of their community.

Community-based instruction is built on the following premises.

(a) Persons who have severe/profound disabilities learn better in natural environments than they do in simulated ones (Schalock, 1983).
(b) Institutionalized adults who participate in community experiences will make an easier transition to the community.
(c) With assistance, many elderly and physically handicapped persons can live independently.
(d) Community experiences and community living will assist severely handicapped persons to become contributing members of their community.

What are the Salient Characteristics of Community-Based Instruction?

Community-based instruction is individualized and uses antecedent and consequential teaching procedures to accentuate naturally occurring stimuli to cue student responses. Community environments offer a great variety of natural cues to which students can make correct, incorrect, or no responses. A correct response is strengthened by the naturally occurring consequences. If an incorrect response or no response is made, the teacher intervenes. To minimize incorrect responding, Ford and Mirenda (1984) suggested that teachers adopt the following approach.

(a) Identify errors made in the community environment attributable to failure to respond to natural cues.
(b) Decide whether to allow natural correction to occur; determine whether it endangers the safety of the student and whether it occurs with sufficient magnitude and immediacy to be considered an educationally sound instructional procedure.
(c) Select relevant natural cues and their salient features.
(d) Determine teaching and reinforcement procedures to use in the natural environment.
(e) Fade instructional cues.

Effective community-based instruction utilizes the techniques of behavior analyses with special attention to: stimulus control, reinforcement, fading, shaping, chaining, and evaluation. These procedures, briefly described below, are more fully discussed in Snell (1987), *Systematic instruction of persons with severe handicaps.*

Stimulus control. Stimulus control has been achieved when there is a high probability that a particular response will occur in the presence of a particular antecedent stimulus (Sulzer-Azaroff & Mayer, 1977). Stimulus control is most effective when natural antecedent cues are being used. Teachers identify natural cues and direct student attention to relevant natural stimuli. The selection of natural cues should enhance generalization (Stokes & Baer, 1977). Since most severely handicapped students have

difficulty in selectively attending to relevant and salient visual cues (Krupski, 1979), the salience of the cue may need to be increased (Miller, 1979). Within-stimulus prompting accentuates the critical features of the natural cue (e.g., brightly coloring hot and cold symbols on faucets), while extra-stimulus prompting adds a topographically different cue (e.g., pointing a finger to hot and cold symbols on faucets, Wolf & Cuvo, 1978).

Antecedent teaching procedures involve minimizing the probability of error response (errorless learning, Terrace, 1963) by giving sufficient information in the form of verbal cues, modeling, gestures, or physical prompts to ensure correct responding. Consequential teaching procedures focus on correction once the incorrect response or no response had been made. The *increasing assistance approach* (Csapo, 1981) applies a hierarchy of corrective procedures from natural cue stimuli to full physical assistance. The most frequently used prompting and fading procedure is the least-to-most intrusive prompt hierarchy for each response (Storey et al., 1984). Transfer of stimulus control from instructional to natural cues is usually achieved by reinforcing more and more independent performance.

Reinforcement. If artificial reinforcers are used, nonstigmatizing procedures for dispensing them in the community setting should be employed (Mesaros, 1982). Reinforcers that are natural to the behavior and to the environment in which the behavior occurs have to be identified. Self-reinforcement might be especially suited to community-based instruction.

Fading. Fading involves the gradual decrease of prompting as a student reaches mastery level of performance. Fading may be achieved by increasing the amount of time between natural and instructional cue, and withdrawing of teacher presence.

Shaping. Shaping involves differential reinforcement of successively closer approximations of instructional goals. Shaping is used when: (a) it is not possible to achieve a behavior change directly through instruction; (b) when the required change in behavior (frequency, intensity, duration or topography) is too great to achieve in one step; or (c) when the required change is likely to evoke an aversive response from the learner. Thus, behavior change is made through a series of small steps.

Chaining. Chaining entails analyzing a target behavior into its component parts. The parts are taught and linked together using several different methods for chaining: (a) forward and (b) reverse chaining, and (c) total task presentation.

Evaluation. Finely calibrated data collection techniques, for example precision teaching, allow teachers to monitor the effectiveness of their intervention plans and to make educational decisions based on data.

What are the Major Characteristics of Curricula of Community-Based Instruction?

The source of curricular content and the location for training is provided by the expanded school environment (Hamre-Nietupski, Nietupski, Bates

& Maurer, 1982), rather than the normative developmental sequence (Baine, 1990). Curricula must be individualized, chronologically age-appropriate, functional, ecologically valid, facilitative of the development of the skills necessary for successful participation in a variety of environments shared by nonhandicapped peers, and prepare students for transition from school environments to adult living and work environments (Sailor & Guess, 1983). The instructional focus is on daily, living skills promoting independence and interdependence in an integrated community setting (Brown, Branston, et al., 1979).

The curricular content for individual students, organized in a written Individualized Education Plan (IEP) required by and described in PL 94-142 and several provincial statutes, includes:

(a) the student's current level of performance;
(b) annual educational goals and short-term instructional objectives;
(c) provision of special services and their duration;
(d) the extent to which the student will participate in regular educational programs; and
(e) evaluation procedures to determine the effectiveness of teaching.

To reflect the principles of community-based instruction, Brown et al. (1980) added the following requirements to student IEPs:

(a) provision of opportunities to interact with nonhandicapped peers;
(b) goals and objectives directed toward the performance of chronological age-appropriate functional skills in natural environments;
(c) inclusion of parents in the educational program of their child;
(d) functionally relevant procedures for assessment of existing and needed skill repertoires;
(e) strategies for selecting instructional skills;
(f) description of how several handicapped students might be taught age-appropriate skills; and
(g) clearly articulated performance criteria (p. 202).

Also added to the IEP are ITPs (Individualized Transition Plans) providing instruction of skills needed for transition into adult life. Transition programs teach skills needed by students to function independently in domestic, leisure/recreational, community/mobility, community/consumer, and vocational domains.

When making a curricular decision about functional activities, a number of questions need to be answered.

(a) *What* activities should be taught? Ecological and student repertoire inventories provide the answers.
(b) *Why* should the activity be taught? Reasons for teaching an activity and the potential consequences for not teaching it need to be considered.
(c) *How* should it be taught? Appropriate instructional arrangements (cues, corrections, a hierarchy of reinforcers, and prompting and fading procedures) need to be identified.

(d) *What performance criteria* should be taught? Performance criteria are usually based on latency, rate, and/or duration of responses.
(e) *What materials* should be used? Natural rather than artificial materials should be selected.
(f) *What measurement strategies* should be used? The maximum amount of evaluative information with the least amount of disruption in teaching should be sought (Falvey, 1989).

How to Assign Priority to Curricular Items

Brown, Branston-McClean, et al. (1979) advised that when developing curricular priorities, the following considerations should be made:
(a) information and input from the student and his/her family;
(b) functional nature of the skills;
(c) the number of current and subsequent environments where the skills are needed;
(d) skills that will be used with high frequency;
(e) social significance of the skills;
(f) skills that minimize potential physical harm;
(g) logistical and practical realities and complexities of a skill; and
(h) the chronological age-appropriateness of a skill.

Curricular content is selected from an ecological inventory and task analysis of the functional skills required in present and future residential, home, community, vocational, educational, social, and recreational environments.

Ecological inventory. The ecological inventory, as an assessment tool, attempts to identify: (a) the natural environment where a person lives, works, spends his/her leisure time; (b) the activities that occur in those environments; (c) specific skills required for those activities, and (d) discrepancies between current and targeted performance in skills needed to perform those activities (Brown, Branston, et al., 1979).

Discrepancy analysis. Listing sequentially the skills performed by non-handicapped persons in a given environment helps to determine: (a) the skills needed, (b) the order of those skills and (c) the construction of a criterion-referenced assessment tool against which the performance of the severely handicapped student can be measured. The comparison of the performance of the handicapped student against the skills required in the natural environment indicates missing skills to be targeted for instruction.

Family Involvement

Legislation has recognized parent advocacy and the active role of parents in the process of education of their handicapped children. Families should be encouraged to play an active role; the involvement of family members, parents, and siblings as teachers of functional skills in natural home environments not only helps with the maintenance and generalization of skills taught in schools, but also provides the natural setting for the ac-

quisition of domestic, social and recreational skills (Snell & Beckman-Brindley, 1984).

Behaviors are best taught in the settings and at the times when the students are naturally required to perform them. Utilizing student home environments facilitates learning of many functional skills that assist student's functioning within domestic environments. It has been demonstrated that students with severe handicaps acquire functional skills faster when given direct and systematic instruction in both school and out of school environments (Brown, Ford, et al., 1983).

Given an effective technology, parents have learned to manage the behavior of their children with severe handicaps and reduce the additional stress placed on the family by the conditions related to having a child with severe handicaps.

Successful parent-professional relationships require professionals to recognize that the family is the most committed long-term advocate for the child and that every family can be involved in the education of their child with handicaps. Families have valuable information about their children, information necessary for the development of effective educational programs.

What are the Major Areas of Curricular Content?

Persons with severe handicaps need to learn to control their lives if they are to become independent (Budde & Bachelder, 1986). This control allows individual autonomy and decision-making. The ideal of normalized community living requires the learning of adult independent and interdependent living skills needed for community participation: domestic, vocational, and leisure activities.

Domestic skills. The domestic skills curriculum includes self-help, home and neighborhood skills necessary to participate in all aspects of life, including communication skills and practical sexual knowledge (Eshilian, Haney, & Falvey, 1989). Among these skills, social skills and friendship occupy a primary role.

Social skills. The inability to interact in an appropriate, socially acceptable manner with co-workers and supervisors appears to play a major role in involuntary job termination of persons with moderate and severe handicaps (Agran, Salzberg, & Stowitschek, 1987). It would appear that successful social adjustment in any integrated environment is dependent on an individual's social abilities (Chadsey-Rusch, 1986).

Stainback and Stainback (1987) listed the following areas for a basic social skills curriculum:

(a) positive interaction style;
(b) getting the message across;
(c) being reinforcing to others;
(d) initiating thoughtful actions;
(e) being a good listener;

(f) sharing belongings and feelings;
(g) having similar likes and dislikes;
(h) taking the perspectives of others, and
(i) being trustworthy and loyal.

Fostering of friendships between individuals with and without handicaps may facilitate social, psychological, and sociological adjustment. Falvey (1989) listed the following reasons for promoting such friendships:

(a) opportunity to develop, practice, and maintain and receive natural reinforcement for a variety of communicative, cognitive, and social-emotional skills (Field, 1984);
(b) nurturance and support (Berndt & Perry, 1986);
(c) maladjustment in later years is correlated with lack of developing ties with peer groups, and
(d) through friendship, attitudes toward the full integration of the handicapped into the community might be positively influenced (Strully & Strully, 1985).

When instruction occurs in school environments that are used by nonhandicapped peers, the acquisition of social skills, chronological age-appropriate behaviors, and the development of friendships (Certo, Haring, & York, 1984) is greatly facilitated. Furthermore, generalization is promoted in a variety of natural environments, environments that are frequented by nonhandicapped peers (Sailor & Guess, 1983).

Language programming. Independent living relies on successful communication. The philosophy of normalization highlights the need for the provision of language systems to facilitate natural and fluent communication and the acquisition of environmentally cued spontaneous language. Significant progress in teaching the form and structure of language has been made by applying techniques of behavior analysis; however, learners often fail to use the language skills spontaneously and functionally when they acquire them in artificial environments (Halle, 1987). Emphasis should be placed on training in the context where spontaneous language is supposed to occur, in *talking* environments.

When assessing communication skills the following skill areas are observed and carefully analyzed:

(a) receptive understanding;
(b) expressive communication behaviors;
(c) cognitive understanding;
(d) communication functions;
(e) interaction skills;
(f) physical, motor and sensory skills;
(g) augmentative and alternative communication models, and
(h) gestures; common forms of nonverbal communication, and manual signing.

Leisure and recreational skills. When making curricular decisions about chronological age-appropriate leisure skills, the same general questions

about the choice of functional activities need to be answered as in any other area of the curriculum. Plans for generalization of these skills to natural environments have to be developed (Schleien & Larsen, 1986). A student's current skill repertoire of leisure/recreation activities needs to be assessed, compared, and analyzed in relation to the skills of nonhandicapped peers. Learning to access local recreational facilities used by nonhandicapped peers is a necessary step for participation. Learning and practicing chronological age-appropriate leisure activities that involve interactions with nonhandicapped peers is expected to promote the development of friendships.

Employment. Employment is an implied outcome of public education (Wirth, 1983). Employment is often a prerequisite for acceptance of adults in contemporary societies (Bishop & Falvey, 1989). For many young adults with severe handicaps, employment was not an expectation or possibility (Everson & Moon, 1987). Critical employment variables for people with severe handicaps are the same as for nonhandicapped workers: attitude, ability, and the degree of skill performance required for a given job (Kelley & Simon, 1969). To prepare a severely handicapped student for employment, training must begin as early as possible in a student's education. Supported employment is a viable option with job coaching, that is, individualized training at the job site.

Before a decision is made about the type of work to be selected, a functional assessment (job match process) is required:

(a) describing overt skills;
(b) inferring underlying abilities;
(c) predicting future performance;
(d) suggesting instructional strategies; and
(e) determining individual preferences.

Work-place analyses consist of work-site orientation and job-site analysis. The work-site orientation assists the teacher to identify career information about formal and informal policies, practices, and personnel of the business as a whole. The job analysis seeks answers to the following questions:

(a) what the job is;
(b) how it is typically done;
(c) why it is done;
(d) who is involved in doing it, and
(e) what skills and equipment it takes to do it.

Job accommodation can be achieved by: (a) creating a position better suited to a specific individual; (b) altering student characteristics; (c) providing prosthetic devices; or (d) adapting the activity or the environment. Activity adaptation, alterations in the process but not the outcome, may involve altering (a) the sequence skills; (b) the method of performing the activity; (c) the length of time needed for the activity; (d) job descriptions; and (e) provision of aids. Environmental adaptations may include

changing physical characteristics and effecting attitude changes (Falvey et al., 1979).

Rusch and Mithaug (1980) concluded that preparatory vocational training in simulated work environments and with simulated materials does not necessarily prepare a person with severe handicaps for successful functioning in the work-place. Job coaching, training on the work site, and in-vivo training using natural cues, materials, and reinforcement are advocated. There is growing evidence that training severely handicapped persons in community work settings leads to gainful employment, equitable wages, and routine social interaction with nonhandicapped workers (Karan et al., 1986).

The Need for Effective Team-Work

Integration of therapy and community-based instruction promotes the participation of family, various members of the community, special educators, and related services personnel in planning, service delivery, and creating an effective framework within which students can learn successfully (Rainforth & York, 1987). For teamwork to succeed, team members are reminded of the fundamental principles.

(a) All goals and objectives belong to the learner, rather than to individual team members.
(b) All team members are responsible for contributing information and skills that will maximize learner success in accomplishing the goals and objectives.
(c) Each team member has specialized disciplinary methods and skills, many of which can be taught to other team members.
(d) Combining methods from a variety of disciplines allows all team members to address the needs of learners more successfully and in more natural contexts.
(e) Individually selected, meaningful activities are the logical and necessary focus around which team members identify and integrate effective instructional methods for each learner (Rainforth & York, 1987).

Often the integration of related services personnel in IEP development and implementation is limited by poor preservice preparation for teamwork. As a result, stress and logistical problems occur. The integration of the expertise of all team members increases the probability of successful skill acquisition.

Examples of procedures that apply to a community-based team approach.

(a) Conducting an inventory of the environment; one team member investigates; other members review the completed inventory.
(b) Assessing the student; one team member conducts the assessment and observes the student's performance in the community environment; the environmental inventory is used as a criterion-referenced assessment forming the basis for ongoing community instruction.

(c) Establishing priorities for instructional objectives; high ranking objectives become the target of initial instruction within an environment. Each IEP contains instructional objectives that apply to a variety of natural environments.
(d) Developing instructional programs; instructional procedures specify the antecedents, desired learner performance, consequences and data-based evaluation strategies.
(e) Selecting an instructor—usually the teacher.
(f) Exchanging information and skills among team members.
(g) Evaluating and modifying the instructional program (reviewing the data, observation of performance, and hands-on interaction with student).

Flexible scheduling enables related service personnel to participate in designing communication among all staff (Rainforth & York, 1987).

Practical and Logistical Issues Related to Community-Based Instruction.

A number of issues need to be addressed with regard to community-based instruction.

(a) Trained teaching and support personnel to work with developmentally disabled adults and children is a growing concern (Fifield & Smith, 1985). Most of the service is delivered by paraprofessionals who are often poorly paid and poorly trained (Schalock, 1983).
(b) There is a need for financial support for community training. Transportation might be costly and time-consuming, leaving insufficient time for traditional academic skill instruction.
(c) Physical access to various parts of the community requires modifications, often beyond the control of teachers.
(d) Liability insurance and safety issues need to be addressed.
(e) The labor-intensive nature of the instruction, which often relies on a small pupil-teacher ratio (1:1 to 1:4), necessitates innovative ways of meeting staffing needs.
(f) Mobility issues for the nonmobile or those with an extensive motor involvement is a special concern (Snell & Browder, 1986).
(g) The natural community environment might be too complex for early skill acquisition which may require a simplified environment for successful learning.
(h) Inappropriate behaviors exhibited in the community may result in stigmatization (Hamre-Nietupski et al., 1982). Ford and Mirenda (1984) expressed concerns over a potentially negative public response to training minimally skilled individuals in public places. Full support of parents, teachers, and administrators is needed for the effective use of this method.

Need for Research in Community-Based Instruction

Community-based instruction has been effective in teaching receptive language skills to individuals with profound mental retardation; skill generalization has been encouraging (Phillips, Reid, Korabex, & Hursh, 1988). The approach has also been succesful teaching use of public transportation (Welch, Nietupski, & Hamre-Nietupski, 1985); crossing the street (Matson, 1980); buying skills (Gaule, Nietupski, & Certo, 1985); laundromat skills (McDonnell & McFarland, 1988) and a number of job-related skills.

Snell and Browder (1986) pointed to a number of outstanding issues in community-based instruction that are in need of further research, among them:

(a) development of methods to adapt community-based instruction models to rural settings where the community boundaries are more diffuse and nearby commercial areas may not be present;
(b) delineation of the variables influencing the provision of related services within the community-based instructional model (occupational, physical, and speech therapy);
(c) investigation of techniques to improve experimental control and accuracy in measurement and treatment fidelity despite the unintended variance in procedures that may occur in community settings;
(d) development of strategies to safeguard students taught in the community against the increased possibility for natural hazards and social stigma;
(e) comparing various methods of task analyses and their effect on learning while also socially validating the resulting performance;
(f) determining the most effective serial chaining process; and
(g) conducting comparative research to demonstrate the best schedule for warm-up of repetitive trials and error correction.

Research on parent intervention with severely handicapped children needs to focus on: (a) the impact of the family, (b) pre- and post-intervention effects of problem behavior, (c) selection of random subjects, (d) definition of cost-effectiveness, (e) precise procedures of training, and (f) the generalized effects of the intervention on the child as a family member (Snell & Berkman-Brindly, 1984).

Guidelines for community-referenced research. Community-based instruction removes the distinction between researcher, teacher, and other practitioners as good empirical research becomes part and parcel of good instructional practice. Snell and Browder (1986) suggested the following guidelines for the design of community-referenced research having persons with severe handicaps as subjects.

(a) Define the skill selection process used.
(b) Ensure that the skills targeted have both social and empirical validity.
(c) Justify the process used to analyze the skill into teachable behaviors and to order the task for instruction.

(d) Describe and justify the procedures used to present and sequence training trials.
(e) Include a means for teaching the difficult steps.
(f) Incorporate into the reinforcement prompting and error correction methods that yield a high proportion of correct responses, that are socially valid in the community, that have some correspondence to the natural stimuli in the community, and that can be faded.
(g) Measure the targeted skills under realistic, noninstructional conditions in the criterion setting, while also ensuring the client's safety.
(h) Measure the targeted skills frequently enough before, during, and after intervention to draw conclusions about the functional relationship between the intervention and corresponding changes in the behavior, but not so often that learning is impaired.
(i) Identify and measure collateral behavior so that intervention may be expanded or reduced as necessary.
(j) Use and describe measurement and intervention procedures that can be replicated or adapted by a teacher, knowledgable of data-based instruction.
(k) Demonstrate generalization to criterion settings or train in those settings and at those times for which the target skills are intended (p. 8).

Discussion

Community-based instruction is a topic of growing interest in the education of persons with severe handicaps in industrialized countries (Phillips et al., 1988). This method of educational intervention effectively complements the focus of current policies on placing and maintaining persons having developmental disabilities in the community in order to lead a normal life, with required environmental support. Increased life expectancy in developed countries has resulted in an increase of older persons with handicaps (Chornoby & Harvey, 1988). Consequently, they also require community-based instruction to enable them to participate in community living. Access to a variety of structured residential settings are available for these persons (Hauber, Rotegard, & Bruininks, 1985). Community-based instruction may expand their opportunities in community living such as owning or renting homes, and improve their access to community recreational activities, work, and socialization opportunities by removing existing barriers imposed by lack of effective learning opportunities in natural environments.

The changes in educational philosophy and service delivery challenge teachers to increase their creative role in their community and to explore fully all that the natural environment has to offer to assist effective learning. Using empirical methods of experimental analyses of behavior, instruction becomes applied research, finely calibrated to the needs of learners with severe handicaps. These students learn more effectively, that is, acquire, maintain, and generalize functional tasks when taught directly in

the way these tasks must ultimately be performed in actual settings with real materials (Storey et al., 1984) than they do in simulated learning situations in classrooms (Nietupski et al., 1986). Combinations of *individualized, specialized, integrated, and community-based* instruction may be required by individual students in different proportions at different times, depending on the stage of learning, the nature of the skill taught, and the effectiveness of instruction (Baine, 1990). Community-based instruction may be used as an alternative or adjunct to classroom instruction (Baine, 1990).

"Experts" in health care, rehabilitation and education, for many years, have placed restrictions and limitations on their own expectations of what severely handicapped persons can do, can learn, and to what degree they can contribute and participate in the life of the community. The number of these restrictions is declining as the result of changes in professional and public attitudes and national and international policy statements on human rights in many parts of the world. However, these changes are still far from reality in most countries (Thorburn, 1989).

Community-based instruction is an effective technique to prepare severely handicapped learners for successful independent and interdependent membership in the community.

References

Agran, M., Salzberg, C., & Stowitschek, J. (1987). An analysis of the effects of a social skills training program using self-instructions on the acquisition and generalization of two social behavior in a work setting. *Journal of the Association for Persons with Severe Handicaps, 12*(2), 131-139.

Baine, D. (1990). Selecting instructional environments for students having severe multiple handicaps. *B.C. Journal of Special Education, 14*, 120-132.

Bank-Mikkelsen, N. (1969). A metropolitan area in Denmark, Copenhagen. In R. Kugel & W. Wolfensberger (Eds.), *Changing patterns in residential services for the mentally retarded.* Washington, DC: U.S. Government Printing Office.

Baumgart, D., Brown, L., Pumpian, I., Nisbet, J., Ford, A., Sweet, M., Messina, R., & Schroeder, J. (1982). Principle of partial participation and individualized adaptations in educational programs for severely handicapped students. *Journal of the Association for Persons with Severe Handicaps 7*(2), 17-27.

Berndt, T., & Perry, T. (1986). Children's perceptions of friendships as supportive relationships. *Developmental Psychology, 22*(5), 640-648.

Bishop, K., & Falvey, M. (1989). Employment skills. In M. Falvey (Ed.), *Community-based curriculum.* Baltimore: Brookes.

Brown, L., Branston-McClean, M., Baumgart, D., Vincent, L., Falvey, M., & Schroeder, J. (1979). Using the characteristics of current and future least restrictive environments in the development of curricular content for severely handicapped students. *AAESPH Review, 4*, 407-424.

Brown, L., Branston, M., Hamre-Nietupski, S., Pumpian, I., Certo, N., & Gruenewald, L. (1979). A strategy for developing chronological age-appropriate and functional curricular content for severely handicapped adolescents and young adults. *Journal of Special Education, 13*(8) 1-9.

Brown, L., Falvey, M., Vincent, L., Kaye, N., Johnson, F., Ferrara-Parrish, P., & Gruenewald, L. (1980). Strategies for generating comprehensive, longitudinal and chronological age appropriate individual education programs for adolescent and young adult severely handicapped students. *Journal of Special Education, 14*(2), 199-215.

Brown, L., Ford, A., Nisbet, J., Sweet, M., Donnellan, A., & Gruenewald, L. (1983). Opportunities available when severely handicapped students attend chronological age-appropriate regular schools. *Journal of the Association for Persons with Severe Handicaps, 8*, 16- 24.

Brown, L., Nisbet, J., Ford, A., Sweet, M., Shiraga, B., York, J., & Loomis, R. (1983). The critical need for nonschool instruction in education programs for severely handicapped *Journal of the Association for Persons with Severe Handicaps, 8*, 71-77.

Budde, J., & Bachelder, J. (1986). Independent living: The concept, model and methodology. *Journal of the Association for Persons with Severe Handicaps, 11*(4), 240-245 .

Burggraeve, R. (1867). *Etudes ... sur Joseph Guislain.* Brussels: Th. Leseigne.

Certo, N., Haring, N., & York, R. (1984). *Public school integration of severely handicapped students.* Baltimore: Brookes.

Chadsey-Rusch, J. (1986). Identifying and teaching valued social behaviors. In F. Rusch (Ed.), *Competitive employment issues and strategies.* Baltimore: Brooks.

Chornoby, G., & Harvey, C. (1988). Relationship between the housing facility type of aging persons who are developmentally disabled and their activities. *Education and Training in Mental Retardation,* 23(2), 147-155.

Csapo, M. (1981). Comparison of two prompting procedures to increase response fluency among severely handicapped learners. *Journal of the Association for Persons with Severe Handicaps, 6*, 39-47.

Eshilian, L., Haney, M., & Falvey, M. (1989) . Domestic skills. In M. Falvey (Ed.), *Community-based curriculum.* Baltimore: Brookes.

Everson, J., & Moon, S. (1987). Transition services for young adults with severe disabilities: Defining professional and parental roles and responsibilities. *Journal of the Association for Persons with Severe Handicaps,* 12(2), 87-95 .

Falvey, M. (1989). *Community-based curriculum.* Baltimore: Brookes.

Falvey, M., Ferrara-Parish, P., Johnson, F., Pumpian, I., Schroeder, J., & Brown, L. (1979). Curricular strategies for generating comprehensive, longitudinal and chronological age-appropriate functional individual vocational plans for severely handicapped adolescents and young adults. In L. Brown, M. Falvey, D. Baumgart, I. Pumpian, J. Schroeder, & L. Gruenewald (Eds.), *Strategies for teaching chronological age-appropriate functional skills to adolescents and young adult severely handicapped students.* Madison, WI: Madison Metropolitan School District.

Field, T. (1984). Play behavior of handicapped children who have friends. In T. Field, J. Roopnarine, & M. Segal (Eds.), *Friendships in normal and handicapped children.* Norwood, NJ: Ablex.

Fifield, M., & Smith, B. (Eds.). (1985). *Personnel training for serving adults with developmental disabilities.* Logan, UT: Utah State University, Developmental Center for Handicapped Persons.

Ford, A., & Mirenda, P. (1984). Community instruction: A natural cues and corrections decision model. *Journal of the Association for Persons with Severe Handicaps,* 9(2), 79-87.

Gaule, K., Nietupski, J., & Certo, N. (1985). Teaching supermarket shopping skills using an adaptive shopping list. *Education & Training of the Mentally Retarded,* 20(1), 53-59.

Giangreco, M. (1986). Effects of integrated therapy: A pilot study. *Journal of the Association for Persons with Severe Handicaps, 11*(3), 205-208.

Grenot-Scheyer, M., Coots, J. & Falvey, M. (1989). Integration issues and strategies. In M. Falvey (Ed.), *Community-based curriculum.* Baltimore: Brookes.

Halle, J. (1987). *Teaching language in the natural environment: An analysis of spontaneity.* Association for Persons with Severe Handicaps.

Hamre-Nietupski, S., Nietupski, J., Bates, P., & Maurer, S. (1982). Implementing a community-based educational model for moderately, severely handicapped students: Common problems and suggested solutions. *Journal of the Association for Persons with Severe Handicaps,* 7(4), 38-43.

Haring, N. (1988). *Generalization for students with severe handicaps: Strategies and solutions.* Seattle, WA: University of Washington Press.

Hauber, F., Rotegard, L., & Bruininks, R. (1985). Characteristics of residential services for older/elderly mentally retarded persons. In M. Janicki & H. Wisniewski (Eds.), *Aging and developmental disabilities: Issues and approaches.* Baltimore: Brookes.

Helander, E. (1984). *Rehabilitation for all. A Guide to the Management of community-based rehabilitation.* RHB/84. Geneva: World Health Organization.

Helander, E., Mendis, P., & Nelson, G. (1979). *Training the disabled in the community: An experimental manual on rehabilitation and disability prevention for developing countries.* Geneva: World Health Organization.

Helander, E., Mendis, P. & Nelson, G. (1983). *Training Disabled People in the Community.* RHB.83/1. Geneva: World Health Organization.

Helander, E., Mendis, P., & Nelson, G. (1988). *Training disabled people in the community.* RHB.88/1. Geneva: World Health Organization.

Hull, J., & Thompson, J. (1980). Predicting adaptive functioning of mentally retarded persons in community settings. *American Journal of Mental Deficiency, 25,* 253-261.

Karan, D., Brandenburg, S., Sauer, M., Soder, D., Mathy-Laikko, P., Villarruel, F., & Dolan, T. (1986). Maximizing independence for persons who are developmentally disabled: Community-based programs at the Waisman Center University Affiliated Facility. *Journal of the Association for Persons with Severe Handicaps, 11*(4), 286-293.

Kelley, J., & Simon, A. (1969). The mentally handicapped as workers: A survey of company experience. *Personnel, 46*(5), 58-64 .

Krupski, A. (1979). Are retarded children more destructible? Observational analysis of retarded and nonretarded children's classroom behavior. *American Journal of Mental Deficiency, 84,* 1-10 .

Landesman-Dwyer, S., Berkson, G. & Romer, D. (1979). Affiliation and friendship of mentally retarded residents in group homes. *American Journal of Mental Deficiency, 83,* 571-580.

Matson, J. (1980). A controlled group study of pedestrian-skill training for the mentally retarded. *Behavior Research and Therapy, 18,* 99-106 .

McDonnell, J., & McFarland, S. (1988). A comparison of forward and concurrent chaining strategies in teaching laundromat skills to students with severe handicaps. *Research in Developmental Disabilities, 9,* 177-194 .

McDonnell, J., Horner, R., & Williams, J. (1984). Comparison of three strategies for teaching generalized grocery packaging to high school students with severe handicaps. *Journal for the Severely Handicapped, 5*(4), 325-336 .

Mesaros, R. (1982). *Behavioral interventions with autistic children in natural environments.* Paper presented at the Eighth Annual Conference of the Association for Behavior Analysis, Milwaukee.

Miller, P. (1979). Stimulus dimensions, problem-solving and Piaget. In G. Hale, & M. Lewis (Eds.), *Attention and cognitive development.* New York: Plenum Press.

Nabuzoka, D. (in press). Community-based rehabilitation for disabled children in Zambia: Experiences of the Karama district project. *International Journal of Special Education.*

Nietupski, J. Hamre-Nietupski, S., Clancy, P., & Veerhusen, K. (1986). Guidelines for making simulation an effective adjunct to in vivo community instruction. *Journal of the Association for Persons with Severe Handicaps, 11*(1), 12-18.

O'Toole, B. (1989). Community-based rehabilitation: The Guyana Evaluation project. In M. Falvey (Ed.), *Community-based instruction.* Baltimore: Brookes.

Phillips, J., Reid, D., Korabek, C., & Hursh, D. (1988). Community-based instruction with profoundly mentally retarded persons: Client and public responsiveness. *Research and Developmental Disabilities, 9,* 3-21.

Public Law 94-142, *Education For All Handicapped Children Act of 1975,* 20 U.S.C. 1412-1415 (5)(B), 1975.

Public Law 99-457, *Education of the handicapped amendments Act of 1986,* Roncker vs. Walter, 700 F.2d 1059-1063 (6th Cir. 1983).

Rainforth, B., & York, J. (1987). Integrating related services in community instruction. *Journal of the Association for Persons with Severe Handicaps, 12*(3), 190-198.

Rusch F.R., & Mithaug, D.E. (1980). *Vocational training for mentally retarded adults. A behavior analytic approach.* Champaign, IL: Research Press.

Sailor, W., & Guess, D., (1983). *Severely handicapped students: An instructional design.* Boston: Houghton Mifflin.

Schalock, R. (1983). *Services for developmentally disabled adults. Development, implementation, and evaluation.* Baltimore: University Park Press.

Schleien, S., & Larsen, A. (1986). Adult leisure education for the independent use of a community recreation center. *Journal of the Association for Persons with Severe Handicaps, 11*(1), 39-44.

Snell, M.E. (Ed.). (1987). *Systematic instruction of persons with severe handicaps.* Columbus, OH: Merrill.

Snell, M., & Browder, D. (1986). Community-referenced instruction: Research and issues. *JASH, 11*(1) 1-11.

Snell, M., & Beckman-Brindly (1984). Family involvement in intervention with children having severe handicaps. *Journal of the Association for Persons with Severe Handicaps, 9*(3), 213-230.

Stainback, W., & Stainback, S. (1987). Facilitating friendships. *Education and Training in Mental Retardation, 22,* 18-25.

Stokes, T., & Baer, D. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349-367.

Storey, K., Bates, P., & Hanson, H. (1984). Acquisition and generalization of coffee purchase skills by adults with severe disabilities. *Journal of the Association for Persons with Severe Handicaps, 9*(3), 178-185.

Strully, J., & Strully, C. (1985). Friendship and our children. *Journal of the Association for Persons with Severe Handicaps, 10*(4), 224-227.

Sulzer-Azaroff, B., & Mayer, G. (1977). *Applying behavior-analysis procedures with children and youth.* New York: Holt, Rinehart & Winston.

Terrace, H. (1963). Discrimination with or without "errors." *Journal of the Experimental Analysis of Behavior, 3,* 1-27.

The Swedish Institute for the Handicapped. (1989) *Community-based rehabilitation in three districts in Kenya.* Bromma: Author.

Thorburn, M. (1989). Childhood disability in developing countries: Basic issues. In M. Thorburn & K. Marfo, (Eds.), *Practical approaches to childhood disability in developing countries: Insights from experience and research.* St. John's, NF: Memorial University of Newfoundland.

United Nations. (1971). *Declaration on the rights of mentally retarded persons.* Geneva: Author.

United Nations. (1975). *Declaration on the rights of disabled persons.* Geneva: Author.

Voeltz, L. (1983). *Why integrate?* Unpublished manuscript, University of Minnesota Consortium Institute for the Education of Severely Handicapped Learners, Minneapolis, MN.

Welch, J., Nietupski, J., & Hamre-Nietupski, S. (1985). Teaching public transportation problem solving skills to young adults with moderate handicaps. *Education and Training of the Mentally Retarded, 20*(4), 287-295.

Wirth, A. (1983). *Productive work in industry and schools: Becoming persons again.* Lanham, MD: University Press of America.

Wolf, V., & Cuvo, A. (1978). Effects of within-stimulus and extra-stimulus prompting on letter discrimination by mentally retarded persons. *American Journal of Mental Deficiency, 83,* 297-303.

Wolfensberger, W. (1972). *Normalization: The principles of normalization in human services.* Toronto, ON: National Institute on Mental Retardation.

World Health Organization (1982). *Community-based rehabilitation. Report of a WHO Interregional Consultation.* Colombo, Sri Lanka, 28 June-3 July, 1982. Document RHB/IR/82-3. Geneva: Author.

Chapter 3
Searching for the Criterion Environment: Issues in Theory and Research

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This paper reviews some of the basic assumptions, methods and issues associated with the use of traditional, segregated special education classrooms and an instructional technology based on behavioral psychology. The author discusses some of the advantages and disadvantages of integrated regular classroom instruction and the need for complementing this approach with instruction in intensive educational settings as well as community-based and simulated environments. The author also discusses a number of essential unresolved issues in community-based instruction and the need for additional research.

Introduction

Community-referenced curricula require that the skills to be taught are derived from the natural ecology of the environments that students will be expected to inhabit. Community-based instruction goes further and specifies that instruction should take place in community environments rather than solely in an instructional setting (Falvey, 1986). A third concept, criterion environment, links these two principles. Criterion environments are the settings where specific learning objectives must be used to be functionally successful. Natural environment is another term commonly used to identify the setting where a skill is normally required or functional. For example, students may learn how to select and request food items from a menu in a classroom, but the skill only becomes functional in certain kinds of restaurants. Brown (1987) pointed out that since cues, materials, and criteria for correct responses often differ between instructional settings and criterion environments, mastery can be assessed validly only in criterion environments. The frequency of failure to generalize from instructional to criterion environments suggests that the best place to learn is typically in the environment where ultimately the skill will be used.

Even if the our schools often fail to live up to these concepts, the principles underlying these concepts are well established in the mainstream of contemporary education. John Dewey (1938) emphasized the philosophy of a "new education." He suggested that rather than "learning from texts and

teachers," students should be "learning through experience" (p. 19). He stated:

> A primary responsibility of educators is that they not only be aware of the general principle of shaping the actual experience by environing conditions, but that they also recognize in the concrete what surroundings are conducive to experiences that lead to growth. Above all, they should know how to utilize surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worthwhile. (p. 40)

In spite of the support for the principles of learning in natural environments, schools have generally remained isolated institutions, providing little community experience for most students; and special education students have generally been even more isolated within these schools (Sobsey & McDonald, 1988). Instructional programs that were developed in these isolated environments often lacked potential functional value to students, and even when the skills taught seemed to possess functional potential, they often failed to generalize to natural environments. In 1976, these problems were addressed in the work of Brown and colleagues with the introduction of the criterion of ultimate function (Brown, Nietupski, & Hamre-Nietupski, 1976), a concept that urged community referenced curriculum content. The criterion of ultimate function suggests that emphasis should be placed on teaching the skills that will be required of an adult member of society rather than teaching developmental skills that may become obsolete in adulthood. In a presentation also delivered in 1976, Gold (1980) predicted that

> the proportion of lifeskills that individuals acquire outside the school will increase. For some kinds of learning this means that schools will continue to develop activities outside the school building and be involved in the use of those activities. It also means that schools as entities will contribute less and less to the educational process. (p. 266, original presentation given October 1976)

Brown and colleagues followed by making a powerful case for the introduction of nonschool instruction (Brown et al., 1983) that provided the basis for community-based instructional methods. By focusing on skills functional for adults and replacing instructional environments for criterion environments, the number of transitions required for students (and therefore the number of discriminations and skills to master) is effectively reduced. Transitions to the next set of age-appropriate environmental requirements are considered to be vertical transitions, while transitions from instructional to criterion environments are considered horizontal transitions (Polloway, Patton, Smith, & Roderique, 1991). Through community-based instruction, the number of horizontal transitions is drastically reduced or eliminated and the number of vertical transitions may be reduced to some extent. As a result, the total instructional demand on students is reduced.

While the general principles of community-based education have strong theoretical support and are widely accepted, relatively little empirical evidence is available to support its superiority or provide more specific guidance for its application. Furthermore, the implementation of community-based education has been further complicated by other educational principles that require equal consideration. For example, increasing emphasis is being placed on serving students in regular classrooms, in local community schools; but since most regular classrooms provide little community experience, integration in the classroom may mean segregation from the rest of the community (Giangreco & Putnam, 1991). Nevertheless, the natural environment for children is school, and the application of the criterion of ultimate function to young children may be difficult and counterproductive for two reasons. First, children removed from school for community-based instruction may become even more isolated from their peers and age-appropriate environments than they would in segregated classrooms. Second, environmental requirements change over time. Preparing a young child for today's adult realities fails to recognize this change. For example, when today's adults were starting school, most adults used fountain pens rather than computers and responded to the operator's "number please" rather than punching the keypad of pushbutton phones. Fast food restaurants and credit cards were still rare. Many of the adult residential, vocational, and leisure alternatives that currently exist had not even been conceived when today's adults were entering school. These problems are addressed to some extent by the application of criteria of the next educational environment (Vincent et al., 1980). This principle suggests that for young children, transitions to near future environments, rather than adult settings, should be the focus of curriculum content and instruction. Schools rather than community settings are suggested as criterion environments for young children.

There are also practical issues to be addressed in implementing community-based instruction. For example, how can instructional trials and instructional time be maximized in community settings for instruction? Repeated trials can be easily arranged in traditional classroom or simulated settings, but they are often difficult in community settings. For example, simulated meal purchases may be repeated 10 or 20 times during a single day in a classroom, but repeating purchases of real meals in community settings with the same frequency would be difficult and expensive. Are the advantages of the criterion environment worth the potential loss of instructional efficiency? Might some combination of instructional and natural environments provide the maximum teaching and learning advantages? This chapter reviews some of the issues relevant to teaching community-referenced curriculum content in criterion environments. This chapter attempts to do three things. First, it reviews some of the successes and failures of traditional segregated special education programs. Second, it summarizes research on the implementation of community-based instruc-

tion. Finally, it discusses the implications of what we now know and some of the questions that have yet to be answered in the application of community-based instruction to students with moderate and severe disabilities.

The Broken Promise of Special Education

Special education programs as they exist today developed as the result of many complex social, political, and educational influences (Sobsey & McDonald, 1988). These programs are based on an underlying assumption that individual deficits in learning can be at least partially overcome through the application of more powerful instructional technology. While it is important to recognize political and social forces (e.g., Sputnik, teacher surpluses, court decisions) that shaped the development of educational practice, this discussion centers on the development of instructional technology, specifically special education, in the last half of the 20th century.

The dominant force in special education during our time has been and continues to be behavioral or operant psychology. It is important to recognize the huge benefits that operant psychology has provided for the field of special education and for students with disabilities. It allowed the clear demonstration that all individuals can benefit from education and provided many individuals with the opportunity to learn truly functional skills. Nevertheless, like most great sources of good, it has also been a source of great harm; and it is equally important that we recognize some of the catastrophic consequences of our application of operant conditioning to people with disabilities.

In 1949, Fuller published an account of teaching a man with severe and multiple disabilities to raise his hand to request milk. In this short descriptive case study, Fuller makes two arguments. First, he points out that this individual was deemed incapable of learning, but clearly, learning is demonstrated through the power of operant conditioning. Second, operant conditioning, a method that had previously been applied only to laboratory animals, could be successfully applied to human beings. With the publication of this modest article, a new science was conceived. The laboratory science of behavior analysis begat applied behavior analysis and a new generation of researchers that would sacrifice some of the experimental rigor of the laboratory to allow the application to real-life learning needs. Fuller's selection of an individual with severe and multiple disabilities had a second and unanticipated effect; it established the tradition of applying this new teaching technology to people with disabilities and cemented the relationship between behavioral psychology and special education that still exists today (in spite of some apparent cracks that are forming in the cement).

The resulting behavioral-special educational technology has four characteristic traits. First, it emphasizes highly specific objectives for the learner's behavior. Second, these behavioral objectives are typically

topographically defined rather than functionally defined (identified by observation of exactly what the learner does, not by the effects of those actions). Third, emphasis is placed on precise and predictable consequences for behavior and tight control over extraneous environmental variables. Fourth, careful observation, data collection, and analysis of data are employed to evaluate and modify programs. With these four characteristics in place, applied behaviorism closely resembles the tightly controlled laboratory conditions of the animal experiments that they descended from; and although success is not invariable, it has been greater than had been previously thought possible.

In fact, failures are generally attributed to a lack of experimental control in the application of programs, not to any inherent defect, and the programs that are often viewed as the best are those that best approximate laboratory conditions rather than typical community conditions. "Lab schools" associated with research programs are often viewed as the best sites for special education. Researchers often are viewed as the best people to train teachers of children with learning deficits.

Of course, there remain four troubling concerns about the application of laboratory conditions to special education classrooms. First, in the laboratory, the animals are in cages entirely under the control of the experimenter. Training rats, pigeons, and chimpanzees might be a lot different if we had to begin each lesson by asking them to sit still. Second, although chimps, rats, and pigeons often learn to do wondrous things in the artificial environment of the laboratory, there remains little evidence that they would maintain any of these skills if they were returned to their natural environments. Of course, this was unimportant since they very rarely returned to their natural settings. Third, if they are returned to their natural setting, they adjust poorly and often die because they lack the skills required to function in their natural settings. Fourth, the laboratory paradigm assumes the huge power inequity between organisms of different species, the human experimenter and the animal subjects. The experimenter is the person who is always assumed to control the consequences, and it is the subject's behavior that is always targeted for change. It fails to recognize the bi-directional nature of mutual relationships, where both partners wield consequences and both partners' behavior is subject to change.

The results have been catastrophic for students of special education programs. The strong focus on instructional control and compliance required to simulate laboratory conditions has led in many cases to docile learners (Winett & Winkler, 1972), learners who have difficulty making decisions, initiating actions, or even responding in a spontaneous manner (Reichle & Sigafoos, 1991) and who are all too frequently easily victimized and exploited (Sobsey, 1990). The wondrous learning achievements accomplished in instructional environments often fail to generalize to natural environments where the skills would have the potential to be func-

tional. The response to the failure to generalize skills to appropriate environments came in the form of new behavioral strategies to teach generalization (Stokes & Baer, 1977). Ironically, many of these strategies are the antithesis of the behavioral strategies that had been so effective. Instead of clear and certain consequences, indescriminable and erratic contingencies are recommended as critical elements for generalization. In place of the tight experimental and instructional control that was previously required, natural contingencies and "loose" training programs are now essential. The essential contradiction between imposed structure and natural learning opportunities seemed to elude all of us. When we have failed in our attempt to create an orange out of clockwork, to follow on Burgess' (1963) metaphor, we attempted to correct this error by adding a new series of gears. The functional failures in generalization and maintenance of so many of the skills taught behaviorally was an iatrogenic disease. With a vague awareness that our own medicine was making us sick, the remedy that was being proposed was largely "the hair of the dog that bit you."

The problems created in generalization also led to a secondary problem. If students removed from the mainstream of society because of learning deficits were ever going to return to the mainstream, they would be required to learn more than the students who did not have learning problems. Since the behaviors that must be learned are determined by environmental requirements, each transition to a new environment adds a new set of demands on the individual. For example, as an individual moves from the school to work environment, a new set of social and technical requirements determine the new skills to be learned. An individual moved to a special instructional setting will have to learn the special demands of that setting and will also have to learn a new set of skills to return to natural, age-appropriate environments. The more special environments an individual must move through, the more transitions will be required, and the less likely that the individual will be to ever return to the natural environment.

There can be no denying that special education and behavioral psychology have brought some advances in learning; but with these and other concerns emerging, the progress appears to have reached a plateau, and many begin to doubt that the gains really exceed the losses associated with the new instructional technology. Studies attempting to measure the value of special education have often pointed more toward its failures. In his classic research review, "Special Education for the Mildly Retarded—Is Much of it Justifiable?" Dunn (1968) reviewed the existing literature and found that it showed that students with mild mental handicaps "made as much or more progress in regular grades as they do in special classes" (p. 8). Even before that, Goldstein, Moss, and Jordan (1965) found that in the ideal special education classroom students learned no more arithmetic and less reading than when placed in a regular classroom. Wang, Anderson, and Bram (1985) reported the results of a massive meta-analysis involving

50 studies and approximately 3,400 students comparing integrated and segregated settings. The results showed a significant advantage in educational performance for students placed in integrated settings. In addition, these results showed that students spending 100% of their time in a regular classroom significantly outperformed their peers who were integrated on a part-time basis. Although the effect size did not reach statistical significance on a smaller meta-analysis involving 11 studies and 541 students, Wang and Baker (1985-1986) reported that "noticeably higher effect sizes on performance and attitudinal outcomes were found for disabled students in full-time mainstreaming programs" (p. 515). Another major meta-analysis by Carlberg and Kavale (1980) replicated these findings. Based on 50 studies that met their research criteria out of an initial pool of 860 studies and reports, these researchers found significant differences between integrated and segregated placements for students with mild mental handicaps. Those placed in segregated classrooms had worse academic achievements than did those placed in integrated classrooms. Students with IQs between 75 and 90 lost 13 percentile ranks on average as a result of being denied integration, while those with IQs between 50 and 75 lost 6 percentile ranks. The authors concluded that "the results of existing research when integrated statistically demonstrated that special class placement is an inferior alternative to regular class placement in benefiting children removed from the educational mainstream" (p. 304). Dreimanis et al. (1990) reported many additional studies supporting similar conclusions for students with more severe disabilities and supporting the earlier conclusion of Kennedy and Storey (1988), who reviewed the results of nine studies and conclude that

> together these studies provide empirical verification of the benefits of physical and social integration. By demonstrating the positive effects of attending physically integrated schools, participating in programs, implementing strategies to facilitate on and off-campus integration and directly teaching appropriate social skills, these investigations show how students with severe disabilities can be integrated with their peers. (p. 8)

Problems had also been identified with the nature of the skills being taught. Several investigators reported that people with disabilities were often failing in their vocational adjustment because they lacked the social and interpersonal skills that were required even though they had the technical competence to perform their jobs (e.g., Greenspan & Shoultz, 1981; Hanley-Maxwell, Rusch, Chadsey-Rusch, & Renzaglia, 1986). These findings were predictable from Gold's (1980) competence-deviance hypothesis that theorized job success as a combination of technical skills and social acceptance.

Faced with these difficulties, alternatives to traditional special education must be considered. These alternatives could potentially include: (a) proceeding in spite of the problems, (b) abandonment of special education, or (c) modification of special education to minimize or eliminate these

problems. Although the massive momentum of our educational institutions threatens to bring about the first alternative, few real advocates of this position can be found in light of the problems previously discussed. Many advocates, however, can be found for the abandonment of special education. Gartner and Lipsky (1987) suggested that it is time to provide quality education for all students in the mainstream of education. The successes of integration suggest that this alternative is worthy of consideration, yet some caution may be in order. If the individualized, functional, and experiential education proposed by Dewey (1938) can be provided for all students utilizing intensive instructional methods, there will be no need for traditional special education. If, however, students with intensive needs are simply placed in regular classrooms without the benefit of intensive teaching methods or individualized goals and objectives, this alternative really amounts to abandoning these students. The third alternative, modification of current special educational practices, might include some aspects of the previous two as well as some unique elements of its own. Brown et al. (1991) suggested such a third alternative. They believed that students with severe disabilities should be based in regular classrooms, but they should not spend all their time in these classrooms. They pointed out that integration has important social and educational advantages for students with severe disabilities. Nevertheless, they also pointed out that these students need many more instructional trials and that they generalize with greater difficulty than do nondisabled students. They also stressed the need to teach students with severe disabilities in criterion environments. In order to be functional, skills that must eventually be practiced in community settings should be taught in community settings whenever possible, ensuring the presence of the appropriate stimulus set and reducing the need for subsequent generalization training. While the classroom may be appropriately viewed as the criterion environment for some skills, especially for young children, domestic, community, and leisure environments are the natural settings for many skills that are not functional in classroom settings. Sailor, Goetz, Anderson, Hunt, and Gee (1988) suggested splitting time between the regular classroom, community settings, and intensive educational settings. As a method of facilitating the transition to adult life in the community, they recommended that as the students' chronological ages increase the amount of time spent in the regular classroom and in the intensive education setting should decrease and the time in community-based setting should increase. Community-based instruction is therefore viewed as an essential element in the education of students with disabilities.

Learning in the Community

The failure of students to generalize results from instructional settings to natural environments provided a powerful rationale for the move to community-based instruction. Teaching in the criterion environment would

eliminate the need for stimulus generalization in some cases and reduce the stimulus generalization in others because of the greater similarities between the instructional and functional environments. It might also reduce the need for response generalization since the functional response requirements were likely to be closer, even if slightly different than the instructional response requirements. Community-readiness training, preacademic training, prevocational training, and many other curricular areas that had been aimed at teaching component skills prior to real community immersion have been largely supplanted by immersion in criterion environments. The movement toward teaching in criterion environments was captured in the simple slogan, "pre means never." Endless preparation could no longer be viewed as a means of reaching the goal; it had to be viewed as a diversion that would prevent reaching the goal. If the shortest distance between two points is a straight line, the most direct route to community competence must put the learner in community environments as soon as possible.

In addition to the instructional benefits associated with teaching in the criterion environments, financial advantages could be demonstrated in at least some cases that offset some of the concerns about increased costs for community-based instruction. For example, Hill, Wehman, Kregel, Banks, and Meltzer (1987) reported actual costs for community-based supported competitive employment programs for 214 adults with moderate and severe disabilities. These costs were compared with the costs of providing "prevocational" alternatives. Results showed a saving of $1,057,000 over an eight-year period associated with the community-based supported competitive employment programs. Stodden and Browder (1986) identified number of factors for successful community-based employment programs. They found that success could be predicted from the training approach and procedures, program management attributes, and trainee characteristics. The training approach and procedures that appeared to be associated with success included comprehensive service plans that considered all of the trainee's competencies and needs, emphasis on positive reinforcement, individualization, and teaching in the natural context.

Research on Instruction in Criterion Environments

One of the most challenging issues in all human research is the balance between internal and external validity. For example, Horner and Billingsley (1988) pointed out that "in contrast to contrived laboratory environments, learners in applied settings often face multiple stimuli that are discriminative for different responses" (p. 197). The best internal validity is typically achieved under laboratory conditions that can be tightly controlled by the researcher. Internal validity is enhanced under these conditions because little is left to chance and any change in behavior that occurs is likely the result of the experimental variable. Unfortunately, these carefully controlled experimental conditions are rarely similar to the conditions found out-

side the laboratory in the community or other natural environments. Thus external validity, the application to the real world, often deteriorates as internal validity improves. For application to community-based instructional programs, interventions not only must be demonstrated to be effective, they must be demonstrated to be effective in natural community environments. Internal validity of research remains necessary, but it is never adequate for demonstrating the value of community-based instruction. The external validity of research in natural environments is often described as ecological validity.

Brooks and Baumeister (1977) argued that traditional research on learning by subjects with severe disabilities lacks ecological validity and therefore fails to have applied value. Ford and Gaylord-Ross (1991) evaluated the ecological validity of research studies published in two professional research journals and found that ecological validity of published research improved substantially in *The Journal of The Association for Persons with Severe Disabilities* between 1978 and 1986, but remained low over that same period in the *American Journal on Mental Retardation*. The ecological validity index used to compare the research articles consisted of five criteria: (a) functional target behaviors, (b) application of the intervention in the natural environment, (c) measurement of skill acquisition in the natural environment, (d) measurement of generalization across at least one dimension (e.g., settings, cues), and (e) maintenance of the acquired skill over time. These criteria for determining ecological validity of research provide useful guidelines in reviewing research in criterion environments.

Sailor et al. (1988) pointed out that although there is little direct evidence comparing instruction in community and instructional environments "there is, however, a growing body of information documenting the acquisition of specific skills as a function of training in the natural environment" (p. 77). Snell and Browder (1986) provided a thorough review of research and issues in community-based instruction and pointed out five essential unresolved issues:

(a) application of community-based instruction with persons who have extensive motor involvement and cannot walk;
(b) development of methods to adapt community-based training models to rural settings where the community boundaries are more diffuse and nearby commercial areas may not be present;
(c) delineation of the variables influencing the provision of related services within the community-based instructional model (occupational, physical, and speech therapy);
(d) investigation of techniques to improve the experimental control and accuracy in measurement and treatment fidelity despite unintended variance in procedures that may occur in community settings; and

(e) development of strategies to safeguard students taught in the community against the increased possibility for natural hazards and social stigma. (p. 8)

While the fourth unresolved issue presented by Snell and Browder (1986) echoes the previously described tension between internal and external validity, the remainder of the list suggests additional concerns in the application of community-based research. These and other issues remain largely unresolved. Nevertheless, research demonstrating effective instruction in community environments continues to accumulate.

Community-Compatible Teaching Techniques

In theory, almost any teaching technique could be used in either community-based or classroom instruction. In practice, however, some instructional techniques work better in the community than do others. Community-based instruction requires a set of procedures that are compatible with the natural environments where instruction takes place. For example, variations on whole-task presentation using skill clusters are used more frequently than are strict forward- or backward-chaining procedures, because natural environmental requirements normally require completion of an entire task. Individual and small group instruction is often less disruptive in the community than in larger instructional groupings. Natural cues and consequences are often more easily applied (with or without minimal modification) than are those of a purely instructional nature.

Some of the instructional procedures associated with community-based instruction include: (a) incidental teaching, (b) interrupted behavior chains, (c) functional equivalence training, (d) time-delay, (e) stimulus fading, (f) least to most powerful error correction procedures, and (g) self-regulation procedures (Sailor et al., 1989; Snell & Browder, 1986). These procedures are not unique to community-based instruction, but often they have advantages over alternative methods in community settings

A complete description of all of these procedures and their variations would go beyond the scope of this chapter, but a few examples illustrate the point made by Snell and Browder (1986) that some methods of task presentation, prompting, reinforcement, and error correction that are effective in classroom settings are inappropriate for community use. Several researchers have demonstrated that self-regulated reinforcement and prompting can be a valuable teaching tool for students with moderate and severe disabilities. Agran, Fodor-Davis, Moore, and Deer (1989) for example taught five students with moderate and profound disabilities to prompt themselves to complete directed tasks allowing more independent performance and early fading of instructional control. Alwell, Hunt, Goetz, and Sailor (1989) used interrupted behavior chains to teach three students with severe disabilities to make generalized communicative responses. The interrupted behavior chain strategy permits whole-task presentation, which is consistent with community-based instruction, but also allows brief ses-

sions of massed trials on steps that present difficulty for the student.The continued refinement of these and other associated instructional procedures will allow further progress toward community-based instruction.

Alternatives to Community-Based Instruction

Logistical difficulties sometimes exist in applying community-based instruction. As a means of addressing these logistical problems, simulation has been viewed both as an alternative and as an adjunct to teaching in criterion environments. Simulation attempts to teach skills that are potentially functional in the natural environments, but learning takes place in the classroom or other instructional setting where the stimulus conditions have been altered to approximate the criterion environment. Using classroom simulation, Bourbeau, Sowers, and Close (1986) taught banking skills to secondary students with mild mental handicaps and found that the students were later able to use these skills in a real bank. However, the authors noted that these subjects had mild disabilities and that generalization would probably be more difficult for students with more severe disabilities. Perhaps more importantly, the authors pointed out that all of their subjects required some additional training in the bank before they demonstrated mastery of the required skills.

Nietupski, Hamre-Nietupski, Clancy, and Veerhusen (1986) recommended simulation as an adjunct to community-based instruction as a means of enriching the density of instructional time and trials. To enhance the effectiveness of simulations, these authors suggested the application of general-case training strategies (Sprague & Horner, 1984). These strategies include: (a) determining the range of stimulus and response variation in the natural setting, (b) systematic variation of stimuli, (c) modification of the simulation based on community performance data, (d) focusing simulations on problem areas to provide intensive practice in these areas, and (e) scheduling simulations to allow close temporal proximities to training in the natural environment.

Two studies comparing and combining simulation procedures with community-based instruction provide some useful information on the relative merits of these alternatives. McDonnell and Ferguson (1988) compared general case in-vivo training (community-based instruction) with general case simulation plus in-vivo training to teach six junior high school students with moderate and severe disabilities to make purchases in a fast-food restaurant. Students learned the required purchasing behavior under both training conditions, but learning took place with less instructional time, fewer instructional trials, and fewer errors when all training was provided in natural settings. While this research provides strong evidence for the advantages of community-based instruction, the authors acknowledge that simulation may be "a powerful 'back up' for teaching discriminations or responses that are not easily taught in community settings" (p. 124).

Browder, Snell, and Wildonger (1988) also combined simulation and community-based instruction in training four students with moderate mental disabilities to operate vending machines. Time-delay procedures were used to facilitate transfer from simulation setting to the natural environment. These researchers suggested several advantages to the combined procedures. First, some subjects demonstrated severe difficulty with one or two of the steps in the chain of behavior to learned. Simulation provided the opportunity to increase the number of instructional trials for these steps while keeping the trials on other steps constant. The authors also computed the cost of instruction per day in both settings and found that the community-based instruction was 16% more than was the simulation. These researchers found simulation to be useful as adjunct instruction, but they warned that it must be used along with community-based instruction and not used to replace it.

Promise and Compromise: Toward a Coherent Future

Community-based instruction is clearly an essential component of any program serving students with moderate, severe, or profound disabilities that intends to teach community-relevant skills. More information is needed, however, to determine the optimal blend of community-based instruction with simulation, massed trials of component skills, or other instructional elements that might be included. In addition, more work needs to be done that will combine the best attributes of effective instruction with the benefits of natural environments. Meyer and Janney (1989), for example described user-friendly methods for data collection and progress evaluation. These methods are less intrusive than alternative procedures but still allow formative evaluation that can guide instructional practice in addition to summative outcome measures to validate the results of training. More work also needs to be done to determine the functionality of various educational decisions and outcomes in community settings to help guide instructional planning. Rotholz, Berkowitz, and Burberry (1989) for example compared the functionality of the use of manual language with the functionality of the use of an iconic communication book by two students with autism in community settings. The results for each of the students showed that nearly all of the attempted requests using signs failed, while almost all of the attempts using their communication books were successful. As the authors suggested, "for the students in this study and for many other nonverbal persons with developmental disabilities, communication books are clearly the more functional communication system for use in a normalized community setting" (p. 232).

More work also needs to be done on how transdisciplinary teamwork can be effectively integrated with community-based instruction. Rainforth and York (1987) discussing some of the issues and potential approaches for integrating related services and community-based instruction concluded that the role release and role expansion inherent in a transdisciplinary ap-

proach is essential in community-based instruction. However, they pointed out the need for solutions to several unresolved problems: (a) community access for students who do not walk or have other severe physical disabilities, (b) serving students dispersed across large geographical areas, and (c) recruiting and retaining staff.

Community-based instruction already has been one of the areas of real progress in teaching functional skills to students with severe disabilities. Great progress has been made and more progress is almost certain. Nevertheless, along with the progress have come significant new challenges that must be answered, and it is the answers to those challenges that will help to shape community-based instruction in the future.

References

Agran, M., Fodor-Davis, J., Moore S., & Deer, M. (1989). The application of a self management program on instruction-following skills. *Journal of The Association for the Severely Handicapped, 14,* 147-154.

Alwell, M., Hunt, P., Goetz, L., & Sailor, W. (1989). Teaching generalized communicative behaviors within interrupted behavior chains. *Journal of The Association for the Severely Handicapped, 14,* 91-100.

Bourbeau, P.E., Sowers, J., & Close, D.W. (1986). An experimental analysis of generalization of banking skills from classroom to bank settings in the community. *Education and Training of the Mentally Retarded, 21,* 98-107.

Brooks, P.H., & Baumeister, A.A. (1977). A plea for consideration of ecological validity in the experimental psychology of mental retardation. A guest editorial. *American Journal of Mental Deficiency, 81,* 407-416.

Browder, D.M., Snell, M.E., & Wildonger, B.A. (1988). Simulation and community-based instruction of vending machines with time delay. *Education and Training in Mental Retardation, 23,* 175-185.

Brown, F. (1987). Meaningful assessment of people with severe and profound handicaps. In M.E. Snell (Ed.), *Systematic instruction of persons with severe handicaps* (pp. 39-63). Columbus, OH: Merrill.

Brown, L., Nietupski, J., & Hamre-Nietupski, S. (1976). The criterion of ultimate function and public school services for severely handicapped students. In M.A. Thomas (Ed.), *Hey don't forget about me! Education's investment in the severely, profoundly, and multiply handicapped* (pp. 2-15). Reston, VA: Council for Exceptional Children.

Brown, L., Nisbet, J., Ford, A., Sweet, M., Shiraga, B., York, J., & Loomis, R. (1983). The critical need for nonschool instruction for in education programs for severely handicapped students. *Journal of The Association for the Severely Handicapped, 8*(3), 72-77.

Brown, L., Schwarz, P., Udvari-Solner, A., Kampschroer, E. F., Johnson, F., Jorgensen, J., & Gruenewald, L. (1991). How much time should students with severe intellectual disabilities spend in regular classrooms and elsewhere? *Journal of The Association for Persons with Severe Handicaps, 16,* 39-47.

Burgess, A. (1963). *A clockwork orange.* New York: Norton.

Carlberg, C., & Kavale, K. (1980). The efficacy of special versus regular class placement for exceptional children: A meta-analysis. *Journal of Special Education, 14,* 295-309.

Dewey, J. (1938). *Experience and education.* New York: Collier.

Dreimanis, M., Sobsey, D., Gray, S., Harnaha, B., Uditsky, B., & Wells, D. (1990). *Integration and individuals with moderate to profound intellectual impairment: An annotated bibliography.* Edmonton: University of Alberta Severe Disabilities Program.

Dunn, L.M. (1968). Special education for the the mildly retarded—Is much of it justifiable? *Exceptional Children, 35,* 5-22.

Falvey, M. (1986). *Community-based curriculum: Instructional strategies for students with severe handicaps.* Baltimore: Brookes.

Ford, J., & Gaylord-Ross, R. (1991). Ecological validity revisited: A 10-year comparison of two journals. *American Journal on Mental Retardation, 96,* 95-98.

Fuller, P.R. (1949). Operant conditioning of a human vegetative organism. *American Journal of Psychology, 62,* 587-590.

Gartner, A., & Lipsky, D.K. (1987). Beyond special education: Toward quality education for all students. *Harvard Educational Review, 57,* 367-395.

Giangreco, M.F., & Putnam, J.W. (1991). Supporting the education of students with severe disabilities in regular education environments. In L.H. Meyer, C.A. Peck, & L. Brown (Eds.), *Critical issues in the lives of persons with severe disabilities* (pp. 245-270). Baltimore: Brookes.

Gold, M.W. (1980). *"Did I say that?" Articles and commentaries on the try another way system.* Champaign, IL: Research Press.

Goldstein, H., Moss, J., & Jordan, J. (1965). *The efficacy of special class training on the development of mentally retarded children.* (U.S. Office of Education Project Number 619) Champaign-Urbana: University of Illinois.

Greenspan, S., & Shoultz, B. (1981). Why mentally retarded adults lose their jobs: Social competence as a factor in work adjustment. *Applied Research in Mental Retardation, 2*(1), 23-38.

Hanley-Maxwell, C., Rusch, F., Chadsey-Rusch, J., & Renzaglia, A. (1986). Reported factors contributing to the job termination of individuals with severe disabilities. *Journal of The Association for Persons with Severe Handicaps, 11*(1), 45-52.

Hill, M.L., Wehman, P.H., Kregel, J., Banks, D., & Metzler, H.M.D. (1987). Employment outcomes for people with moderate and severe disabilities: An eight-year longitudinal analysis of supported competitive employment. *Journal of The Association for Persons with Severe Handicaps, 12,* 182-189.

Horner, R.H., & Billingsley, F.F. (1988). The effect of competing behavior on the generalization and maintenance of adaptive behavior in applied settings. In R.H. Horner, G. Dunlap, & R.L. Koegel (Eds.), *Generalization and maintenance: Life-style changes in applied settings* (pp. 197-220). Baltimore: Brookes.

Kennedy, C., & Storey, K. (1988, November). Empirical outcomes of peer integration: A look at recent JASH articles. *TASH Newsletter, 14*(11), p. 8.

McDonnell, J.J., & Ferguson, B. (1988). A comparison of general case in vivo and general case simulation plus in vivo training. *Journal of The Association for Persons with Severe Handicaps, 13,* 116-124.

Meyer, L., & Janney, R. (1989). User-friendly measures and meaningful outcomes: Evaluating behavioral interventions. *Journal of the Association for Persons with Severe Handicaps, 14*(4), 263-277.

Nietupski, J., Hamre-Nietupski, S., Clancy, P., & Veerhusen, K. (1986). Guidelines for making simulation an effective adjunct to in vivo community instruction. *Journal of The Association for Persons with Severe Handicaps, 11*(1), 12-18.

Polloway, E.A., Patton, J.R., Smith, J.D., & Roderique, T.W. (1991). Issues in program design for elementary students with mild retardation: Emphasis on curriculum development. *Education and Training in Mental Retardation, 26,* 142-150.

Reichle, J., & Sigafoos, J. (1991). Establishing spontaneity and generalization. In J. Reichle, J, York, & J. Sigafoos (Eds.), *Implementing augmentative and alternative communication: Strategies for learners with severe disabilities* (pp. 157-171). Baltimore: Brookes.

Rainforth, B., & York, J. (1987). Integrating related services in community instruction. *Journal of The Association for Persons with Severe Handicaps, 12,* 190-198.

Rotholtz, D.A., Berkowitz, S.F., & Burberry, J. (1989). Functionality of two modes of communication in the community by students with developmental disabilities: A comparison of signing and communication books. *Journal of The Association for Persons with Severe Handicaps, 14,* 227-233.

Sailor, W., Anderson, J.L., Halvorsen, A.T., Doering, K., Filler, J., & Goetz, L. (1989). *The comprehensive local school: Regular education for all students with disabilities.* Baltimore: Brookes.

Sailor, W., Goetz, L., Anderson, J., Hunt, P., & Gee, K. (1988). Research on community intensive instruction as a model for building functional generalized skills. In R.H. Horner, G. Dunlap, & R.L. Koegel (Eds.), *Generalization and maintenance: Life-style changes in applied settings* (pp. 67-98). Baltimore: Brookes.

Snell, M.E., & Browder, D.M. (1986). Guidelines for making simulation an effective adjunct to in vivo community instruction. *Journal of The Association for Persons with Severe Handicaps, 11*(1), 1-11.

Sobsey, D. (19[illegible]). Modifying the behavior of behavior modifiers: Arguments for countercontrol against aversive procedures. In A. Repp & N. Singh (Eds.), *Perspectives on the use of non-aversive behavior and aversive interventions for persons with developmental disabilities* (pp. 421-433). Sycamore, IL: Sycamore.

Sobsey, D., & McDonald, L. (1988). Special education: Coming of age. In B.L. Ludlow, A.P. Turnbull, & R. Luckasson (Eds.), *Transitions to adult life for people with mental retardation—Principles and practices* (pp. 21-44). Baltimore: Brookes.

Sprague, J.R., & Horner, R.H. (1984). The effects of single instance, multiple instance, and general case training on generalized vending machine use by moderately and severely handicapped students. *Journal of Applied Behavior Analysis, 17,* 273-278.

Stokes, T., & Baer, D. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349-367.

Vincent, L.J., Salisbury, C., Walter, G., Brown, P., Gruenewald, L.J., & Powers, M. (1980). Program evaluation and curriculum development in early childhood/special education: Criteria of the next environment. In W. Sailor, B. Wilcox, & L. Brown (Eds.), *Methods of instruction for severely handicapped students* (pp. 303-328). Baltimore: Brookes.

Wang, M.C., Anderson, K.A., & Bram, P.J. (1985). *Toward an empirical data base on mainstreaming: A research synthesis of program implementation and effects.* Pittsburgh: Learning Research and Development Center, University of Pittsburgh.@REF = Wang, M.C., & Baker, E.T. (1985-1986). Mainstreaming programs: Design features and effects. *Journal of Special Education. 19,* 503-521.

Winett, R.W., & Winkler, R.C. (1972). Current behavior modification in the classroom: Be still, be quiet, be docile. *Journal of Applied Behavior Analysis, 5,* 499-504.

Chapter 4
Guide to the Development and Evaluation of Community-Based Instruction

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The author provides a checklist of various considerations related to the development and evaluation of community-based instruction: selection, preparation and management of instructional environments; environmental inventories; administrative considerations: legal, financial, policy, type and training of personnel, and personnel roles; transportation; program goals, objectives and IEPs; social validation; instructional: delivery, grouping, and scheduling bs methods; reinforcement and correction.

Brown et al. (1983), arguing in favor of nonschool instruction, wrote:

> Envision someone who can learn, but who cannot learn as much as 99% of his or her age peers; who needs more time and trials to learn and to relearn than almost all other persons; who remembers some things but forgets more than almost all other persons; who has difficulty transferring that learned in one environment to another; and who rarely synthesizes skills acquired from several different experiences so as to function effectively in a novel situation. Then, ask the question: How much instructional time should be spent in the physical space of a school, and how much should be spent providing direct, individualized, longitudinal, comprehensive, and systematic instruction in the actual nonschool environments in which that someone currently functions and those in which s/he is likely to function upon graduation? (p. 74)

The answers to the foregoing questions are obvious. It is also readily apparent that community-based activities should not be merely field trips. Simply exposing students to community environments does not insure efficient or successful skill acquisition. Thus, the following pages provide a comprehensive checklist of considerations related to the development and evaluation of effective and efficient community-based instruction. To avoid making the checklist unduly awkward and long, sources of information have not been acknowledged in context. The reader is referred to the excellent sources of information in the list of references, particularly the materials written by Sailor, Anderson, Halverson, Doering, Filler, Goetz, Hunt, and Gee.

The reader may initially feel overwhelmed by the length and detail of the checklist. It should be noted, however, that if one were to list all the

considerations and decisions required to drive to work each day, the list would be similarly overwhelming; nevertheless, in spite of the number of considerations, most of us have learned to drive to work without undue difficulty.

Several important considerations in the development and implementation of any new program are: (a) identify reasonable goals (partial implementation or small-scale pilot projects), (b) determine priorities, (c) establish reasonable time-lines, (d) insure adequate staff preparation, and (e) be prepared to adjust the program. These considerations apply to the establishment and implementation of a community-based instructional program.

The checklist may be used to establish community-based instruction or to guide the evaluation of such a program. The checklist may be reviewed to identify techniques, materials or other considerations that may be relevant to the establishment or evaluation of particular programs. Users may simply proceed through the list checking each of the instructional considerations thought to be relevant to a particular program being developed or evaluated. It should be noted that the checklist is not designed to be used as a rating instrument. There are no universally acceptable criteria for evaluating the items in the list. Community-based instruction is in its early stages of development, and there is little research to support the various models that have emerged (Sailor, Goetz, Anderson, & Gee, 1988). The perceived value of any instructional feature will reflect the knowledge and judgment of the reviewer, his or her theoretical orientation and expertise, the nature of the learner(s) being instructed, and the particular skills being taught. In essence, the present checklist serves as an organizational framework for persons wishing to make systematic decisions regarding the establishment of a community-based instructional program or to guide to the evaluation of such a program. An asterisk following some terms refers the reader to notes at the end of the chapter.

Note that the items listed in the checklist are not exhaustive. Users may wish to add or delete checklist items depending upon their unique circumstances. Space has been left for the addition of other considerations.

Instructional Environments

(a) *Location*: indicate percentage of time students spend in each:
segregated classrooms ___%; integrated classrooms ___%;
school/non-classroom ___%: (kitchen ___%, bathroom ___%,
hallways ___%, library ___%, auditorium ___%, bus area ___%,
gym ___%, locker room ___%, lunch room ___%); general
community ___%: recreational ___%, residential ___%,
vocational ___%; specialized instructional environment* ___%;

Other: _____

_____

group home ___%, family home ___%, apartment ___%, shopping centre or mall ___%; grocery, clothing, drug, shoe or fast-food stores ___%; laundromats ___%; recreation, bowling or swimming centres ___%, arcades ___%, parks and playgrounds ___%, places of worship ___%.

Other: _____

_____

(b) *Environmental management*: are segregated instructional environments simulated? Y___, N___; if yes, what features of the instructional environment are parallel to those in natural environments: social (number and type of people) ___, spatial (complexity and organization of environment) ___, physical (amount and type of equipment, materials) ___, temporal (number, rate and duration of events) ___, sensory (amount and type of visual, auditory stimulation ___?

Other: _____

_____

Are integrated instructional environments natural ___ or controlled ___: e.g., organized to insure that certain events do/do not occur ___; environmental adaptations are made to enhance instruction: social ___, spatial ___, physical ___, temporal ___, sensory ___; members of community collaborate (e.g., play roles ___); environmental adaptations are temporary _ _ permanent ___?

Other: _____

_____

(c) *Environmental inventory*: a preinstructional inventory is used to gather information on: physical accessibility ___ (e.g., doorways ___, bathrooms ___, aisles ___, methods of travel between floors ___); commonly occurring events ___ (e.g., nature ___, frequency ___ and schedule ___ of events); low and high use times ___; locations for specialized instructional environments* ___;

location of toilets ___; adapted bathrooms ___; eating areas ___; areas for relaxation ___; places for meeting, planning or preparation ___;

common dangers ___; emergency exits ___; emergency personnel (first-aid, police) ___; ambulance loading points ___; location of telephones ___; determine how to clearly describe location ___;

naturally occurring routines* ___; natural cues that signal each part of each routine ___; natural cues indicating performance errors ___; natural reinforcers ___: (type ___, frequency ___, amount ___, and method of delivery ___);

components of naturally occurring routines* are identified: natural *initiating cues* (e.g., dirty teeth following eating) ___; *preparatory steps* (e.g., go to bathroom; select own toothbrush, etc.) ___; *core steps* (e.g., brush teeth in circular motion, top, bottom, inside, outside) ___; *performance monitoring requirements* (e.g., check chin for toothpaste) ___; *problem-solving steps* (e.g., use facecloth to wipe chin) ___; *associated* communication and social behaviors (e.g., wait until bathroom is free; request permission to use the bathroom) ___;

various methods nonhandicapped people use to perform routines* are identified ___; note rate ___, frequency ___, and duration ___ of responses; note commonly occurring problems associated with the routine (e.g., clerk temporarily called away; machine malfunction) ___;

note the number and type of training opportunities in each area ___; suitability of each area for training ___ (e.g., spatial-temporal ___ and social ___ factors);

note is made of behaviors that are not tolerated in the environments: (e.g., masturbation, self-stimulation, aggressiveness ___;)

environmental inventory data are collected by: teacher ___; parent ___, occupational ___, speech ___ and/or physical ___ therapists; the inventory is conducted by repeated ___ direct ___, unobtrusive observation ___ and/or repeated ___ participation ___; interviews are conducted with on-site personnel ___ and the general public ___.

Other: _____

_____

(d) *Community preparation*: meetings are held with representatives of potential community instructional environments ___; to explain the nature (frequency, duration, times) of the program ___; to explain the purpose ___ and philosophy ___ of the program ___; to describe, in positive terms, the nature of the students ___; to describe amount and type of supervision ___, liabilities ___, contact persons and their telephone numbers ___; where necessary or desirable, permission is sought to use the environment for instruction ___ for limited (specify) ___ or unlimited ___ periods of time ___; methods and opportunities for community representitives to provide feedback and express concerns are described ___; printed material describing the foregoing information is left with relevant community representatives ___.

Other: _____

_____

(e) *Environmental selection*: is based on: environmental inventory (see above) ___; preparation ___ and acceptance of community personnel (see above) ___; site is not overused as a training facility ___; natural proportions of handicapped and nonhandicapped people are maintained ___; objectives specified in students' IEPs ___; student skills and experience ___; student familiarity with the environment ___; similarity of environments to those that are/will be frequented by students ___; parental preferences ___; safety features ___; frequent opportunities ___ to interact with a variety ___ of nondisabled people ___; accessible by normalized transportation ___; unnecessary time is not wasted in transit to or from the site ___; acceptable cost factors ___; availability of site at desired times ___.

Other: _____

_____

Administrative Considerations

(a) *Legal*: legal liabilities are reviewed with legal department regarding: type of coverage and limitations of insurance ___ related to transportation ___ in public ___ and private ___ vehicles; on-site injury (accidental ___ or intentional ___), involving staff ___, students ___ and/or the public ___ as well as property damage ___; use of unaccompanied paraprofessionals in supervision ___ transportation ___ and instruction ___; need for professional liability insurance ___.

(b) *Financial*: staff are reimbursed for additional insurance coverage related to use of private vehicles and professional liability insurance ___.

(c) *Policy*: policy statements regarding the school district philosophy and rationale for community-based instruction are prepared ___;

procedures are written for: goal selection (transdisciplinary assessment and decision-making) ___; program design ___; program implementation ___, instructional ___ and behavior management ___ techniques (approved ___, restricted ___, or prohibited ___); supervision ___; data collection ___; student and program evaluation ___; program approval ___ and revision ___;

policies and procedural guidelines are written for: job descriptions ___, personnel evaluation ___, and staff development ___;

emergency procedures are written for health (accident, status epilepticus) ___, behavioral (e.g., violent) ___ problems and missing students ___;

policies are developed regarding procedures for insuring continuous availability of essential medical information ___, (e.g., relating to medications ___, allergies ___, physical and medical conditions ___, and emergency telephone numbers ___);

written policy and procedures are established for obtaining signed ___ program approval from community representatives ___; training ___ and supervisory ___ personnel, and parents ___; the nature of informed consent is defined regarding specification of instructional objectives ___; instructional ___ and assessment ___ procedures ___; location and duration of instruction ___; risks and liabilities ___; program philosophy ___ and supporting evidence ___; the IEP is signed ___;

procedures are established for amount ___, and nature ___ of supervision; nature of activities requiring approval ___ and supervision ___;

record-keeping policies and procedures are prepared relating to: IEP development and approval ___; frequency ___, duration and location ___ of instructional ___ and behavior management ___ methods employed; staff involved in various procedures ___; frequency and type of assessment ___; student progress data ___;

procedures are developed for reporting: the location of staff and students ___, whether in transit ___ or on-site ___; student ___ and staff absences ___, for part or all of a day ___; changes in schedule ___.

Other: _____

_____

(d) *Personnel* employed in community-based instruction: special ___ and regular ___ education teachers; vocational ___, music ___, physical ed. ___, and art ___ teachers; therapists: occupational ___, physical ___, speech ___; social workers ___; school nurses ___; senior citizens ___; college ___ or secondary school ___ practicum students; parents ___; volunteers ___; temporary ___ or permanent ___ collaboration and/or consultation of store clerks ___, bus drivers ___, waitresses ___, cashiers ___; peers tutors or buddies ___.

Training:

Teachers _____ T
Teaching assists _____ A
Therapists _____ Th
Parents _____ P
Others _____ O

	O	P	Th	A	T
– trained to teach type of students being taught	—	—	—	—	—
– trained to employ specific behavior management techniques being used	—	—	—	—	—
– trained to use specific instructional techniques being employed	—	—	—	—	—
– trained to collect, plot and interpret data	—	—	—	—	—
– trained in record keeping	—	—	—	—	—
– trained in philosophy and rationale of community-based instruction	—	—	—	—	—
– trained in techniques specific to community-based instruction	—	—	—	—	—
– trained in emergency procedures (first-aid, CPR ...)	—	—	—	—	—
– trained in district policies	—	—	—	—	—
– trained to work with people in other disciplines	—	—	—	—	—
– trained in public relations	—	—	—	—	—
– trained to supervise students	—	—	—	—	—
– trained to work without supervision	—	—	—	—	—
– being employed	—	—	—	—	—
– trained to teach specific techniques to other personnel	—	—	—	—	—

Other: _____

_____

Roles: therapists work with teachers on assessment ___, goal selection ___, equipment development ___, development of instructional/therapeutic techniques ___, and on-site training and supervision ___;

two or more teachers team-teach to permit flexibility of student grouping and rotating use of community training sites ___;

teachers and other personnel specialize in training students in specific environments ___;

instructional aides are assigned to a particular teacher ___ or training site ___; are trained to conduct hands-on training ___ with ___ or without ___ continuous supervision;

contact is made with teacher ___, paraprofessional ___ and other related unions or associations (occupational ___, physical ___, speech ___ therapists) regarding staff responsibilities ___ and liabilities ___; job descriptions are written to include off-campus responsibilities ___

Other: _____

_____

(e) *Transportation* is chosen, wherever possible, that is normalized ___, accessible ___, provided with appropriate safety devices ___; permits in-transit training opportunities ___; least expensive ___; and minimally time-consuming ___;

district school buses are rerouted to deliver students directly to and from the community training site without first going to a school ___;

teacher ___, parent ___ or volunteer ___ private vehicles are used (see section on legal considerations);

residential ___ and community agency ___ vehicles not in use during school hours are employed;

public transportation offers: discount passes ___, free travel during low use times ___, use of training vehicles ___, low cost bus rental ___, and/or volunteer, off-duty bus drivers ___;

consideration is given to the cost ___ convenience ___ and training opportunities ___ of alternative methods of travel, as well as to alternate means of travel in the event of unexpected problems or emergencies ____.

Other: _____

_____

Instructional Considerations

(a) *Program goals, objectives and IEPs* are selected on the basis of:

- ecological inventories of students' current and future ___, residential ___, vocational ___, educational ___ and recreational environments ___ and subenvironments ___;
- students have the opportunity to perform the skills often ___ in their daily lives ___, in many environments ___;
- transdisciplinary decisions of parents ___, guardians ___, teachers ___; occupational ___, speech ___ and physical ___ therapists; vocational specialists ___, and others _____;
- activities, settings, materials and equipment are chronologically age-appropriate ___;
- environments are least-restrictive ___ and maintain a natural proportion of disabled and nondisabled persons ___;
- given the constraints of time, personnel, the instructional situation, the students' entry level skills, and the rate and style of learning, it is likely the students will be able to acquire sufficient skills to achieve independent mastery ___ or participate partially to a satisfactory degree ___;

- the skills taught are related to basic health ___, safety ___, life maintenance ___ and quality of life ___;
- the skills taught will reduce dependency ___, enhance normalization ___, increase social acceptability ___, increase opportunity to learn additional skills ___, increase opportunity to interact with nondisabled people ___, increase opportunities to understand and express thoughts and feelings ___; increase opportunities to enjoy social-emotional-recreational life ___;
- *Social validity*: the rate ___, style of performing and perceived importance ___ of the skills taught ___ and the teaching procedures used ___ are considered to be appropriate by the general public ___, people in community environments in which instruction will be conducted ___; parents ___, students ___ and nonhandicapped peers ___.

(b) *Instructional Tasks* include mailing letters for family and school ___; dropping-off and picking-up family and staff clothing at a dry cleaners ___; washing family and group home laundry ___; preparing food for peers, staff and group home ___; purchasing food for family, staff, elderly people, and group homes ___; providing household and yard maintenance for group and family homes and the elderly ___.

(c) *Instructional Delivery*: instruction is individual ___, small group ___; concurrent (everyone instructed at same time) ___; sequential (students in group are individually taught in rotating sequence)___; incremental (group size is slowly increased) ___;

instruction is consecutive (skills are taught in school before moving to community)___; concurrent (skills are taught in school and community at the same time) ___, or exclusive (skills are taught only in the community) ___;

instruction is conducted in only one environment of a specific type (e.g., in one grocery store, or using one vending machine) ___ or concurrently ___ or successively ___ in several environments of the same type (e.g., in several grocery stores, or using several vending machines);

where instruction, management, or supervision is provided by someone other than the teacher, written guidelines describe all responsibilities ___, procedures ___, and policies ___; checklists ___ and logbooks ___ are also provided;

where instruction or management is provided by someone other than a teacher, procedural scripts are provided that describe the sequence of steps taken to implement a procedure ___; the scripts include a description of equipment ___, materials ___, physical arrangements ___, sample dialogue ___, prompts ___, reinforcers ___, and correction procedures ___.

(d) *Instructional Grouping*: grouping is homogeneous ___ or heterogeneous* ___; students differ on: level of intellectual functioning (severe, mild, moderate) ___, physical ability (wheelchair or ambulatory) ___, level of skills related to task ___, behavior management ___ and instructional ___ requirements;

the ratio of students to instructional personnel is: 1:1 ___, 2:1 ___, 3:1 ___, 4:1 ___, or 5:1 ___.

(e) *Instructional scheduling*: staggered schedule: different groups of students from the same ___ or different ___ classrooms are instructed in the community at different times (e.g., a.m. or p.m. M, W, and F) ___; or one group is instructed to criterion on a task before introducing another group ___;

schedules of therapists: occupational ___, speech ___ and physiotherapist ___ have been changed from short-term, school-based to long-term, community-based treatment ___; involves less ___, same ___ or more ___ direct contact time with students;

massed practice is scheduled for initial skill acquisition ___; when massed practice is used, the number of consecutive trials is selected to enhance rapid, consistent, and accurate responding ___ while avoiding fatigue and boredom ___; an appropriate frequency of distributed practice is scheduled to enhance skill maintenance ___; a suitable variety of instructional environments (representing the most difficult commonly found conditions ___, and the most common range of conditions ___) are used during instruction to facilitate skill generalization ___; sufficient practice is scheduled to acquire and maintain the ability to perform low frequency tasks of high importance ___;

a suitable duration and variety of instruction is scheduled to avoid fatigue and boredom ___; a variety of instructors are employed to enhance skill generalization ___ while maintaining essential continuity of instruction ___.

(f) *Planning an instructional schedule*: instructional schedules are developed following consideration of:

- number and type of staff available ___; frequency ___ and duration ___ of availability;
- students' instructional objectives ___; instructional needs: frequency ___, duration ___ and type of instruction required;
- environmental availability: times ___, duration ___;
- transportation: normalized ___, specialized ___; time required ___; instructional opportunities during transportation ___;
- time required for: staff breaks ___, preparation and clean-up ___, data collection ___, data analysis ___, meetings ___, and training ___;

- anticipate the problems: delayed transportation ___, community site not available ___, staff absent ___, students absent ___, and unsuitable weather ___;

(g) *Stimulus prompting: within stimulus prompting*: (student attention is drawn to natural cues by directly enhancing the salience of the discriminative feature of the cues, e,g., brightly color the forward and reverse darts on a tape recorder) ___.

Extra stimulus prompting: (different cues are added to draw student attention to the discriminative features, e.g., the teacher points to the forward and reverse darts on a tape recorder) ___.

Redundant cue prompting: a secondary cue is added to which the student can respond without attending to the natural cue (e.g., the forward key on a tape recorder is colored green while the stop key is colored red) ___.

Stimulus prompting is temporary ___ or permanent (an adaptation) ___.

Response prompting: antecedent prompting (errorless learning): verbal ___, gestural ___, modelling ___, and physical ___ prompts are used to direct student attention to natural cues ___ and to prompt the desired response to those cues.

To insure that one response in a chain cues the next response, student attention is drawn to the cues for the next step while she or he is completing the previous step ___.

Consequence prompting (increasing assistance): students are allowed to make a response without teacher guidance; if the student makes an incorrect response, assistance is provided ___.

(h) *Fading prompts*: the intensity of stimulus prompting is progressively reduced ___; response prompts are faded by: time delay (by increasing the duration of time between presentation of the natural cue and the response prompt) ___; by fading from a more to a less intrusive prompt (e.g., from physical to modeling to gestural to verbal prompts) ___; by proximity fading (progressively decreasing teacher-student proximity) ___.

(i) *Transfer stimulus control*: control is transferred from teacher prompts to natural cues by using fading as above ___ while focusing student attention on natural cues during each trial ___.

(j) *Cue discrimination training*: learners are taught to discriminate and not respond to cues that are commonly confused with natural response cues ___.

(k) *Motivational considerations*: scheduling: Premack scheduling (personally preferred activities are scheduled following less desirable

activities) ___; a variety of activities are scheduled ___; repeated trial practice to point of boredom and fatigue is avoided ___.

Interrupted responding: (e.g., a well established routine is briefly interrupted to teach a language concept; the opportunity to continue the routine may be motivating) ___.

Reinforcers: extrinsic: type ___, amount ___ and frequency ___ approximates natural reinforcers; extrinsic and natural reinforcers are always paired ___; learner attention is always drawn to natural consequences ___; extrinsic reinforcers are gradually faded to transfer stimulus control to natural reinforcers ___;

during initial instruction, 80% or more of responses are reinforced ___; reinforcers are dispensed in a nonstigmatizing manner ___;

extrinsic reinforcers have demonstrated reinforcing value to specific learner being taught ___;

natural reinforcers are identified through an environmental inventory (see above) ___.

(l) *Correction procedures*: consequence prompting is used (as above) ___; the student returns to steps previously performed correctly ___, attention is directed to natural cues ___ and the desired response is prompted ___.

Instruction employs both systematic ___ and direct instruction ___ as well as incidental instruction (explain) ___.

(m) *Selection of instruction/behavioral methods*: instructional and behavioral management techniques used are: the least intrusive ___; demonstrated most effective for the type of task and student involved ___; are best suited to the particular student(s) involved ___; are age-appropriate ___; normalized ___; not stigmatizing ___; enhance student dignity ___; are nonaversive ___; and are responsive to the social context in which training is conducted

Other: _____

_____ _____

Notes

Specialized instructional environment: a controlled environment used for short-term, intensive training (e.g., permits repeated trial practice; more intrusive prompting; greater stimulus control); may also be used to cope with severe behavior disorders, may be located in a disused store or storage area in shopping center; area in church, community, or recreation centers).

Routines: skill sequences that begin with a natural cue and end with the achievement of a critical effect or function of the behavior. Tooth brushing is a routine having several components: *initiating cue*: when teeth are dirty after eating; *preparatory steps*: going to the washroom; getting toothpaste and brush; *core steps*: actually brushing teeth; *terminating steps*: putting the equipment away; and *associated behaviors*: social and communication.

Heterogeneous grouping: heterogeneous groups of students are sometimes easier to manage; ambulatory students can often assist students using wheelchairs; it is easier to focus on one student requiring intensive behavior management than if all students in the group require such programming; students requiring little instruction and supervision can practice skills while instruction is focused on students with greater instructional needs; higher level performers may serve as models for other students; students who have acquired a skill may teach other students and thereby enhance generalization.

References

Baine, D. (1988). A checklist for judging the quality of curriculum and instruction for persons with severe handicaps. *Education and Treatment of Children, 11*, 70-81.

Baine, D. (1990). Selecting instructional environments for students having severe multiple handicaps. *B.C. Journal of Special Education. 14*, 120-132.

Brown, L., Nisbet, J., Ford, A., Sweet, M., Shiraga, B., York, J., & Loomis, R. (1983). The critical need for nonschool instruction in education programs for severely handicapped students. *Journal of the Association for Persons with Severe Handicaps, 8*(3), 71-77.

Baumgart, D., & VanWallaghem, J. (1986). Staffing strategies for implementing community-based instruction. *Journal of the Association for Persons with Severe Handicaps, 11*, 92-102.

Fimian, M. (1984). Organizational variables related to stress and burnout in community-based programs. *Education and Training of the Mentally Retarded, 19*, 201-209.

Ford, A., & Mirenda, P. (1984). Community instruction: Natural cues and correction decision model. *Journal of the Association for Persons with Severe Handicaps, 9*, 79-88.

Hamre-Nietupski, S., Nietupski, J., Bates, P., & Maurer, S. (1982). Implementing a community-based educational model for moderately/severely handicapped students: Common problems and suggestions. *Journal of the Association for Persons with Severe Handicaps, 7*, 38-43.

Sailor, W., Anderson, J., Halverson, A., Doering, K., Filler, J., & Goetz, L. (1989). Community intensive instruction in the intermediate and middle school years. *In The comprehensive local school: Regular education for all students with disabilities*. Baltimore: Brookes.

Sailor, W., Goetz, L., Anderson, J., Hunt, P., & Gee, K. (1988). Research on community intensive instruction as a model for building functional generalized skills. In R.H. Horner, G. Dunlap, & R.L. Koegel (Eds.), *Generalization and maintenance: Life-style changes in applied settings*. Baltimore: Brookes.

Sailor, W., Halverson, A., Anderson, J., Goetz, L., Gee, K., Doering, K., & Hunt, P. (1986). Community intensive instruction. In R.H. Horner, L.H. Meyer, & H.D. Fredericks (Eds.), *Education of learners with severe handicaps: Exemplary service strategies*. Baltimore: Brookes.

Snell, M., & Browder, D. (1986). Community-referenced instruction: Research and issues. *Journal of the Association for Persons with Severe Handicaps, 11*, 1-11.

Chapter 5
Integration Models for Students with Moderate to Severe Disabilities

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A decade has passed since establishment in Manitoba of the first mainstreaming opportunities for students with moderate to severe handicaps. This chapter addresses the evolution of integrated classrooms in Manitoba, with particular attention to two effective models, the cluster model and the neighborhood school integration model. The most recent model, that of neighborhood school integration, involves the integration of special needs students with their chronological-age peers in regular education classrooms in their local community schools on a ratio proportionate to that expected in the general population. Both the cluster and neighborhood methods of integration have been instituted and evaluated in Manitoba schools. The nature, advantages, and disadvantages of each model are described. The author also describes the establishment of Special Education Management Teams with the movement of decision-making for special education to the schools from the Department of Special Education. The responsibilities of these teams are described.

Children with moderate to severe handicaps are usually educated in special classrooms, yet educators experienced in services for exceptional children have emphasized the importance of daily, long-term interactions with nonhandicapped peers (Brown, et al. 1978; Lipsky, & Gartner, 1987; Sontag, Certo, and Button, 1979). Only recently have some severely handicapped children been mainstreamed into regular classrooms, usually at the preschool level.

Educational programs for children with physical and mental handicaps in Winnipeg and the Province of Manitoba have changed dramatically over the last decade. Prior to 1978, the majority of these children within the public school system were enrolled in segregated settings.

Cluster Model of Integration

In Winnipeg School Division No. 1, movement toward integration began with the selection of a large accessible elementary school (Lord Roberts School) where staff and administration were supportive of the principle of least restrictive environments. Sixty youngsters with handicaps were partially integrated for the first two years of the program.

An extensive survey was distributed during the spring of 1980 to assess the attitudes of parents and school staff toward integration. The results of this survey (Madak & Chattaway, 1980) demonstrated that both staff and parents overwhelmingly supported the integration concept. Ninety-six percent of the parents of nonhandicapped students and all of the parents of handicapped students believed that both handicapped and nonhandicapped children benefited from attending an integrated setting. When asked if students with mental handicaps should be integrated into the regular classrooms, 66 percent of the parents agreed that they should be integrated.

As a result of these positive findings, and after further staff development and parent education, children with mental handicaps were mainstreamed in a full, day program at the early childhood (nursery and kindergarten) level in September 1981. The success of this program encouraged staff to develop mainstreaming at primary and intermediate levels.

To accommodate children with challenging needs full time in the regular classroom, special and regular teachers have combined classrooms, students and expertise to provide a unique mainstreaming environment. Team teaching is carried out in open area classrooms.

Some of the important elements of the program are as follows.

(a) Students with handicaps and their nonhandicapped peers do not have separate areas within the classroom. Special education students are situated beside their nonhandicapped peers throughout the classroom.
(b) Children having handicaps are integrated for all activities except French and swimming.
(c) A team consisting of a regular and a special education teacher deliver the instruction in each area. Both teachers are involved in instruction of all children, although individual goal setting for students with exceptional needs is the responsibility of the special education teacher.
(d) Cooperative learning is encouraged for many activities. The use of themes, play areas, computers, and learning centers enables children at different developmental levels to participate in the same classroom activities.
(e) Programs in survival reading, leisure and life-skills, and consumer mathematics are taught during the same time period as are language arts and mathematics. The teachers adapt regular social studies, science, health, and physical education curricula to accommodate students with special needs.

The clustering of children with exceptional needs and integration in a large elementary facility has many advantages. Children with significant handicaps can be placed in regular class settings when a special education teacher is included on the teacher team, and teacher aide support is provided. Occupational, physical, and speech therapy can remain on site. Par-

ent and staff support, and professional development are comprehensive and ongoing.

Hill and Whiteley (1985) investigated the frequency of social interactions and on-task behavior at Lord Roberts School. Social interactions occurred among handicapped and nonhandicapped peers. However, it was significantly lower than the number of interactions between nonhandicapped students and other intellectually normal children. In contrast to this result, it was found that students who were handicapped did not prefer to interact with each other. Their interactions were mainly with their able-bodied peers.

On-task behavior provided a measure of student attention to appropriate classroom activities. There was no difference between students who were exceptional and those who were nonexceptional on this measure, indicating that productive educational activities were being maintained at the same level for both groups of students.

Neighborhood School Integration Model

Although there are decided administrative and cost benefits to educating en masse a large number of students who are handicapped, a more progressive model has evolved within Winnipeg School Division No. 1 and other school divisions in Manitoba. The clustering of students was an initial attempt to enable children with severe and multiple handicaps to be educated with their peers. Within the last five years, students in some areas are able to access their neighborhood schools. To the delight of parents and advocates for community living, students with a wide and complex range of educational needs have the same right as do their neighbors to register at their local schools and receive the special supports that are necessary to provide an enriching educational environment.

This integration model began with three schools in Winnipeg School Division No. 1 and has since expanded to over 20 schools in two separate areas of the division. Teachers, previously in segregated classes for students with mental handicaps, learning disabilities, and assessment classes, were reassigned to an itinerant role.

Itinerants were assigned to one or several schools depending on the population and educational needs of each of the special education students. The schools assigned to a itinerant special education teacher were within a couple of blocks, so travelling time was kept to a minimum.

The itinerants spent part of each day in the assigned schools. The role of an itinerant special education teacher differed from that of a school-based resource teacher.

Included in the job description of the itinerant teachers were the following expectations:

(a) to develop and update an Individual Educational Plan (IEP) for each student;
(b) to make curriculum adaptations;

(c) to work with classroom teachers to implement the IEP within the context of regular classrooms;
(d) to provide academic assessment and a diagnostic and prescriptive program;
(e) to provide direct service to students requiring individualized instruction;
(f) to engage in team-teaching with the classroom teacher to individualize within small groups;
(g) to encourage and promote social interactions within the classroom; and
(h) to provide, as part of a teaching team, support and supervision for teacher aides.

The case-load for each itinerant teacher varied according to the level and degree of assistance necessary. The exceptional needs of the students ranged from mild mental retardation to severe behavioral or learning difficulties. Children with autism, multiple handicaps, hearing and visual impairments were being accommodated in their local schools.

Teacher aides were assigned to individual students who required assistance. Classrooms that had students with severe disabilities had full-time teacher aides. Funding for paraprofessionals came from Manitoba Education and was applied through a Low Incidence Funding grant system.

The advantages of this model are numerous. Students, if capable, could walk to school with their classmates. They had a sense of belonging as their families and siblings were members of the immediate community. Acceptance by parents of nonhandicapped children of the integration was more immediate. The children were their neighbors, and the parents of these children were involved in community activities. The number of students in the school with any type of disability reflected the natural proportion, that is, the percentage that would have been expected in the general population. The threat of overloading the regular classroom with exceptional children was not apparent.

There were definite benefits to the classes involved in integrated programs. The instruction of children without disabilities was likely to be enhanced by the additional personnel assigned to assist the teacher. Because specialized resources like individualized instruction, cooperative learning, and computer assisted instruction were used, regular education students could benefit from the emphasis on differentiated instruction.

Disadvantages were mostly administrative and were related to finances. With exceptional children being placed in individual classrooms, the need for more teacher aide assistance was necessary. This remained a costly item for the school division. Accessibility was necessary and costly as ramps and elevators were needed in older, two-story buildings. A larger number of teachers and principals required professional development, which can be draining on budgets and other professional development priorities.

Elementary Schools Special Education Management Team

With an emphasis on community integration, principals have assumed a greater responsibility for decision-making in special education. Through a decentralized, divisional movement and initiative from groups of administrators, special education management teams have been organized geographically in the division. The movement away from centralized decision-making for special education students was a positive outgrowth of neighborhood school integration. Full responsibility for the education of students with challenging needs remained with the schools rather than with the Department of Special Education.

Membership of each management team varied, but was usually made up of principals, special education itinerant teachers, and a consultant from special education. Responsibilities of each management team were developed to reflect the needs of each area.

One management team assumed the following direction in their mandate:

(a) to facilitate professional development opportunities in the area of special education;
(b) to develop and enrich the special education resource center in the area;
(c) to develop a library of software and peripherals to enhance individualized programs for students with challenging needs;
(d) to monitor case-loads, supports, and staffing of special education programs in individual schools, and to respond to changing needs of staff and programs, as necessary;
(e) to act as a liaison between special education itinerant teachers and administration;
(f) to receive and review requests for additional special education teachers and programs;
(g) to fulfill an advocacy role to promote principles of special education integration and appropriate services of school environments;
(h) to review and evaluate the special education integrated model on a continuous basis;
(i) to provide information to parents and the general public about special education students. To heighten awareness and develop promotional material, such as a brochure, information workshops, programs, etc.;
(j) to review teacher aide positions within the mini-area (recognizing that the allocation of positions, initially, is a division responsibility);
(k) to clarify policies and procedures and to ensure that all staff are current in their knowledge of these in the area of special education; and
(l) to review and rank order lists of accepted students for special education placement.

In examining the development of integration in Winnipeg School Division No. 1 over the last decade, it is apparent that a commitment to-

ward exceptional children has been a priority. Creative planning and reorganization of special education services has provided students with challenging needs a more enabling school environment. The process has not been without its setbacks and controversies. Both integration models have been replicated in various school divisions in the Province providing enriched environments to exceptional students in Manitoba.

References

Brown, L., Branston, M.B., Hamre-Nietupski, S., Johnson, F., Wilcox, B., & Gruenewald, L. (1978). A rationale for comprehensive longitudinal interactions between severely handicapped students and non-handicapped students and other citizens. In L. Brown, S. Hamre-Nietupski, S. Lyon, M.B. Branston, M. Falvey, & L. Gruenewald (Eds.), *Curricular strategies for developing longitudinal interactions between severely handicapped students and others and curricular strategies for teaching severely handicapped students to acquire and perform skills in response to naturally-occurring cues and corrective procedures* (Vol. 7, Part 1). Madison, WI: Madison Metropolitan School District.

Hill, C.A., & Whiteley, J.H. (1985). Social interactions and on-task behavior of severely multihandicapped and non-handicapped children in mainstreamed classrooms. *Canadian Journal for Exceptional Children, 1, 136-140.*

Lipsky, D.K., & Gartner, A. (1987). Capable of achievement and worthy of respect: Education for handicapped students as if they were full-fledged human beings. *Exceptional Children, 54,* 69-74.

Madak, P., & Chattaway, E. (1980, June). *Evaluation of the integration process at Lord Roberts School.* Paper presented at a meeting of the Canadian Psychological Association, Toronto.

Sontag, E., Certo, N., & Button, J.E. (1979). On a distinction between the education of the severely and profoundly handicapped and a doctrine of limitations. *Exceptional Children, 45,* 604-616.

Chapter 6
Behavior Management of Individuals with Severely Challenging Behavior in Rural Community Settings

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This chapter provides a description of the integration into small, rural communities of individuals with severely challenging behaviors, such as self-abuse, aggression, destructiveness, and noncompliance. The authors describe an innovative program operated by the Two Hills Regional Resource Centre providing support services to 39 towns in northeastern Alberta. The purpose of the program is to provide support for individuals having severely challenging behaviors so that they will be able to live and work in their home communities. A detailed description is provided of: (a) methods of recruiting, training, and maintaining qualified staff; (b) methods for establishing relationships with the community and educating the community; (c) developing nonaversive strategies to assist individuals with severely challenging behaviors, and (d) using proactive methods of behavior management.

Integration of individuals with severely challenging needs has become a priority for the 1990s. Evidence of a growing commitment to community integration includes a number of international conferences focusing on integration (e.g., Focus 90, in Victoria, BC; Alternative Futures Conference 1990, in Edmonton, Alberta; Tash Conference 1990, in San Francisco, California) in addition to a number of recent texts outlining effective strategies for promoting integration (e.g., Gaylord-Ross, 1989; Hazel, et al. 1988; Lipsky, & Gartner, 1989; Stainback, Stainback, & Forest, 1989).

In spite of the movement toward community-based integrated services, securing integrated opportunities in home communities may present a number of problems for both the families of individuals with developmental disabilities and service providers. This is particularly true when an individual, in addition to challenges in other areas, exhibits severely chal-

lenging behavior (Casey-Black & Knoblock, 1989; Meyer, & Evans, 1989). Severely challenging behavior includes any behavior that is disruptive or harmful to individuals, those around them, and/or their environments (e.g., self-abuse, aggression, self-stimulation, destructive behavior, and extreme noncompliance). Individuals who engage in one or more of these behaviors present a unique challenge in any community environment. For example, a young man may physically assault his employer or other employees at a supported work placement when he is frustrated. This behavior may result in removal from a supported work position as well as movement to a more restrictive group home setting. These events may occur in spite of the fact that he has the skills and abilities to live and work in the community, with minimal support, except during those times when he exhibits the challenging behavior.

It appears, then, that effective strategies are needed to support individuals with severely challenging behavior in their home communities. Small, rural communities may present special challenges because of factors such as lack of support services, shortage of trained personnel, and few, if any, alternative services (Farnden, 1987; McDonald & Peters, 1990).

The purpose of this chapter is twofold: (a) to discuss major issues involved in integration in rural community settings of individuals with severely challenging behavior, and (b) to describe how an innovative program serving persons with severely challenging behavior has attempted to cope with each of these issues. The following issues will be addressed.

(a) It is difficult to attract and maintain qualified personnel in small rural communities.
(b) People in small, rural communities may have little knowledge of, or experience with, persons with disabilities.
(c) It is important to develop nonaversive strategies to help individuals deal with their difficult behaviors. To this end, it is necessary to work on developing alternative skills to replace the challenging behavior. A small community may not have the same range of educational, vocational, and recreational options that are available in larger centers.
(d) Prevention should be a major component of any service delivery model.
(e) Programs and services for individuals with challenging behavior need to be evaluated on an ongoing basis.

Two Hills Regional Resource Centre

The Two Hills Regional Resource Centre (THRRC) provides support services to agencies serving individuals with developmental disabilities in northeastern Alberta. The northeastern region covers an area of 92,347 square kilometers (57,717 sq. miles). There are 39 towns with a population of 300 or more; the total population of the area is 169,000, of which approximately 1,100 have been identified as having a disability. The town of Two Hills (pop. 1,300) is centrally located in the northeast region with about

half of the population of the region living within a 50 kilometer radius of Two Hills.

THRRC, which commenced operation in 1987, is mandated to provide a number of support programs for the northeastern region of Alberta. A major purpose of the service is to provide support for individuals with challenging behavior so that they will be able to live and work in their home communities. In some cases, these individuals have been returning to home communities after spending a large part of their lives in institutional settings.

Services provided by THRRC include: (a) a behavior management program for up to three individuals who exhibit challenging behaviors and who require intensive, short-term specialized programming; (b) a respite program available to parents and agencies throughout the region; (c) a staff development program to provide specific skill training to staff members of agencies in the region; and (d) a resource library containing texts, journals, and audiovisual materials available to staff, parents, and agencies within the region. The library and managerial staff are housed in a large facility that was once an extended care center. A number of meeting rooms in the facility are available for inservice training, workshops, and community meetings. Individuals participating in the behavior management program reside in a house in a different community neighborhood, while the respite program operates out of a two-bedroom apartment in a third neighborhood.

The following discussion focuses on the behavior management support service provided through THRRC. Individuals with family ties in the northeast region of Alberta are referred from provincial institutions for persons with developmental disabilities. Referrals may also be made by agencies within the region. Individuals are referred when their behavior is such that it is not possible to serve them in their home communities. They are provided with an intensive, short-term program by THRRC and are returned to their home communities with ongoing support from the THRRC staff. While in Two Hills, these individuals live in a three-bedroom bungalow in the community neighborhood mentioned above.

The Issues

In the following sections, each of the five issues identified in the introduction will be discussed in terms of: (a) identification of the issue; (b) the process used by THRRC to address the issue; and (c) the outcome.

Issue #1: Recruitment, Training, and Maintenance of Qualified Staff

An ongoing problem in rural agencies providing services to persons with disabilities is the difficulty of recruiting, training, and maintaining qualified staff (McDonald & Peters, 1990). A survey of executive directors of agencies providing services to persons with disabilities, identified staffing issues as one of the most difficult and time consuming aspects of their

jobs (McDonald, Farnden, & Bucknell, 1990). Riediger and Baine (1987) found that the average annual staff turnover in 121 group homes throughout Alberta was 40%. Five percent (6) of the group homes surveyed reported annual turnover rates of more than 100%.

Alberta offers two-year diplomas in rehabilitation service through its community college system. Most of these programs are offered in urban centers and graduates tend to find employment within larger metropolitan areas (McDonald, 1980). Isolation, lower wages, and low levels of support are some of the reasons identified for the lack of success in the ability of rural areas to recruit skilled personnel. Attempts to offer formalized training utilizing a variety of distance delivery formats to employers or agencies has had limited success and impact within the rural sector (McDonald & Peters, 1988; 1990).

A survey conducted in the region in 1987 indicated that 60-65% of the staff in residential and vocational programs serving individuals with disabilities had no formal training; 15-20% had 0-2 years of training, and 18% had a four-year university degree or two years of rehabilitation training in a community college (Farnden, 1987). The lack of training and high turnover rates are of particular concern when staff members are faced with individuals having developmental disabilities and severely challenging behaviors. A key aspect of the ethical use of applied behavior analysis procedures is well-trained staff (e.g., Alberto & Troutman, 1990; Martin & Pear, 1988).

Process

An awareness of the staffing problems in rural agencies assisted the management of THRRC to develop a staffing plan with three distinct components: recruitment, training, and maintenance.

Recruitment. An important part of the recruitment process is the determination of the most appropriate staffing model to meet the requirements of the service the program is mandated to provide. THRRC considered the needs of the consumers of the service and developed the staffing pattern to match those needs. Flexibility and a willingness to consider, implement, and evaluate different staffing patterns and models have been critical to the success of the program.

Once the staffing model was determined, the next step was to develop the staff positions required. Positions involved first level supervisory positions, key workers, and aides or assistants. Management developed clear job descriptions identifying all of the relevant duties for each position and the lines of authority within the organization. The job descriptions were then used as the basis for determining what the minimum qualifications and experience should be for each different position within the organization. Wage scales were developed based on duties, responsibilities, qualifications, experiences and comparisons with similar positions within other similar service organizations.

The final steps in the recruitment phase were the standard practices of advertising positions and screening applicants according to educational qualifications, related experiences, and additional skills. Applicants were interviewed using both an oral and a written format. Each candidate was then rated, with selection and confirmation occurring as soon as possible after the interview was completed.

Staff Training. Staff training and orientation is vital to how well staff perform their jobs and is therefore critical to the success of the service provided. Because THRRC was a new program, there was an opportunity to have a two-week staff training session with the staff before any consumers began the program. The content of the staff training package is outlined in Table 1 and covered a variety of topics from organizational issues, programming strategies, and nonaversive behavior management, to everyday issues involved in operating a treatment home.

Staff were given the opportunity for input whenever possible. For example, staff were told that teaching/training programs for consumers would be developed on the basis of an Individual Program Planning (IPP) process. After being familiarized with a variety of commonly used formats, staff were given responsibility for developing their own format for writing the IPPs.

There were many advantages to having the opportunity to train new staff as a group during a block of time. Training as a group gave staff a chance to get to know one another outside of the normal working conditions, laid the foundation for effective team building, and allowed staff to assimilate information at an acceptable pace. It is not feasible to repeat the group training format as additional new staff are hired. THRRC conducts general orientation for new staff, on an individual basis, using a schedule established by the program management and the employee.

Maintenance. Given the high turnover rate of front-line staff, especially in rural areas, it is important for agencies to develop an active staff maintenance plan. THRRC has employed a variety of staff maintenance strategies described below.

An important component of maintenance is to provide ongoing skill development training for staff. All staff employed by THRRC are required to take training in CPR, first aid, medication delivery, communication, team building, and crisis management. In addition, all staff are given the opportunity to receive training in a variety of informal and formal educational activities. Informal training has included workshops on issues in sexuality with persons having developmental disabilities, job-coach training, microcomputer literacy, and effective consultation skills. These training sessions ranged from one half day to a full week, and employees have been given paid time-off and/or tuition to attend. Formal opportunities have included staff enrolling in university or college courses with tuition reimbursed by the organization following successful completion.

Table 1
Staff Training Topics

(a) Introduction to the Organization
(b) Introduction to the Program
(c) Organization and Structure of the Program
(d) Job Descriptions and Responsibilities
(e) Individual Program Planning
    Value-Based Programming
    Ecological Inventories
    Surveys and Checklists
    Individual Program Plans
    Specific I.P.P. Formats
(f) Introduction to Behavior Management
    Defining Behavior
    Recording Behavior
    Graphing Behavior
    Behavior Management Principles
    Programming Techniques
    Program Format
    Non-Aversive Behavior Management
    Ethics
(g) Communication—Report Writing
(h) Home Management Procedures and Practices
(i) Program Policies
(j) Diet and Meal Planning
(k) Introduction to Respite Care

Another maintenance strategy has been to provide opportunities for individual growth and change within the organization. Front-line staff have often changed from residential to vocational (job-coach) positions and vice-versa. As the organization has experienced growth and new programs have evolved or existing programs have been revised, staff have been able to assume new roles and responsibilities, thus minimizing staleness and burnout.

Attracting and maintaining staff depends to a certain extent on the wage and benefit package that an organization is able to offer. Since the primary focus of the THRRC program is to develop training programs for individuals with challenging behaviors, it was felt that staff should not only be highly trained but should be remunerated at a higher-than-average level. Wages for both assistants and key workers at THRRC are about 30% higher than wages paid to staff in typical residential or vocational programs in northeastern Alberta (McDonald, Farnden, Goudriaan, & McDonald, 1989).

Another important strategy in maintaining staff is the use of students as volunteers and part-time workers. THRRC has been able to recruit local high school students as volunteers to take consumers on outings and provide informal friendships. This program has helped to relieve some of the stress when there seems to be too few staff to attend to the many tasks that must be done during each daily shift. College and university students wishing to acquire experience working with individuals with disabilities utilize the program for practicum placement and part-time work. The students are generally enthusiastic and their energy often seems to give regular staff a boost. As well, the students provide new ideas and innovative ways of looking at some of the problems that are faced.

Outcome

The process described above appears to have had an impact on the staff turnover rate. The greatest turnover was in the group labeled as Rehabilitation Practitioner Assistants (RPAs). This group had little or no formal education or relevant experience to begin with and often found the behavior of the consumers more than they were prepared to deal with (McDonald et al., 1989). Of the six RPAs hired in July 1987, two were still on staff in July 1989. The average length of service for this group was 11 months. On the other hand, the Rehabilitation Practitioner (RP) staff had only one resignation (educational) in two years. Three of the original four RPs hired in July 1987 were still on staff in July 1989. The average length of service for the RPs was 20 months. This group seemed better prepared for all aspects of the job, perhaps because of pre-employment training and education.

Issue #2: Establishing Relationships with the Community and Educating the Community

It is no longer sufficient to demonstrate that challenging behavior can be brought under control in contrived, restrictive, and experimental environments (Meyer & Evans, 1989). If individuals are integrated in their home communities and are accepted by those communities, it is necessary that they participate in all aspects of community life with family, friends, and neighbors (Falvey, 1986; Hazel et al., 1988; Horner, Meyer, & Fredericks, 1986). An individual with challenging behavior should be able to live and work in the community with necessary supports and without unnecessary restrictions.

Like many communities in rural Alberta, the citizens of Two Hills had little knowledge of, and experience with, persons having disabilities. This lack of information became evident when the school children were asked to draw posters for the open house of THRRC. Some of the posters showed people (many in wheelchairs) behind windows with bars. Another incident occurred shortly after the center was opened. One young man, who was an avid jogger, went for his daily run. A member of the community phoned

the Center and stated with some concern that one of the inmates had escaped.

Process

The process of community preparation included a number of activities prior to the opening of the Center. A meeting was held with the town council to describe the program; a community advisory board was established, and the program was featured in the local newspaper. This meeting was followed by an open house attended by the Minister of Family and Social Services, center staff, service consumers, the town council, the mayor, and many members of the community. In addition to attending the open house, members of the community provided refreshments for the open house and the social event that followed. All went smoothly, in spite of the fact that one young woman, perhaps thinking that the present the Mayor gave to the Minister belonged to her, hit one of the visiting dignitaries in the face, resulting in a black eye.

Preparing the community is one small step in the ongoing process of involving the community in the Center and in the lives of the individuals living there. A key factor in the high profile of the Center is the fact that the Director lives and works in Two Hills and serves on committees unrelated to the operation of the Center. The Director, as well as other staff, attend regular feedback sessions with the townspeople and provide information to businesses on how to interact with consumers who may be exhibiting disruptive behavior. For example, one woman would strike someone with considerable force if she was prevented from doing something that she wanted to do (e.g., grabbing at candy behind the counter in a restaurant). Businesses were instructed that the person accompanying this woman would deal with the behavior, and that they were to ignore the interaction (and not come within striking distance).

Other community activities included newspaper articles about events at the Center, luncheons for employers who were participating in the supported work program and a staff baseball team. In addition, the Center was opened to user groups such as TOPS, Brownies, and Beavers. Finally, the consumers spent considerable time in the community participating in work, as well as leisure and recreation activities.

Outcome

The outcomes have been extremely positive. Members of the community have made positive comments to consumers and staff regarding changes they have observed in consumer behavior. One individual, when he first entered the program, would only walk backward. A few months later, when he was taking some tentative forward steps, a man stopped his truck in the middle of the road and exclaimed, "I didn't know he could walk forward." In general, there has been increased understanding and tolerance on the part of the community in the face of some particularly disruptive

and/or peculiar behavior. An outburst in a community restaurant where one young man suddenly stood up and hit a young woman for no apparent reason was greeted with a casual look and a return to normal conversation and meals by the other diners.

In addition to the qualitative changes in interactions between the community and THRRC, community members now request supported work placements, making the task of the job-coach much easier. Figure I depicts the cumulative number of job sites that have been developed between October 1987 and August 1989. At present, there are far more community jobs placements than can be utilized by current consumers.

Issue #3: Developing Nonaversive Strategies to Assist Individuals with Severely Challenging Behavior

In the past, individuals with severe or profound disabilities have been subjected to aversive behavior management procedures that would not have been considered acceptable forms of intervention for other individuals exhibiting the same or similar challenging behaviors (G. Allan Roeher Institute, 1988). There is a movement toward using more humane, less aversive behavior management procedures to cope with even the most severe forms of challenging behavior (LaVigna & Donnellan, 1986; Meyer, & Evans, 1989). A growing body of evidence suggests that these procedures are just as effective, if not more effective, than more intrusive procedures (e.g., Donnellan, LaVigna, Zambito, & Thvedt, 1985; Durand & Kishi, 1987).

A nonaversive approach to the management of challenging behavior maintains that all behavior, including behavior considered excessive and inappropriate, is communicative in nature (Donnellan, Mirenda, Mesaros, & Fassbender, 1984). Persons may engage in inappropriate behavior as a means of communicating that they are bored, angry, or simply seeking attention from those around them. A major focus of any nonaversive behavior management procedure is to teach individuals more appropriate ways of communicating with other people in the environment, and also teaching skills that will help them function in appropriate ways in community settings. A nonaversive approach is described by proponents as a more humane way of coping with challenging behavior that does not compromise an individual's dignity or right to make choices (Meyer & Evans, 1989). Nonaversive procedures to be implemented when inappropriate behavior does occur include differential reinforcement of other behaviors (DRO), differential reinforcement of incompatible behaviors (DRI), stimulus control, and stimulus change (LaVigna & Donnellan, 1986).

Process

THRRC advocates a nonaversive approach to the treatment of challenging behavior. Individuals referred to the treatment home were assured of an environment that provided both school or supported work and leisure opportunities. In addition, when a consumer lacked functional communica-

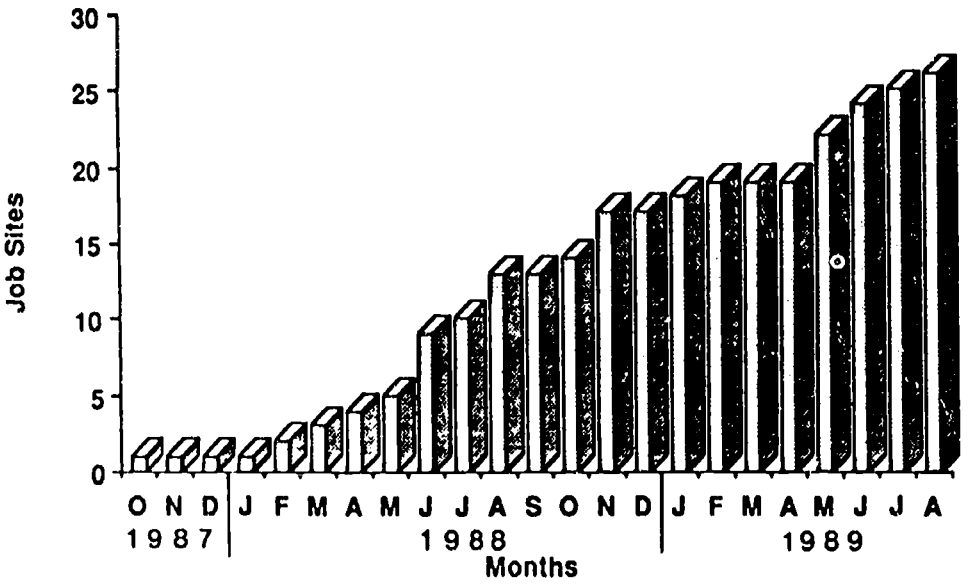

Figure 1. Cumulative number of jobs developed between October 1987 and August 1990.

tion skills, communication assessments were conducted by a professional speech and language pathologist specializing in severe and profound disabilities.

The biggest obstacle to overcome in Two Hills was in the area of vocational placements. There had been no previous job placements for persons with disabilities and the staff who were hired had no previous job-coach training. To rectify this situation, job-coach training was provided by a team of experts in an extended workshop format. Once the training was completed, job-coaches spent time in the community talking to prospective employers who might have been interested in providing supported work placements. As seen in Figure 1, securing job placement opportunities has not been a problem. Job placements included such diverse occupations as hairdressing assistant, auto mechanic assistant, farm laborer, camp-ground maintenance crew, and teaching assistant in a local school. One young man, who continually talked about cars and vehicles, obtained a job placement in an auto body shop. It was found that his lengthy discussions about cars and vehicles were generally not a problem in this setting.

A number of additional activities were undertaken to develop a comprehensive plan to increase functional behaviors and reduce or eliminate challenging behavior that interfered with an individual's ability to participate in community living. The first step involved a comprehensive as-

sessment conducted for each individual. The assessment included functional skills in all areas relevant to full community participation (e.g., educational, vocational, personal management, recreation, and communication). Following the assessment, a three-year service plan was developed along with an Individual Program Plan focusing on a period of six months to a year. Input was sought from the consumer, family members, THRRC staff, and any other people involved in the life of the individual.

Challenging behavior that was targeted for change was monitored on an ongoing basis, and the least restrictive alternative model of intervention was adopted. Any changes to a treatment program were made on the basis of data reviewed along with the consent of the individual involved (and/or an advocate). Staff were provided with training in values, ethics, behavior management, and crisis intervention during initial inservice training and on an ongoing basis as was necessary. All programming aimed at reducing challenging behavior and increasing appropriate, functional behavior was monitored by a psychologist specialized in behavior management.

Follow-up (approximately three months) was provided to all individuals attending the behavior management program. During the follow-up period, the consumer spent brief periods of time in the new setting along with a staff member from THRRC. In addition, staff from the new setting visited the consumer in Two Hills to become familiar with the individual's unique needs as well as his/her program plan. Support was provided by THRRC staff until the consumer was successfully integrated into his/her home community.

Outcome

The process described above ensures that individuals participating in the behavior management program learn to replace challenging behaviors with functional skills that will be useful to them in their home communities. For example, one or more job opportunities were available for each of the consumers 18 years of age or older. These were jobs that are usually available in most small, rural, community settings. In general, consumers were able to try a number of different job placements, with support, and every effort was made to match jobs to preferences identified by the consumers.

With respect to the successful management of challenging behaviors, five consumers (three females and two males) attended the behavioral treatment home in Two Hills over a two-year period. The age range of consumers was 14 to 35 years of age; three were in their 20s. The average length of stay in Two Hills was one year with a range of one to 18 months. The two consumers who stayed the longest could have moved to their home communities sooner, but there was some difficulty in securing residential/vocational placements in their home communities.

One young man provided a good example of the progress that has been made. He moved to THRRC from a large institutional setting where he had

been employed in a sheltered workshop. While at the institution, he engaged in a number of aggressive/self-destructive behaviors. Apparently his family was not very involved in his life. At the time of writing, he was living in his home community with a roommate, had a girlfriend, and worked at a community job, with some support. His parents were involved in many aspects of planning while he attended THRRC and have been very involved in developing and administering an Individualized Funding Program that provides the support he requires to live and work in his community.

Issue #4: Prevention: Assisting service providers in rural communities to develop skills to prevent challenging behavior and coping with it, in their own communities, when it does occur

It is important that service providers in rural communities develop necessary skills so that they will be able both to prevent challenging behavior from occurring and cope with these behaviors within their own communities when they do occur. Individuals with challenging behavior have the right to live, work, and be educated in their home communities (Hazel et al., 1988). If the ultimate goal is community-based, integrated services for all individuals with developmental disabilities and challenging behaviors, then service providers must be prepared to cope with difficult situations as they occur.

In some cases, challenging behavior may develop because individuals are placed in a program that does not meet their needs. For example, the only vocational placement opportunity in a community may be a sheltered workshop. A young woman may prefer to work in a community setting as a day-care assistant. As a result, she may quickly become bored with the repetitive tasks available to her in the workshop and, as in one case, begin to upset tables and chairs in the workshop on a regular basis. In this case, the challenging behavior could have been prevented if more vocational options (including supported employment) had been available in the community.

A second concern is that staff in rural communities require a range of skills to cope effectively with challenging behaviors when they do occur. As was previously mentioned, it is difficult to recruit, train, and maintain well-qualified staff in rural community settings. Often, the only option available to these communities is to hire staff and provide on-the-job training and inservice training. It is necessary to provide rural staff with skills to cope with challenging behavior so that the individuals are able to stay in their home communities and participate in all aspects of community life.

Process

THRRC, as part of its mandate with Alberta Family and Social Services, provided 50 days of staff development training each year to staff and agencies in northeastern Alberta. These inservice days allowed the opportunity

to introduce such concepts as empowerment, service planning, supported employment, nonaversive behavior management, and integration to all levels of staff in agencies providing services to persons with disabilities.

A comprehensive staff development plan was developed, based on a training needs analysis in all 13 agencies in the northeast region (Farnden, 1987). Staff from these agencies identified a list of 23 areas in which they wanted to receive further training (see Table 2).

Training sessions took a variety of formats and included brief courses that lasted only one day, to more involved courses taking a week to complete. Some courses were offered at the Resource Centre located in Two Hills and included staff from many different agencies throughout the region, while other courses were offered on site to staff of a particular agency. Most courses were offered in a limited time-frame while some (e.g., behavior management) were offered every second week over a period of two or three months and included homework assignments within the students' agencies to be completed for each session.

Based on the content areas identified, THRRC was responsible for recruiting instructors who were recognized as professionals knowledgeable in current issues, trends, and philosophy. For example, sessions on supported employment were taught by instructors from the Rehabilitation Administration Program at the University of San Francisco, and a course on future planning for parents was instructed by New Hats, Inc., an organization from Salt Lake City, Utah.

High demand topics such as behavior management always focused on treating behavior problems from the current best practice perspective of a contextual and functional analysis (Lavigna & Donnellan, 1986). Staff were encouraged to evaluate client excessive or deficient behavior as it related to the type of service system they were in and to the specific services that were being provided to them.

Outcome

In its first two years of operation, THRRC has provided 106 staff training days to 1,400 participants. Fifteen different topics were covered the first year and 22 during the second year. Evaluations by participants of the training sessions have been excellent with the average rating for both years being 4.1 on a five-point scale with five being the highest rating possible (McDonald et al., 1989).

Qualitatively, community education has had a significant impact on many individuals with disabilities in the region. One example evolved out of a session on lifestyle planning conducted for agency staff and parents in one rural community. The instructor requested that a real case be used during the workshop and the parents of a young, elementary school boy volunteered to participate with their son. Because of his challenging behavior, the boy had been attending a segregated classroom, in a local school. The lifestyle plan was able to pinpoint the boy's strengths and

Table 2
Training Requests Made by Agencies
in the Northeast Region (N=13)

Topic	Number of Agencies	Percent. of Agencies
Behavior Management	10	77
Individual Program Plans	9	70
24-Hour Planning	8	61
Community Living	5	38
Communication Skills	5	38
Supported Employment	4	30
Job-Coaching Assessment Techniques	4	30
Public Relations	3	23
Supervisory Skills	3	23
Counselling Techniques	2	15
How to Work with Parents	2	15
Teaching Social Skills	2	15
Ethics and Values	2	15
Recreation	2	15
Caseload Management	2	15
Understanding Human Behavior	1	8
Stress Management	1	8
Performance Evaluation	1	8
Medication Administration	1	8
First Aid	1	8
Introduction to Developmental Disabilities	1	8
Training Volunteers	1	8
Working with Aged Clients	1	8

needs and identify the resources that would be required to support the boy's integration in a regular classroom. Educational and funding resources were developed on the basis of the lifestyle plan and the boy has now successfully completed two years in a regular classroom.

Issue #5: Ongoing Program Evaluation

Programs for individuals with developmental disabilities should be evaluated on an ongoing basis to ensure that they are meeting the needs of the individuals they serve (Browder & Demchak, 1987; Fuhrer, 1987; Halpern & Fuhrer, 1984). Evaluation should include both "formative evaluation information, which is gathered in an ongoing manner or at intermediate stages in order to discover deficiencies and successes, and summative evaluation information, which is concerned with looking at

overall program effectiveness" (Linder, 1983, p. 218). It is particularly important to evaluate programs in small, rural communities because of the isolated nature of some or many of the services.

Process

Whenever possible, THRRC collects data related to its specific mandate. Quantitative information is available on the number of days the treatment home is occupied, the number of days of respite provided, the number of days of community education provided, and the number of agency staff trained. Since these services are the primary mandate of THRRC, it is important to keep very specific records to demonstrate that the obligations of the contract have been fulfilled and to use these records as a basis of ongoing contract negotiations. Data are also collected on challenging behaviors and IEP goals and summarized in the form of graphs. The program data are used to evaluate the progress of the consumers, to write progress reports for parents and agencies, as well as to determine program changes and modifications.

It is also important to collect qualitative information related to program quality and consumer satisfaction. For example, data indicating that 49 community education days, covering 15 topics, were provided to 700 participants relate to meeting a contract goal but do not relate to the important issue of what staff learned from the community education opportunities and to the impact these opportunities had on improving services to the quality of life of persons with disabilities. THRRC has developed a number of questionnaires to address program quality. These questionnaires included a staff organizational climate questionnaire (staff satisfaction), a questionnaire for parents of consumers of the behavior treatment home evaluating how parents view the behavior treatment program, a questionnaire for parents who have used the respite program, and evaluations of all community education activities.

Outcome

The results of the various evaluations have been used by THRRC not only to verify that they have fulfilled their contractual obligations, but also to improve and change services as necessary. For example, evaluation of the respite program (see Table 3) indicated that while parents felt the service was very good overall, they felt that it was not very accessible. That is, in their opinion, they had to travel too far to access the service. THRRC used this information to negotiate a change in the respite program with Alberta Family and Social Services. This change allowed THRRC to develop a host family program in many communities in the region, thus making respite more accessible for many families.

An analysis of occupancy statistics for the behavior treatment home over the first three years of operation indicated that 14 out of the 21 referrals were of an emergency nature. This information indicated to manage-

ment the need for an emergency service for the region as well as for revisions to the behavior treatment home to accommodate emergencies. Analyzing referrals by district office also helped to make recommendations for future services required in specific communities.

Workshop evaluations and staff questionnaires have helped to maintain the quality of community education provided and address important staffing issues. The high retention rate of front-line staff by THRRC as previously discussed is in part a result of monitoring staff closely and addressing their needs as they arise.

Community programs must always be sensitive to unsolicited qualitative feedback. The THRRC has had many examples of qualitative measures in its short history. This feedback has included unsolicited letters from parents indicating how the program has made a significant impact on their son's or daughter's lives and feedback from members of the community indicating how much improvement they have seen in some of the individuals in the behavior treatment program.

Staff have also provided many extras for consumers over and above their obligations as staff. It is not unusual for consumers to go to a staff member's house for dinner, or be invited on a shopping excursion, fishing, or camping trip. Staff advocate for consumers in the community reflected in the number of requests for workers and volunteers received by THRRC.

Table 3
Respite Care Evaluation

Program Component	N	Mean
Speed of Service	7	3.9
Booking Dates Available	8	4.1
Service of Staff	7	4.6
Telephone Manner	8	4.3
Accessibility	8	3.1
Flexibility	8	4.0
Specific Services/Programs	2	3.0
Continuity of Programs	1	4.0
Feedback from Staff	8	3.4
Admission Procedure	8	3.5
Discharge Procedures	8	4.0
Application Forms	8	3.9
Overall Service	8	4.3

An evaluation of the respite service was conducted. Parents who used the service over the past 7 months were contacted and interviews were conducted over the phone using a standard format. The maximum achievable score was five.

Conclusion

Individuals with challenging behavior may be successfully served in small, rural communities, as long as certain supports to individuals, families, and service providers are available. This chapter describes some of the issues facing service providers in rural communities and the manner in which THRRC has attempted to address these issues.

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References

Alberto, P.A., & Troutman, A.C. (1990). *Applied behavior analysis for teachers* (3rd ed.). Toronto: Merrill.

Browder, D.M., & Demchak, M. (1987). An assessment plan for supervisors. In D.M. Browder (Ed.), *Assessment of individuals with severe handicaps*. Baltimore: Brookes.

Casey-Black, J., & Knoblock, P. (1989). Integrating students with challenging behavior. In R. Gaylord-Ross (Ed.), *Integration strategies for students with handicaps*. Baltimore: Brookes.

Donnellan, A.M., LaVigna, G.W., Zambito, J., & Thvedt, J. (1985). A time-limited intensive intervention program model to support community placement for persons with severe behavior problems. *Journal of the Association for Persons with Severe Handicaps, 10*, 123-131.

Donnellan, A.M., Mirenda, P., Mesaros, R., & Fassbender, L. (1984). A strategy for analyzing the communicative functions of behavior. *Journal of the Association for Persons with Severe Handicaps, 11*, 201-212.

Durand, V.M., & Kishi, G. (1987). Reducing severe behavior problems among persons with dual sensory impairments: An evaluation of a technical assistance model. *Journal of the Association for Persons with Severe Handicaps, 12*, 2-10.

Falvey, M.A. (1986). *Community-based curriculum: Instructional strategies for students with severe handicaps*. Baltimore: Brookes.

Farnden, P. (1987). *Staff training needs analysis in north- eastern Alberta*. Unpublished working paper.

Fuhrer, M.J. (1987). Overview of outcome analysis in rehabilitation. In M.J. Fuhrer (Ed.), *Rehabilitation outcomes: Analysis and measurement*. Baltimore: Brookes.

G. Allan Roeher Institute. (1988). *The language of pain: Perspectives on behavior management*. Downsview, ON: Author.

Gaylord-Ross, R. (1989). *Integration strategies for students with handicaps*. Baltimore: Brookes.

Halpern, A.S., & Fuhrer, M.J. (1984). Functional assessment in the 80's: A conceptual enigma. In A.S. Halpern & M.J. Fuhrer (Eds.), *Functional assessment in rehabilitation*. Baltimore: Brookes.

Hazel, R., Barber, P.A., Roberts, S., Behr, S.K., Helmstetter, E., & Guess, D. (1988). *A community approach to an integrated service system for children with special needs*. Baltimore: Brookes

Horner, R.H., Meyer, L.H., & Fredericks, H.D.B. (Eds.). (1986).

Education of learners with severe handicaps: Exemplary service strategies. Baltimore: Brookes.

LaVigna, G.W., & Donnellan, A.M. (1986). *Alternatives to punishment: Solving behavior problems with non-aversive strategies*. New York: Irvington.

Linder, T.W. (1983). *Early childhood special education: Program development and administration*. Baltimore: Brookes.

Lipsky, D., & Gartner, A. (1989). *Beyond separate education: Quality education for all*. Baltimore: Brookes.

Martin, G., & Pear, J. (1988). *Behavior modification: What it is and how to do it* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

McDonald, S. (1980). *Preparation of rehabilitation practitioners in community college training programs.* Paper presented at the Provincial Manpower Planning Conference, Red Deer, Alberta.

McDonald, S., Farnden, P., & Bucknell, B. (1990). *Issues related to employment of executive directors in rural and urban based rehabilitation agencies in Alberta.* Paper presented at the Alberta Association of Rehabilitation Centres Annual Conference, Edmonton, Alberta.

McDonald, S., Farnden, P., Goudriaan, D., & McDonald, L. (1989).
Innovative lifestyle alternatives in a small rural community for individuals with challenging behaviors. Paper presented at the American Association on Mental Retardation, Region VIII Conference, Winnipeg, Manitoba.

McDonald, S., & Peters, C. (1988). *Bridging the distance: An innovative approach to rehabilitation service training.* Paper presented at the 8th World Congress of I.A.S.S.M.D., Dublin.

McDonald, S., & Peters, C. (1990). Bridging the distance: An innovative approach to rehabilitation training for paraprofessionals working in rural areas. *New Directions, 11,* 3-6.

Meyer, L.H., & Evans I.M. (1989). *Non-aversive intervention for behavior problems: A manual for home and community.* Baltimore: Brookes.

Riediger, E., & Baine, D. (1987). Turnover of staff in residential facilities for people with mental handicaps in Alberta. *Canadian Journal of Rehabilitation, 1,* 29-36.

Stainback, S., Stainback, W., & Forest, M. (1989). *Educating all students in the mainstream of regular education.* Baltimore: Brookes.

Chapter 7
Behavioral Support: A Transition from Residential to Outreach Services

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This chapter describes the 14-year evolution of Community Behavioral Services, a program in Edmonton, operated by the Alberta Provincial Government. The program began in 1976 as a residential treatment facility for individuals having mental retardation and severely challenging behaviors. Later, a specialized family home was established as a halfway house between the residential program and family placement. Still later, these residential facilities were replaced by alternative programs which provided relief, consultation, intensive support, as well as workshops and seminars to parents and to other community agencies. The authors describe several problems associated with residential programs and a number of useful evaluation procedures and instruments to ensure effective service delivery.

The mid-1970s, at least in Alberta, can be viewed as a turning point in the development of services for people with mental disabilities. In those days, they weren't called "people with mental disabilities," they were called "retarded." And individuals with challenging behaviors were known as "behavior problems." Many such people lived in large, segregated institutions. In Alberta, for example, Michener Centre accommodated over 2,500 people who, for various reasons, were considered to be unable to live in their communities.

Professionals had been advising parents for several decades that the institution was the best place for their retarded son or daughter. Why? Because it was the *only* place. Very few services existed to help parents cope with the additional stresses of raising a child having intellectual retardation.

In the mid-1970s, things began to change. In response to a number of factors, such as parent advocacy, normalization principles, progressive legislation, and economic prosperity, increasing efforts were made to develop a range of community services. "Deinstitutionalization" became the rallying cry in the human services field. Some, but not all, people began returning to their communities, opting for smaller, residential settings such as group homes, foster homes, and living with their natural parents.

Michener Centre reduced its population by nearly 1,000 within the ensuing 15 years. Hopefully, this trend will continue into the 1990s with more and more options being made available for people who choose to remain at home and be a part of community life.

The purpose of this paper is to describe a program for children with mental disabilities and challenging behaviors. The name of the program is Community Behavioral Services, operated in Edmonton by the Alberta Provincial Government. The discussion reviews the program in its early days and describes how it changed in response to changing community needs. The information will be helpful to others who provide community-based services for similar children.

In 1974, a group of parents approached the government saying, "We can't keep our kids at home any more, and we don't want to send them to the institution." These children all had challenging behaviors; they were aggressive, destructive, noncompliant, self-abusive, and so forth. They were the type of children that would put a strain on any caregiver and, as a result, they were often barred from participating in community programs. In those days, school teachers could tell parents to take their kids home; "He is just too disruptive to the rest of the class." Of course, expelling children from school only placed additional stress on parents who then had the problem of deciding what to do with the children at home.

To address these concerns, representatives from the newly formed Services for the Handicapped program of the Alberta Government asked these parents what services they needed. What came out of these discussions, at least for Edmonton, was a behavioral support service which included a six-bed, short-term residence and a small outreach team: Community Behavioral Services.

The Residence

By 1976, the residential program began to accept children with mental handicaps who displayed severely challenging behaviors. A renovated duplex, with six bedrooms, was used to provide short-term residential accommodation for the assessment and training of five children. The sixth space was available to children for periods up to 30 days to provide relief to parents.

Within the residence, a team of nine counsellors (Rehabilitation Practitioner I's) were involved in the design and implementation of individual learning programs, based on an assessment of each youngster's behavioral excesses, deficits, and assets. Parents were expected to remain involved with their children by visiting the residence at least once a week to help develop and carry out the behavior change programs under staff guidance. To ensure that parents developed behavior change skills, four counselors in the Outreach Program provided short-term behavioral workshops, supplemented with weekly home consultation visits. The intent of this training was to facilitate the reintegration of children into their natural homes.

On average, children stayed in the residence six to eight months before returning home. Follow-up services by outreach staff continued for at least three months, or longer if necessary, to ensure parents were capable of maintaining and teaching appropriate behaviors.

Unfortunately, some children were unable to return to their natural parents, for a variety of reasons, and attempts were made to place them in foster care. However, access to foster care homes was frequently unavailable because children from the Community Behavioral Services residence were labeled "behavior problems." Social workers responsible for placing children with foster care families often argued that although a particular child may have behaved appropriately in the residence with strict guidelines and a large staffing component, she/he would probably not behave similarly in a family-type setting.

Specialized Family Home

To counteract this argument, a halfway house was established in 1978 called the Specialized Family Home. This three-bedroom home was to be used as a stepping-stone to the community; that is, the structured behavioral programs established in the residence were to be gradually phased out within a family-like environment, thus providing children with an opportunity to prove that they could function in a less restrictive setting. The home was permanently staffed by a couple who were provided with consultation support through the Outreach Program.

Many positive changes were made over the six years that the Specialized Family Home was in operation. Higher qualifications of "parents" were required, a full-time in-home specialist was hired to provide more support, admission criteria were strengthened to ensure post-placement was available, parents were given more responsibility and independence in the operation of the home, and benefits and salaries were increased substantially.

In spite of these changes, it was difficult to maintain a continuous operation from year to year. While nine children made use of the home, four different pairs of houseparents came and went. It became increasingly obvious that the job of parenting three children with challenging behaviors was not an easy one, even with the support of an in-home specialist. The job was both technically demanding and emotionally draining. Several times, when house parents terminated, children had to be returned to the residence which itself was usually operating at full capacity. After six years of never quite meeting expectations, the Specialized Family Home was closed.

Downsizing

In 1984, the year the Specialized Family Home closed, government implemented fiscal restraint measures and encouraged innovative ideas to "do more with less." After a thorough review of program and budget issues, it

was decided to close the six-bed residence, relocate to a three-bed residence, and use the Specialized Family Home facility for a second three-bed residence. Both facilities had two permanent beds and one relief bed. The smaller residential units, in comparison to the six-bed residence, were expected to provide more individualized attention to each child, more consistency in programming, less negative modeling, and a more normalized environment which would reduce reintegration difficulties when a child returned home.

Our experience with the Specialized Family Home suggested that a permanent live-in operator supported by sufficient staff would provide the necessary consistency in programming, while at the same time minimize burnout of the operator. The contracted operator, supported by four counselors in each home, participated as a team member and was also responsible for household maintenance.

In the first year of operation, several individuals and couples came and went as operators in each of the homes. It was difficult to find someone who was willing to remain in the job for an extended period of time. In some cases, operators who left reported that they had been "happy" with the job; in other cases, they said they couldn't tolerate the stress associated with continuous exposure to children with severe behavior problems—they left with a career change in mind.

In 1985, continued fiscal restraint and the department's emphasis on downsizing resulted in a decrease of four positions at Community Behavioral Services, requiring the closure of one of the children's residences. The remaining residence would provide two permanent spaces and one relief space to serve the Edmonton region. Considering that the waiting list for the residential program averaged five to six children, a change was made to the service process. Instead of serving children until they met predetermined behavior change criteria, a child would stay for a maximum of 12 weeks, during which time both the child and the parents received instruction to increase the likelihood of success when the child returned home.

Problems with the Residential Program

The major concern throughout the 11 years of operation of the children's residential program was the unavailability of post-placements, resulting in a lack of movement from the residence. Although admissions required a post-placement, such placements were not always available when a child was ready for discharge. This situation was not only detrimental to the child who should have been moving to a less restrictive setting, but it also prevented other children from accessing the program.

A problem related to the lack of post-placements was the decrease in parental involvement once children were placed in the residence. Although attempts were made to contract with parents to stay involved on a regular basis, the contract provided very little leverage once the govern-

ment assumed responsibility for a child's placement and treatment.

Another problem related to congregating individuals with behavior problems in one facility was the lack of positive role models. Children often imitated the negative behaviors displayed by other residents, resulting in prolonged involvement while staff attempted to cope with the "new" behaviors.

A final problem was the difficulty of achieving generalization of children's appropriate behaviors from the residential setting to the parental home. The consistency and intensity of programming provided in the residence did not occur in the home settings. Thus, long-term maintenance of behavior change was often not achieved.

Survey of Needs

In 1986, because of the problems encountered in serving children in the residential program, it was decided to conduct a survey of community needs related to serving children with challenging behaviors. Two separate survey forms were developed: one for families, and one for community agencies. Survey questions focused on the types of service options both families and agencies could possibly use. Families were asked about the need for relief, short-term residential training, and in-home intensive support. Additional information was obtained from the parents regarding their perceptions of the level of their child's inappropriate behaviors (mild, moderate, or severe).

Agencies were asked what additional supports they required to accommodate children with challenging behaviors. The range of possible supports included formal training of staff, additional staffing, consultation, hands-on support, and so forth. Information was also obtained about the number of children with behavior problems, education of staff, and staff training needs.

Survey forms were sent to 236 families and 28 children's agencies in the Edmonton region.[1] Completed forms were returned from 49 families (21%) and 21 agencies (75%). The results of the parent survey are described below.

Parents were asked to rank order their service preferences from 1 to 5, with 1 being "most useful" and 5 being "least useful." The average rank order of responses indicated the usefulness of the service options; the closer the rating was to 1, the more useful that service was to the family.

Out-of-home relief, on a periodic basis, was considered to be the most useful service (ranked 1.3) with short-term residential placement being the least useful (ranked 2.3). Intensive support received an intermediate ranking (2.1). While 29 families rated relief as the most useful service (ranking = 1), only four families rated short-term residential training as their most useful service. It is interesting to note that those parents who categorized their children as having mild or moderate behavior problems tended to choose relief or intensive support as their most useful service. The parents who

considered their children to have severe behavior problems tended to choose short-term residential training as their most useful service.

In the children's agency survey, modeling of behavioral techniques was considered to be the most useful service that could be provided to them (ranked 2.3); hands-on program implementation was considered to be the least useful service (ranked 3.5). Consultation on behavioral techniques, observing and providing feedback to staff, and formal inservice training were at intermediate levels of usefulness for staff in children's agencies (ranked 2.5, 2.9, and 3.2 respectively). Most agencies indicated that over half of their staff (a total of 356) would benefit from additional training in behavioral program design. In fact, only two agencies indicated that such a service would not be beneficial to them at the time of the survey.

Several conclusions were drawn from the survey feedback:

(a) Parents expressed a strong need for out-of-home relief and intensive, hands-on support.
(b) Children's agency staff identified modeling techniques and training in behavioral-program design to help them deal more effectively with challenging behaviors.
(c) Very few children required out-of-home placement in a specialized treatment facility.

In summary, the survey results suggested that both parents and agency staff would be able to maintain children in their existing placements if they had more access to relief, intensive support, and formal training in behavior change strategies.

Planning the Transition

On the basis of these identified community needs, Community Behavioral Services began planning for a major shift in service delivery. Whenever possible, families and agencies were to be supported in their efforts to maintain children with maladaptive behaviors rather than moving them to specialized residential facilities. For children requiring highly structured management programs within a facility-based environment, it was proposed that they not be congregated in a specialized facility, but rather that they be dispersed among the existing residential services in the Edmonton region and that they be moved to less restrictive settings as their behaviors improved. By bringing behavioral supports to the home or agency, a specialized residential program would be unnecessary.

To ensure a smooth transition from residential to outreach services, Community Behavioral Services staff developed a communication plan that identified objectives and strategies for all stakeholders. The following examples illustrate a few particulars of the plan.

For parents

Objective: To ensure that no gaps in relief service occurred during the transition period.

Strategy: Develop alternate relief services by contracting with host families.

For children's agency staff

Objective: To promote interest in and commitment to the new outreach services.

Strategy: Conduct a survey to solicit agency input into the parameters of the new outreach services.

For Community Behavioral Services staff

Objective: To ensure residential staff are aware of and support the proposed changes.

Strategy: Update staff regularly and solicit their input into action plans, as appropriate.

For the public

Objective: To inform potential consumers and relevant interest groups of the proposed changes.

Strategy: Prepare media items for agency and association newsletters.

For government support services

Objective: To inform Personnel/Payroll of changes in position descriptions and classifications.

Strategy: Reclassify residential staff to higher- level, outreach positions.

For Public Works

Objective: To ensure staff have a suitable working environment.

Strategy: Arrange for Alberta Public Works to renovate the children's residence into offices for outreach staff.

For a six-month period in 1987, Community Behavioral Services continued extensive contact with parents and children's agencies, while providing appropriate training opportunities for internal staff to facilitate the transition from residential to outreach services.[2]

Closing the Residence

In 1987, the last child was discharged from the residence and the doors were closed to any new admissions. During the 11 years of operation, the Children's Residential Program provided short-term treatment to 68 children and relief accommodation to 553 children.

The "success" rate, defined as meeting a predetermined level of behavior change or parental satisfaction with the amount of change achieved, was about 75%. Only a few children were unable to remain at home following discharge from the residential program. These children were usual-

ly accommodated successfully in other agencies' facilities, often with support of the outreach counselors.

Outreach Model

From the needs survey described above, it was apparent that families wanted occasional out-of-home relief and intensive, hands-on support, defined as one-on-one programming. Staff from children's agencies wanted formal training in behavioral techniques and the modeling of these techniques with individuals they served. On the basis of this information, we developed three separate but interrelated services (relief, training, and intensive support) to replace the residential program.

Relief. Although a number of agencies provided out-of-home relief to parents of children with mental disabilities, none would accept children with "severe" behavior problems, for example, those requiring extensive supervision because of self-abuse, aggression, running away, and so forth. In the past, such children were accommodated in the relief bed(s), about 50 each year. Closing the residence meant that relief had to be provided elsewhere for those children.

In the needs survey, 90% of the parents indicated that out-of-home relief would be useful, mostly on weekends and during holiday periods, and preferably in a family-like atmosphere. Thus Community Behavioral Services advertised for several host families willing to provide occasional relief to parents by accepting a challenging child into their home. These host families would have to have at least one year of rehabilitation training, and experience in working with mentally disabled children. They would be well paid and supported by an aide and behavioral counselor, as required. A half-time relief coordinator would be hired to recruit host families, review referrals, and arrange relief.

Training. When staff in children's agencies were asked in the needs survey whether training in behavioral program design would be a useful service, almost all agencies indicated that it would be. To provide this training, a specialized training program was established to offer a variety of training options. These training options are described below.

(a) *Parent workshops*

Community Behavioral Services had been offering parent training through its Outreach Program for the last 10 years. Its purpose was to help parents develop skills for dealing more effectively with the behavior problems of their children. These behavior change skills were taught in a workshop format several times a year. A group of parents met one evening a week for four to six weeks. During these meetings, parents were instructed in behavior change principles and procedures, utilizing a teaching package developed by Community Behavioral Services. The sessions were made as interesting as possible by incorporating films, videotapes, demonstrations, and parents' own experiences.

During the course, a behavioral counselor from Community Behavioral Services visited each parent weekly. These home visits provided parents with the assistance and support necessary to carry out a behavior change program with their children. Subsequent to the workshop, a three-month follow-up was provided to assist with any difficulties that arose. This follow-up was extended if desired by the parents.

(b) *Agency workshops*

To address formal staff training in a variety of children's agencies, it was decided to offer behavioral workshops similar to those that had been provided to parents. Involvement began with a brief assessment of staff needs, followed by a period of observation and collaboration in order to tailor the workshops according to these needs. The delivery of information ranged from half-day sessions to many hours over a period of months.

During these sessions, staff were instructed in behavior change principles and procedures. Time was set aside for problem solving and considerable emphasis was given to the topics of generalization and maintenance. Staff were expected to apply the procedures learned in the workshops to effect behavior change in the individuals they served.

(c) *Seminars*

In some cases, agency staff or parents may simply have a presentation on a particular topic such as normalization or "positive approaches" to behavior management. It was decided to offer these presentations in the form of single-session seminars. These seminars differed from the workshops in that they did not necessarily involve the establishment of behavior change programs by participants.

(d) *Personal development workshops*

Over the years, it became obvious that a number of teenagers and young adults required information or instruction in the area of sexuality and interpersonal relationships. To meet this need, a workshop was provided where these individuals could meet with a group of peers to discuss a variety of related topics. These groups usually met two evenings a week for six to eight weeks; a flexible curriculum allowed for addressing individual needs.

Intensive support. The needs survey indicated that both families and agencies could benefit from a form of on-site intensive support that included modeling of behavioral techniques and one-on-one programming by Community Behavioral Services staff. Up to this point, outreach services consisted of weekly visits to families and agencies for an hour or so to give advice on program design and implementation. Although this consultative approach was useful to the recipients in some cases, it was obviously not enough. Many parents and agency staff were unable to implement the suggestions of the counselors.

What was needed was a separate program for families and agencies requiring more assistance than consultation alone could provide. Assistance would involve hands-on support in both homes and agencies. The counselors would model the appropriate use of behavioral techniques, provid · suggestions, and work closely with families or agency staff in program design and implementation. Termination would occur when parents or agency staff acquired the necessary skills to ensure a child could be maintained in that setting. In most cases, this would involve an agreed-upon level of improvement in a child's behaviors. Following termination, the counselor would maintain regular contact for up to a year, with regular phone calls and periodic visits.

Evaluation

During the first year of providing these new services—relief, training, and intensive support—information was obtained from parents and staff about their levels of satisfaction with the services and the degree of behavior change that occurred as a result of the additional support. Overall, the results were very encouraging.

Relief. Host family relief beds were used by 69 children during the year (over 80% of the time that they were available). Responses on a Satisfaction Survey indicated that parents were "very satisfied" with the ability and willingness of host families to serve their children. Many parents reported that the availability of such relief services greatly reduced the need for specialized placement outside the home. In fact, Community Behavioral Services has yet to encounter a child who cannot be accommodated with a host family, given the option of additional support of an in-home aide and consultation from the Intensive Support Program.

Just recently, Community Behavioral Services contracted with a transitional host family for placement of children who could not remain at home for various reasons. The purpose of these placements, for up to six months, was to allow a service plan to be developed that considered the needs of a child for alternate placement, perhaps with a foster family. Currently, it is too early to evaluate the success of this new service.

Training. Formal behavioral workshops were provided to 27 families and one agency during the year. Twenty-two seminars were provided to various agencies and one personal development workshop was provided to six adolescents. In all cases, parents and staff indicated a high level of satisfaction with these services.

Intensive support. Intensive, hands-on support was provided to 29 families and 13 children's agencies, resulting in 43 children being served. Once again, parents and agency staff indicated a high level of satisfaction with this service. In a sample of 21 of these children, 19 (90%) showed a positive behavior change. Only two children showed no improvement but continued to reside with the family requesting service.

In the previous residential program, about five children were served each year. With the same number of staff, intensive, hands-on support was provided to nearly eight times as many children in both home and agency settings. This increase in service delivery translates into a per-diem cost reduction from $116.00 for the Residential Program to $15.00 for the Intensive Support Program.

Current Service Process

The remainder of the discussion, describes a new service process and a few of the formal mechanisms (highlighted) used to ensure appropriate and effective services are delivered.

Referrals to Community Behavioral Services come first to the social worker who conducts an interview, gathering relevant information for the Referral Review Committee. The social worker leaves reading material with the parents or agency staff that describes the programs at Community Behavioral Services, other useful resources (e.g., listed in a specially prepared *Resource Manual*), and what to do until service can be provided. This *While You're Waiting* pamphlet provides some helpful hints on managing disruptive behaviors.

A *Priority Scale* was developed to help assess children according to their need for service. This scale takes into consideration the extent to which home or school placement is in jeopardy, the general attitude of parents or agency staff toward the child, and their willingness to be involved in programming. Use of the scale provides more objective decisions as to which referrals are most in need of service and which Community Behavioral Services program(s) would be most appropriate.

Upon determining the service needs, Community Behavioral Services staff and the parents or agency staff enter into an a *Service Agreement* outlining the terms of service, including the responsibilities and expectations of both parties. Parents or staff are informed of the general approach to be used in training, the nature of the service (consultation or intensive support), and the appeal route to be used in the event that they are dissatisfied with the service. Community Behavioral Services agrees to provide the appropriate service and each service recipient agrees to participate, for example, by attending the workshops and carrying out behavior change programs.

Front-line involvement begins with several visits to the child's home for the purpose of completing a comprehensive *Observation and Assessment.* These initial contacts provide the opportunity to develop a positive consultative relationship, as well as to gather information on various aspects of the child and his or her environment. Observations are made of interactions of the child with various family or staff members, the type and quality of communication, day-to-day routines, the range of activities, behavioral strengths and weaknesses, and so forth. This assessment is usually completed over several weeks and results in recommendations that direct

the delivery of services. Through a collaborative effort, behaviors are operationally defined and a base-line is taken to determine preintervention levels.

As part of this program planning phase, a *Motivational Assessment Scale*[3] is also completed. The purpose of this scale is to identify the variables involved in maintaining the inappropriate behavior (for example, head-banging may be maintained by its sensory consequences).

Prior to the development of a behavior change program, a literature review is conducted to assist in determining effective ways of dealing with the chosen target behaviors. A *Continuum of Procedures*[4] is referenced to ensure ethical interventions proceed from least to most restrictive.

Once a behavioral program is designed and ready for implementation, the counselor teaches the program to all mediators involved with the child. This teaching includes hands-on implementation by the counselor and observation and feedback to mediators until they are able to run the program independently.

A *Program Checklist* has been developed that counselors use as a guideline to identify possible areas of difficulty when programs are not working. This checklist includes questions on such areas as mediator consistency, use of effective reinforcers, completion of various assessments, possible training requirements, and so forth.

It does happen, in spite of using the checklist, that some programs do not work as planned. In such cases, a peer review committee meets to discuss factors relating to the lack of progress. This internal committee includes the program manager, psychologist, supervisors, and the counselor. A *Peer Review Checklist* is used to assist the committee in evaluating the services provided to date. The checklist includes a variety of questions pertaining to: length of baseline, mediator skill level, consistency, and so forth. Peer reviews generally result in brainstorming for solutions with recommendations to be used by the counselor. Once consultation or intensive support staff have accomplished their objectives, they begin to fade involvement. One of the last things the counselor does is to review thoroughly a *Trouble Shooting Guide* with the mediator. This guide is intended to help the mediator evaluate and modify the child's behavioral program if things are not going as expected. The guide also helps to reduce the dependency that many mediators develop through the course of consultation from Community Behavioral Services.

To get feedback as to the mediator's satisfaction with the counselor's involvement, they are asked to complete a *Service Evaluation* and forward it to the Program Manager. The information from these evaluations is used to make improvements in areas specific to the service process.

A month after the file is closed, the Program Supervisor arranges a visit with the mediator and completes a *Supervisor's Interview Questionnaire* that addresses topics specific to the counselor. Such things as the counselor's attitude, flexibility, intrusiveness, and training he or she provided are

reviewed. This information is then used for performance feedback to the counselor and for making changes to the service process.

Follow-up phone calls by the counselor at three, six- and 12-month intervals complete Community Behavioral Services' involvement. After 12 months a *Follow-up Questionnaire* is used by the counselor to determine the need for reinvolvement.

Notes

1. An additional survey form was distributed to those agencies serving adults; however, a discussion of those results is beyond the scope of this paper.
2. In the previous year, we had undertaken a similar exercise in converting an adult residential program to outreach. A review of that exercise helped to smooth the transition of the children's services.
3. Additional information and copies of the Motivational Assessment Scale are available from William V. Mark Durand, Department of Psychology, State University of New York at Albany, 1400 Washington Avenue, Albany, New York 12222.
4. For a detailed description see Brazier, B. and MacDonald, L. Ethical decision-making in behavioral programming: A continuum of procedures. *Journal of Practical Approaches to Developmental Handicap*, 1981, *4*(3), 11-13.

Chapter 8
Quality of Life for Adults with Developmental Handicaps: Some Issues for Discussion

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This chapter discusses the quality of life of persons having handicaps. Quality of life is described as a holistic concept encompassing factors such as one's perceived worth, personal satisfaction, social relationships, and the ability to control significant events in one's life. The author cites research data obtained from a Quality of Life Questionnaire administered to persons having handicaps and to their sponsors, usually parents. The results describe a new model of intervention aimed at enhancing the quality of life of persons with handicaps. The community-based program was conducted in the participants' homes and surrounding communities. Participants in the program showed greater gains in a number of areas than did individuals remaining in traditional rehabilitation settings.

Quality of life is a concept becoming increasingly popular in the field of developmental disabilities. Although it has been used in a variety of contexts over the last 20 years, it is now becoming recognized as a new way of studying the field of disabilities. Over the years, many people in the field have questioned the value of providing new labels and concepts in terms of disadvantaged persons, but one of the major advantages of these developments is that a reformulation helps to present disabilities in new perspectives. Thus quality of life provides a window through which the life experience of people having disabilities can be viewed more effectively, while considering factors that have previously been unrecognized. Quality of life can also provide the opportunity to see alternatives from the perspective of intervention or amelioration.

Definition

Quality of life has been defined by a variety of workers, Borthwick-Duffy (1986), Dejong (1979), Brown, Bayer, & MacFarlane (1989), and Goode (1988a). Most of the definitions contain some common elements. For purposes of this chapter the following definition employed by Brown et al. (1989) is used:

> Quality of life is the discrepancy between a person's achieved and unmet needs and desires. This refers to the subjective, or perceived, and objective assessment of an individual's domains.

This definition assumes a discrepancy model. The greater the discrepancy, the poorer the quality of life. However, these authors have suggested that quality of life is also the extent to which an individual increasingly controls aspects of life regardless of original baseline.

The definition contains within it a variety of underlying principles. First, the important role is recognized that both objective and subjective measures play in determining the quality of life of any individual. In recent years, it has not been fashionable to employ subjective content in assessment or rehabilitation intervention. It is now recognized that such information can quite dramatically change the way persons with handicaps are viewed, and the manner in which people work with them. Subjective information may come from verbal comment, but it may also be derived from measures of visual and tactile communication or other aspects of behaviors. Generally, people are relatively unskilled in observing and interpreting visual and tactile communication. These domains represent areas that need to be refined in terms of measurement to ensure that quality of life develops effectively as a rehabilitation concept (Goode, 1988b).

Second, quality of life measures accent perceptual processes of the individual. That is, it is recognized that quality of life is not a general concept determined just by the outsider, the rehabilitation worker, or, at times, even individuals close to the consumer.[1] Quality of life is also derived from the consumer's perceptions. Such perceptions should cover needs, progress, and choices as well as emotional concerns such as relationships and anxieties. Studies show there is enormous variability in choice, and in perception among clients.

Third, the importance of allowing client choice to dominate in the design and development of programs is recognized within a quality of life model, and is a fundamental aspect of design and implementation of such a model. Finally, quality of life is a holistic concept providing opportunities to assess various aspects of life of the individual, as they relate to the environment. Thus, assessment of quality of life is sensitive to ecological components of rehabilitation. Some of the objective and subjective aspects of quality of life are shown in Table 1.

Quality of Life as a Sociological Perception

Recent work, such as that of Dejong and Lifchez (1983) and Parmenter (1988), recognizes that labeling in the field of handicaps, and assessment and programming for people in areas of disability, are determined to a considerable extent by views and beliefs about disabilities. To a large degree, the perception of disability arises from the community and is forced on people having handicaps who, as a result, may suffer additional handicaps

Table 1
Model of Quality of Life
Variables for Handicapped People

Measure of Quality of Life

Subjective Evaluation
- perceived growth , and mastery
- safety , and security
- social involvement, and feelings of belonging
- independence/control
- responsibility
- self-esteem
- expectation
- perceived goal attainment
- perceived supports
- satisfaction level
- perceived health (mental, and physical)
- normalcy of life
- pace of life
- family stability

Objective Evaluation
- skill attainment
- physical environment
- level of integration (physical, and social)
- leisure activities
- training plans
- actual support systems
- income
- possessions
- health
- philosophy of training agencies
- attitudes of training staff
- attitudes of community

From Brown et al. (1989). *Rehabilitation programs: The performance and quality of life of adults with developmental handicaps.* Toronto: Lugus (with permission).

because of the manner in which they are perceived. Such views also directly influence the perception individuals have of themselves.

Very little research has examined the way the impact of such views can be ameliorated by changing the self-perception of the individual who has a disability. Further, such personal views may be critical in changing motivation, learning, and adaptation. An individual's own concept of performance may also recognize other assets or other disabilities that may be accurate, overemphasized, or damaging. Individuals may not be prepared

to recognize or, alternatively, may be inhibited by the disabilities placed on them by society.

Recent Work

Much of the recent work in the field of disability, related to quality of life, provides insight into the self-perception of disabled persons. In summary, it appears that most individuals have a very clear idea of their assets and deficits. They recognize their skills and capabilities and are aware of their limitations in various skill areas. A recent study by Brown et al. (1989), demonstrated that measures obtained through a Quality of Life Questionnaire, answered independently by sponsors, general parents, and separately by people with disabilities, showed high correlations in terms of perception of areas requiring assistance or areas in which individuals were competent. However, areas concerned with emotional needs, though ranked similarly, suggested that parents regarded these areas as very high priority. Such results were obtained in populations involving persons with moderate and mild mental handicap, and multiple handicaps. The group also included individuals designated in this fashion but having skills and abilities in the average range. In addition, the relationship between objective measures, where these were available, and the perceptual views also showed high positive correlations. The advantage of the personal measures is that individuals can reflect their own needs and can give more precise and more detailed information about areas that are not readily measured by objective tests. This information can include descriptions of worries and anxieties or feelings, relating to adult personhood, or aspects respecting gender issues which have been identified as major concerns by Goode, (1988a, b, c), Brown et al. (1989), and Hughson, Sannuto, and Wight-Felske (1990)).

It is interesting to note that among adolescents and adults, work-related concerns, though present, did not predominate. Issues surrounding social skills and emotional support, including needs in the area of assertiveness training, were most noticeable. Sponsors thought that about 60% of individuals with mental handicaps required some form of emotional support. This observation underscores the probability raised by several authors (e.g., Bell, Hughson, & Brown, 1990) that emotional problems among people having mental handicaps are greater than has been traditionally recognized. Indeed, such aspects of behavior have been virtually unrecognized in the field of mental handicap, and most programs are directed toward specific skill training (Brown, 1990). If more attention can be paid to emotional and assertive issues, the subsequent growth of positive self-image and motivation may mean that individuals can acquire skills much more rapidly and extend their repertoire of behaviors. These improvements may help to overcome the problem of transfer identified by Ward (1989). It has been generally assumed that skill training should dominate. Although

specific skill training may be a necessary component of training programs, the motivating effects of emotional growth have been largely unheeded.

In exploring quality of life, it is apparent that much more emphasis should be placed on leisure time and recreational development. Leisure and recreation relate to home and community living skills, rather than to traditional, vocational environments. Evidence for the positive aspects of leisure development, while coming from the Brown et al. (1989) study, is also supported by a range of other evidence, particularly that of Day (1989). In the Brown et al. study, it was apparent that persons who attained employment had developed significantly more effective leisure skills and activities than had those individuals who had remained in traditional service agencies. It is recommended that much more attention and involvement be placed in this area rather than in the traditional area of vocational training. It is not suggested that vocational rehabilitation should be ignored, but rather that leisure and recreation should be recognized as important and probably critical aspects of total rehabilitation.

A New Approach

To explore the issues raised above and to examine their impact on rehabilitation, Brown, Bayer, and Brown (1988) devised a new model of intervention based on the following philosophical concepts.

(a) All areas of intervention will result from the choices of the consumer.
(b) The place of intervention will be a natural and familiar environment, including the person's home and surrounding community.
(c) Wherever possible, the intervention will be individualized and, therefore, accentuate emotional and personal modeling between worker and client.

In addition, it is recognized that in order to implement such programs, professional personnel require considerable counseling skills, specialized knowledge of learning paradigms, and specific skills concerning individualized programming. Thus, the front-line worker should be among the most knowledgeable of all the people on the team and should be proficient in processing clients' choices.

The results of interventions based on such a model have proven to be of particular interest (Brown et al. 1988, Brown et al. in press). First, from a group of around 40 persons, a large number showed rapid gains that dramatically influenced the consumer's own image of progress and control. Objective records showed major gains in the skills associated with choice and the degree to which each individual came to control the environment. These improvements were also reflected in objective data. Intervention covered areas such as emotional needs and social interaction, use of community facilities, home skills, volunteer work, and, occasionally, vocational activity. It was also noted that areas often traditionally proving intractable to rehabilitation, such as the development of friendships for persons with mental handicap, improved considerably.

Individuals in such programs showed greater gains than did individuals remaining in traditional rehabilitation settings. The majority of individuals receiving special intervention for the first time started to see progress in most of their activities. In terms of environmental and related psychosocial areas, however, consumers increased their criticism of the controls they experienced. Though parents and other sponsors saw great improvements, consumers now saw problems in terms of their ability to assert themselves.

It seems that one of the first impacts of the model is to encourage individuals to be much more aware of the influences that control them. Thus, they become much more critical of the processes they observe. It is perhaps understandable that while their parents and sponsors note improvement in environmental conditions, the individuals become more critically aware. By the end of the study, these changes resulted in closer perception of events from client and sponsor perspectives, thus, bringing a new source of social agreement into family structure. Equally important were the generalization effects, which probably arose because the training took place in natural environments. Generalization has proven to be a difficult area for rehabilitation (Ward, 1989).

Most parents involved in such studies were positive about the impacts, though there were instances where skilled counseling was initially necessary to ensure that choice by the client would be accepted by parents and traditional agency personnel. Although choices were not always realistic from a parent or professional perspective, in accepting them, the self-image of the individuals concerned was heightened. As some in the study said, "I now control my worker and can do the things I want." In other words, the client became the goal-setter. The professional front-line worker became the processor. Frequently, front-line staff needed to counsel, advise, and be guided by "principal others" in the home. Quite often, people in group homes and in vocational settings found it difficult to accept individualization and choice, partly because of the normal behavioral pressures, and the traditional approaches toward group behavior in traditional settings. Initially, there was a concern that active rehabilitation using this model posed new problems and issues due to increasing consumer choice and control.

It is interesting to note that the cost of such programs was no more than the cost of the least expensive programs in Western Canada where the studies were initiated (Bayer, Brown, & Brown, 1988). It should be noted that individuals were not in programs all day, but only for several hours each week, thus, enabling front-line workers to include several people with disabilities on an individual basis during any one day. Nevertheless, the amount of time spent in individual instruction was much greater than was the amount of time normally spent on individualized work within traditional agency programs.

The foregoing information suggests that the perceptions, labels, and programs associated with disabling conditions need to be changed. There

needs to be recognition of behavior among diverse individuals, which means individualized help to achieve specific choices and goals (Brown et al. 1988). Such intervention should not be carried out in isolation, or in traditional settings, but normally, in the context of family and community. Thus, the model accents the predominantly "normal" process of rehabilitation in the social milieu of the family. In so doing, necessarily and deservedly, it is the family that also changes—a fundamental issue from a sociological perspective. Traditional agency programs do little to mediate such change and development.

The results described in the foregoing discussion have considerable implications for concepts of quality of life. Quality of life does not simply represent happiness, nor does it merely represent perceived control. Quality of life may, in the first instance, make the individual recognize how little control he or she actually has, and how much control the individual needs to exert. This realization is one of the first and major developments required in rehabilitation.

Concerns Related to Severe and Profound Handicaps

The study described above was particularly concerned with people having mild and moderate handicaps, including people in the upper range of severe and multiple handicaps. It was apparent that for people having more severe difficulties the Quality of Life Questionnaire may not be suitable because of the verbal content. The research workers involved in the study were impressed by the extent to which a questionnaire could be employed at relatively low cognitive levels, but in cases where there is little cognitive development or severe language restrictions, it is important to develop communication through other modalities. Distinction should be made between recognition and productive vocabulary. Questionnaires providing photos or line drawings related to quality of life might be suitable. There is evidence that eye movements and tactile contact can provide a means of expressing and interpreting choices at very basic levels. Our skills in these areas, however, have not developed sufficiently; Goode (1988c) has suggested that this area should be investigated.

Conclusions and Recommendations

(a) Quality of life is a holistic concept covering all domains of an individual's environment and functioning. Thus, the concerns are personal and ecological. Vocational, social, home living and leisure domains are highly relevant, and considerable attention is given to both cognitive and emotional functioning.

(b) Quality of life emphasizes the subjective perceptions of the individual consumer. Quality of life involves the ability to understand and evaluate aspects of an individual's own life.

(c) Although there is an accent on subjective evaluation, objective measures are also taken into account. Both types of measurement are

involved in the quality of life assessment. Measures from parents and other relevant persons are included.

(d) A quality of life evaluation must be linked to programming. Programming is based on client choice that directs the design of intervention or rehabilitation. The consumer becomes the goal setter. The front-line practitioner is the processor who needs considerable professional skill to fulfill his or her role. It is recognized that the concept of choice and its application may be of concern to some parents and professional personnel. However, in recent studies, it has been shown to be an effective approach in the development of changes in motivation, self-concept and skill acquisition.

(e) Rehabilitation in a quality of life model generally takes place within a person's natural environment, in home and local community, rather than within a service agency. This change in the direction and location of rehabilitation means that the concerns that have so often been raised in relation to transfer or generalization of skills are often circumvented.

(f) The development of quality of life programs results in an increased awareness among consumers. This enhanced awareness can initially result in a high level of criticism from consumers about their living arrangements, and their lack of ability to control situations. This criticism is to be welcomed for it seems to form part of a natural continuum of development linking awareness to improved performance and quality of life. Many current rehabilitation practices are centered on keeping people quiet rather than enabling them to develop motivation and a positive self-image.

(g) The acceptance of consumers' interests and needs has a motivating effect on performance, enabling people to function at a higher level than has traditionally been possible. It is not suggested that cognitive levels necessarily change, but that the individuals are able to organize a life around their own motivation systems rather than being controlled and dependent on the motivation of others. External control tends to lead to negative self-images.

(h) There is some evidence that traditional vocational training should be reduced, with more attention being paid to leisure and recreation as formal aspects of rehabilitation strategy.

Notes

1. The author, sensitive to the adverse effects of labels, has chosen wherever possible to refer to persons having handicaps who are recipients of services as *consumers*.
2. The Brown et al. study referred in this chapter represents an extensive, Canadian longitudinal project funded by the National Welfare Grants Program, Health and Welfare, Canada (Project numbers 4558-29-4/5). The initial volume on this study with 105 recommendations

for Canadian Rehabilitation has been published (Brown, Bayer, & MacFarlane, 1989), and a volume on the effects of "choice in intervention" is being finalized for press (Brown, Bayer, & Brown, in press).

References

Bayer, M.B., Brown, R.I., & Brown, P.M. (1988). Costs and benefits of alternative rehabilitation models. *Australia and New Zealand Journal of Developmental Disabilities, 14*, (3/4), 277 - 281.

Bell, R., Hughson, E.A., & Brown, R.I. (1990). Canadian perspectives on the behavior problems of middle childhood. In R.I. Brown & M. Chazan (Eds.), *Learning difficulties and emotional problems*. Calgary: Detselig.

Borthwick-Duffy, S.A. (1986). *Quality of life of mentally retarded people: Development of a model.* Unpublished doctoral dissertation. Riverside, CA: University of California, School of Education.

Brown, R.I. (1990). Quality of life for people with learning difficulties: The challenge for behavioral and emotional disturbance. *International Review of Psychiatry*, 2, 23-32.

Brown, R.I., Bayer, M.B., & Brown, P.M. (1988). Quality of life: A challenge for rehabilitation agencies. *Australia and New Zealand Journal of Developmental Disabilities, 14*(3/4), 189-199.

Brown, R.I., Bayer, M.B., & MacFarlane, C.M. (1989). *Rehabilitation programs: The performance and quality of life of adults with developmental handicaps*. Toronto: Lugus.

Brown, R.I., Bayer, M.B., & Brown, P.M. (in press). *Quality of life: Impact of choice on programs for adults with developmental handicaps.*

Day, H. I. (1989). *Quality of life of people with disabilities*. Keynote address, Fourth Canadian Congress of Rehabilitation, Toronto.

Dejong, G. (1979). *The movement for independent living. Origins ideology and implications for disability research*. University Center for International Rehabilitation, Michigan State University.

Dejong, G , & Lifchez, R. (1983). Physical disability and public policy. *Scientific American, 248*, 40-49.

Goode, D.A. (1988a). *Quality of life for persons with disabilities: A review and synthesis of the literature*. New York: Mental Retardation Institute, New York Medical College.

Goode, D.A. (1988b). *Discussing quality of life: The process and findings of the work group on quality of life for persons with disabilities*. New York: Mental Retardation Institute, New York Medical College.

Goode, D.A. (1988c). *Proceedings of the national conference on quality of life for persons with disabilities*. New York: Mental Retardation Institute, New York Medical College.

Hughson, E.A., Sannuto, V., & Wight-Felske, A.E. (1990). *Enhancing inclusive communities: Support groups for and with women with a mental handicap*. Research report for G.A. Roeher Institute, Toronto.

Parmenter, T.R. (1988). An analysis of the dimensions of quality of life for people with physical disabilities. In R.I. Brown (Ed.), *Quality of life for handicapped people*. London: Croom Helm.

Ward, J. (1989). Obtaining generalization outcome in developmentally disabled persons: A review of the current methodologies. In R.I. Brown & M. Chazan (Eds.), *Learning difficulties and emotional problems*. Calgary: Detselig.

Chapter 9
Behavioral Assessment of Community Living Skills: Considerations for Practitioners[1]

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Given the large number of available assessment instruments that purport to assess behaviors under the rubric of adaptive behaviors, life skills, functional skills, and community living skills, practitioners are faced with an arduous task of selecting suitable instruments to meet their needs. Many instruments have serious limitations from a scientific as well as a practical standpoint. In this paper, we have outlined a number of key characteristics crucial to the integrity, utility, and efficiency of a behavioral assessment instrument. In addition to basic psychometric considerations, we have suggested that the functions of a behavioral assessment instrument could be maximized if the test (a) is criterion-referenced, (b) can be used as a behavior rating and as a direct testing device, (c) provides objective information useful for programming, (d) is sufficiently wide in scope to meet screening needs, and (e) incorporates instructional aids for staff training. Practitioners should view these characteristics as general guidelines for selecting the most appropriate and efficient assessment instrument to meet their needs. We also hop that test developers would view these characteristics as potential features to be incorporated in the future design of behavioral assessment instruments for community living skills of people with developmental disabilities.

Behavioral Assessment of Community Living Skills: Considerations for Practitioners

The deinstitutionalization movement across North America has led to an influx of persons with developmental disabilities being placed in a variety of community settings. For example, the number of persons with developmental disabilities served in the community in the Province of Ontario has increased sixfold over a 10-year span, from approximately 700 to 4,440 (Ontario Ministry of Community and Social Services, 1987). This trend is likely to continue given the planned phase-out of institutional placements. This movement toward community integration has created the need for the development and use of behavioral assessment instruments, specifically designed for evaluation of community living skills, as part of the habilitative

process. Given the large number of available assessment instruments that purport to assess behaviors under the rubric of adaptive behaviors, life skills, functional skills, and community living skills, practitioners are faced with an arduous task of selecting suitable instruments to meet their needs.

The purpose of this chapter is to describe what we consider to be important and desirable characteristics of a behavioral assessment instrument. We hope that practitioners would consider these characteristics as general guidelines for selecting an efficient, valid, and useful instrument for assessing community living skills. Also, we hope that test developers would consider these characteristics as potential features to be incorporated in the future development of behavioral assessment instruments for community living skills for persons with developmental disabilities.

It is not the intent of this chapter to review specific assessment instruments for community living skills although some test instruments are used to illustrate the characteristics discussed throughout the chapter. It is also beyond the scope of this chapter to discuss the theoretical conceptualization of adaptive behaviors or community living skills (e.g., see Bruininks, Thurlow, & Gilman, 1987; McCarver & Campbell, 1987). The term *community living skills* is used here broadly to refer to skills that contribute to the independence of individuals living in community settings (e.g., domestic, travel, shopping, and work skills, etc.). Lastly, although this chapter is concerned with the design and use of behavioral assessment instruments, we do not imply that this is the only form of assessment that should be used.

Behavioral Assessment

The term *behavioral assessment* is used here to refer to the process of gathering information concerning the characteristics of behavior and the relations between behavior and the environment (Keefe, Kopel, & Gordon, 1978). Behavioral assessment can take many forms (e.g., see Cone & Hawkins, 1977; Hersen & Bellack, 1976; Mash & Terdal, 1981), but for the purpose of this chapter, we will focus on the evaluation of skill competence of individuals with developmental disabilities.

Behavioral assessment is an ongoing, integral component of the habilitative process from intake to discharge and follow-up, serving different functions at different stages (Cone & Hawkins, 1977; Hawkins, 1979). For example, Hawkins conceptualized the habilitative process as involving a number of stages in which behavioral assessment is often used to provide the necessary information to help with making various administrative and programming decisions. At intake, screening assessments may be conducted to determine if a referral is to be accepted or referred elsewhere. After a referral has been accepted, further assessments may be conducted to provide a general quantification of a client's strengths and weaknesses to identify appropriate community residential placement, vocational programs, and other services that may be offered to the client. Additional as-

sessments may be necessary to pinpoint specific targets and to design the appropriate training programs such as the development and implementation of individualized programs or education plans (IPPs or IEPs). Once training programs have been implemented, assessments are needed to monitor a client's progress to ensure that the desired behavior change is occurring and to make program modifications where appropriate. Lastly, follow-up assessments are conducted to determine if behavior change has been maintained.

Different instruments are often used at different stages of the habilitative process. Hawkins (1979) notes that instruments used for screening are typically broad in scope (i.e., contain many skill domains and test items) and low in fidelity (i.e., reliability and validity) due to their reliance on indirect testing methods (e.g., behavior rating based on recall). This may be a practical necessity because the tester is often faced with evaluating a large number of referrals in numerous skill domains. In contrast, instruments used during the later stages of the habilitative process, such as for pinpointing target behaviors, designing interventions, monitoring progress, and so forth, are narrower in scope and higher in fidelity, relying more on direct observation methods. During these latter stages, the tester (who is often also the trainer) tends to focus on a smaller number of clients and on a small number of objectives that are of importance to the clients.

While the appropriate instrument should always be used for the various functions, there are some potential practical problems associated with the use of multiple instruments at different stages of the habilitative process. Some common problems include overlap and duplication of efforts, increased staff time required to learn to use multiple instruments, and the lack of standardization across tests and the reporting of outcomes which ultimately lead to poor communication. These problems can be minimized by reducing the number of assessment instruments used. In fact, Hawkins (1979) has called for the development of assessment instruments that could be used across different stages of the habilitative process. We concur with Hawkins' views. Considering the needs of community agencies and the scarcity of resources, the availability of a multifunction instrument for assessing community living skills would be extremely valuable.

Can an assessment instrument serve multiple functions in the habilitative process? And what will such an instrument look like? The characteristics discussed below are important factors that will affect the utility of an instrument to serve multiple functions in the habilitative process.

Characteristics of a Multifunction Assessment Instrument

Objective Item Descriptions

Objective item description is crucial to the reliability of a behavioral assessment instrument. Unfortunately, test items are typically described in vague terms in most behavior rating scales.

(a) The client understands traffic regulations.

(b) The client knows how to take a bus or taxi.

Walls, Werner, Bacon, and Zane (1977) recommend that an objective item description should include: (a) the conditions for the behavior to occur; (b) the behavior itself; and (c) the standard of performance. The conditions for the behavior refers to the relevant environmental events that prevail immediately prior to or during the performance of the behaviors. These conditions may include the setting in which the behavior should be tested, materials that should be present, and the specific cues to be given. The behavior should be described in objective and observable terms such that different testers independently observing the same performance are likely to agree. The performance standard refers to the process and/or outcome of the behavior such as how the behavior should be performed and what behavior product should be produced or achieved.

For example, the Objective Behavioral Assessment (OBA) of adaptive behaviors (Hardy, Martin, Yu, Leader, & Quinn, 1981) uses a task analytic approach, which is commonly found in assessment and training curricula (e.g., Bowder, 1987; Popovich & Laham, 1981, 1982; Wehman, Renzaglia, & Bates, 1985; Wilcox & Bellamy, 1987). In this approach, a skill item is task analyzed into a number of steps with performance standards. We also adopted this approach in our present research on the development and validation of the Essential Community Living Skills (ECLS) assessment system. The ECLS is a criterion-referenced instrument in which each skill item is specified to include the test conditions and the behavior components, along with clear standards of performance. Two sample items on travel skills are shown below:

H.1. Crossing a Street at a Controlled Intersection

Condition: Observe skill at an intersection with traffic lights. For direct testing, walk and stay behind the client such that your behavior will not cue the client's behavior but you will be close enough to stop the client if necessary. If you have serious safety concerns (e.g., you may not be able to control or stop the client at the intersection) test the behavior in an analog setting first.

Component Skills Standards:

(a) Client walked to the intersection, stopped at the curb, and looked at the traffic lights.
(b) Client waited for traffic to stop before crossing.
(c) Client crossed the street quickly (without running) only when the walk signal appeared.
(d) Client stayed within the white lines during crossing.

H.6. Using Bus/Streetcar

Condition: Pass, token, ticket or proper denomination of fare can be used. For direct testing, the client can be requested to go to a specific destination accessible by public transit.

Component skills standards:

(a) Client waited at the nearest correct bus stop and got on the correct bus/streetcar.
(b) Client put fare (token or cash) into the fare box or showed bus pass to the driver.
(c) Client requested transfer if needed.
(d) Client sat or stood without bothering other riders.
(e) Client rang the bell just before the desired stop.
(f) Client got off at the correct stop.
(g) Client made the correct connection using the transfer and arrived at the correct destination.

Clear specifications of all three components (conditions, performance and standards) not only contribute to the reliability of the instrument; the task analyses can also be used for the development of teaching programs.

Reliability and Validity

While numerous behavior checklists and assessment scales for assessing adaptive behaviors are available, many were developed for individuals with severe and moderate developmental delays living in institutions and assess relatively basic skills (e.g., hygiene, dressing, feeding, etc.). Moreover, in their review of 166 behavior checklists, Walls et al. (1977) found that many instruments lacked objectivity, reliability, and validity. Their observations have been echoed by other researchers (e.g., Cone, 1977; Halpern, Irvin, & Landman, 1979; Livingston, 1977; Yu, Martin, Hardy, Leader, & Quinn, 1985). Unfortunately, in a recent survey of the literature (Yu & Feldman, 1988), we found many of the same shortcomings in the recent developments of behavior assessment instruments evaluating more complex community living skills with higher functioning clients.

Traditionally, test developers of behavioral assessment instruments have paid little attention to the psychometric properties of such instruments. However, Cone (1977) argued that basic psychometric considerations are just as valid for behavioral assessment instruments as they are for traditional tests. He proposed that test developers should demonstrate, at minimum, the generalizability of their assessment instruments across time (test-retest reliability) and testers (inter-tester reliability). Test-retest reliability examines the extent of agreement or correlation between the results obtained from two separate administrations of the same test to the same individuals at two different times, usually six to eight weeks apart. Inter-tester reliability examines the extent of agreement or correlation between the results obtained by two different testers who administered the same test to the same individuals. High agreement coefficients (e.g., 80% or higher) or high positive correlations (e.g., .6 or higher) are desirable.

Unlike traditional assessments of psychological constructs such as IQ tests, behavioral assessments of adaptive behaviors and community living skills are concerned with observable behaviors that are important to inde-

pendent functioning. These instruments rely largely on content validity (Salvia & Ysseldyke, 1985), sometimes called face validity in that the test items included are directly relevant to community living (e.g., taking public transportation, shopping, etc.). However, as discussed in a later section, if the instrument is to be used as a behavior rating device, criterion validity, or the extent to which the behavior rating correlates with direct observation of the behavior, must be demonstrated. With rare exceptions (e.g., Hardy et al., 1981), most behavior rating scales that we have encountered have not been validated against direct observations.

Norm- versus Criterion-referenced

In a norm-referenced assessment, a person's abilities are evaluated against his/her peers of similar age and background. The outcome of the assessment is usually expressed in terms of the individual's standing in relation to the average performance of this peer group. Norm-referenced assessments, such as IQ tests (e.g., WAIS) and the Adaptive Behavior Scale (Nihira, Foster, Shellhaas, & Leland, 1975) are widely used for classification purposes (Grossman, 1983) and may be necessary for administrative and funding reasons (Salvia & Ysseldyke, 1985). However, norm-referenced assessments do not provide useful information for instructional purposes.

A criterion-referenced instrument evaluates a person's abilities against a predefined standard of performance. This standard may include process (e.g., how a given skill should be performed) or outcome (e.g., behavior must be performed at a given level of accuracy, frequency, and/or duration, etc.) or both. The information provided by a criterion-referenced instrument can be useful for screening as well as program planning and designing training programs. Therefore, a criterion-referenced instrument is more likely to be useful across different stages of the habilitative process.

Direct Observation and Behavior Rating

Neither direct observation nor behavior rating is suited across all stages of the rehabilitative process, and each has its advantages and disadvantages. Behavior ratings by informants who are familiar with the client (e.g., staff, client's family members) can be completed much more quickly than can direct observation, making the former particularly attractive for use when a large number of clients have to be tested on a large number of test items (e.g., screening and general quantification of skills). However, behavior rating is usually less reliable when compared to direct observation (Halpern et al., 1979; Yu et al., 1985). Therefore, criterion validity, or the extent to which the behavior rating correlates with direct observation of the actual behaviors, must be demonstrated. For example, Yu et al. (1985) reported that the Objective Behavior Assessment (Hardy et al., 1981) which contains 208 skill items required approximately two hours for staff to complete through behavior rating, but approximately eight hours of face-to-face client contact to complete all items by direct observation. The authors further showed that 53%

of the ratings scores were in exact agreement with direct observation scores, 30% of the ratings scores disagreed with direct observation scores by one point on a four-point scale, and 17% of the rating scores deviated from direct observation scores by more than one point. Given these results, the authors recommended that the OBA behavior rating may be used for screening or for general quantification of skills where a one-point margin of error is acceptable. Similar validations are being conducted in our current research with the Essential Community Living Skills assessment instrument.

Direct observation provides accurate and reliable information and is particularly suited for pinpointing target behaviors for IPP planning, training and monitoring client progress. Although direct observation is more time-consuming than is behavior rating, this is offset by the fact that one is likely to be dealing with a small number of clients and target behaviors during the latter stages of the habilitative process. For example, one may be interested in teaching a list of five target behaviors within a particular skill domain. Therefore, direct testing can be conducted on those five target behaviors in order to design the training program, develop and implement the IPP or IEP, and monitor progress. Moreover, direct observation is more sensitive than is behavior rating in detecting sometimes gradual and small behavior changes during training and in generalization assessments.

Therefore, for an instrument to be maximally useful across different stages of the habilitative process, it should be designed and validated such that it can be used as a behavior rating scale as well as a direct observation instrument. Moreover, acceptable criterion validity of the behavior rating against direct observation of actual client performance must be demonstrated.

Scoring System

The scoring system should be easy to use, objective, well defined, and capable of providing as much information as possible about a client's skills. In some tests, skills are simply rated on a yes/no dichotomy (e.g., Cone, 1984) to indicate that the client is able or unable to perform a behavior independently. While this system is easy to use and may be adequate for screening purposes and for general quantification of strengths and weaknesses, the information gathered is not very useful for remediation.

A common alternative to the above system involves using a Likert-type scale anchored to some predefined concepts. For example, a skill item may be scored on a scale of 1 to 3 where 3 means "independent," 2 means "some assistance needed," and 1 means "considerable assistance required." While this system provides additional information, one must ensure that the concepts are meaningful and clearly defined. The meanings of "some," "considerable," and the types of "assistance" in the above example are ambiguous and will likely cause disagreements among testers or inconsistencies in scoring over time. The rating can be improved by defining the types and amounts of assistance required (e.g., one verbal prompt, gesture,

or model, etc.) for the client to perform the behavior correctly, based on the performance standards. Such a system not only improves reliability and consistency in scoring, it also alerts trainers to the type of prompts or assistance required by a client and a better estimate of the amount of training time required for a client to master the skill (e.g., Hardy et al., 1981; Yu & Feldman, 1988).

Scope

The scope or "band-width" (Hawkins, 1979) of an assessment instrument refers to the range of behavior domains and the number of skill items it covers. There are no rigid rules on the scope of an instrument other than the fact that it should contain relevant domains and skill samples that reflect what the test purports to measure. Comprehensiveness, however, must be tempered by practical concerns given that skills that may be considered under the rubric of community living can easily number in the thousands.

As mentioned earlier, instruments used for screening are generally broad in their coverage while diagnostic instruments, which are used to examine a particular problem or ability, are more circumscribed in scope. An instrument with a narrow band-width is not likely to be useful for screening and for general quantification of skills. On the other hand, selecting an instrument with the widest possible scope is pointless if the items are not relevant to your programming needs and the instrument can be used only as a rating device. This is a typical trade-off. Most broad-band instruments are behavior rating scales and are not validated for direct observation. Therefore, the scope of the instrument should be sufficiently wide to meet screening needs, although a balance must be struck between the comprehensiveness and relevance of the test items as well as the other characteristics discussed in this chapter.

In our work on the Essential Community Living Skill assessment, we attempted to strike such a balance by limiting the number of test items to a total of approximately 100, grouped under 10 skill domains. It is obvious that the ECLS skill domains and test items are by no means exhaustive. Rather, as the name of the test suggests, we included skills we felt to be the most essential to community living.

Instructional Aids

While most behavior checklists and assessment instruments are relatively straightforward to use, some can be rather complex. Learning to use an assessment instrument can be time-consuming for both the learner and the instructor, especially if multiple instruments are used. Given the abundance of research and innovations on the use of personalized programmed instruction (e.g., Keller, 1974; Keller & Sherman, 1982), sound pedagogical features (e.g., study exercises, quizzes, study questions and objectives, feedback, etc.) could be incorporated into the assessment manual to facilitate learning.

Therefore, the assessment manual could be an effective staff training tool as well as an effective assessment instrument for clients.

For example, Hardy et al. (1981) incorporated exercises and quizzes into the OBA instruction manual. Their field test showed that institutional staff and university students required an average of 1.5 hours to complete the exercises and, without further instructions, demonstrated acceptable reliability in conducting direct testing with clients having developmental delays (Yu et al., 1985). In a recent study, Smith, Schumann, and Yu (1990) adapted the OBA for use with psychogeriatric patients. The authors found that the psychiatric nurses required an average of 2.2 hours to complete the exercises. In addition, each staff member was given a half-hour, one-to-one session that included rehearsal and feedback. All staff showed dramatic improvements in their direct testing performance with their patients following this training.

These studies clearly show that behavioral assessment skills can be taught through programmed instruction with minimal face-to-face training. This approach represents a significant time and cost saving for community agencies in staff training. To the extent that some assessment skills (e.g., familiarity with objective skill descriptions and use of prompting and scoring systems) overlap with skills involved in program design and client training, effective staff training on conducting behavioral assessment may also reduce the amount of time required for staff to learn client training techniques.

Discussion

With the influx of individuals with developmental disabilities living in community settings, there is a need for reliable behavioral assessment instruments for assessing community living skills. In addition, there is a need for the development of practical assessment instruments that can be used at different stages of the habilitative process. Improved communication, reduced overlap and duplication of assessment, and substantial savings in staff time can be realized if multifunction instruments are developed.

In order to select or develop a behavioral assessment instrument that would be of maximum use in serving multiple assessment functions, we identified seven key characteristics that should be considered:

(a) Test items should be objectively described to include conditions for the behavior, the behavioral process, and the standard of performance.
(b) Basic psychometric properties (e.g., test-retest reliability and inter-tester reliability) should be demonstrated.
(c) The test should be criterion-referenced.
(d) The test should be validated as a behavior rating and as a direct testing device.
(e) The scoring system should be objective, well defined, and provide useful information for instructional planning.

(f) The scope should be sufficiently wide to meet screening needs.
(g) Instructional aids should be incorporated in the test manual to assist in staff training.

These characteristics are highly interrelated. At present, in the absence of an ideal instrument, trade-offs among the characteristics are inevitable. From a scientific standpoint, it is not sufficient simply to develop a list of behaviors for testing without validating the psychometric properties of the test instrument. From a pragmatic standpoint, with the increasing demand on service providers for quality assurance and program accountability and evaluation, behavioral assessment instruments must be designed to be responsive to the needs and available resources of the practitioners such that it is useful at as many stages of the habilitative process as possible and for as many functions as possible.

Note

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References

Bowder, D.M. (1987). *Assessment of individuals with severe hand icaps: An applied behavior approach to life skills assessment*. Baltimore: Brookes.

Bruininks, R.H., Thurlow, M., & Gilman, C.J. (1987). Adaptive behavior and mental retardation. *Journal of Special Education, 21*, 69-88.

Cone, J.D. (1977). The relevance of reliability and validity for behavioral assessment. *Behavior Therapy, 8*, 411-426.

Cone, J.D. (1984). *The pyramid scales: Criterion-referenced measures of adaptive behavior in severely handicapped persons*. Austin, TX: Pro-Ed.

Cone, J.D., & Hawkins, R.P. (Eds.). (1977). *Behavioral assessment: New directions in clinical psychology*. New York: Brunner/ Mazel.

Grossman, H.J. (Ed.). (1983). *Classification in mental retardation*. Washington, DC: American Association on Mental Deficiency.

Hardy, L., Martin, G., Yu, D., Leader, C., & Quinn, G. (1981). *Objective behavioral assessment of the severely and moderately mentally handicapped: The OBA*. Springfield, IL: Thomas.

Hawkins, R.P. (1979). The functions of assessment: Implications for selection and development of devices for assessing repertoires in clinical, educational, and other settings. *Journal of Applied Behavior Analysis, 12*, 501-516.

Halpern, A.S., Irvin, L.K., & Landman, J.T. (1979). Alternative approaches to the measurement of adaptive behavior. *American Journal of Mental Deficiency, 84*, 304-310.

Hersen, M., & Bellack, A.S. (1976). *Behavioral assessment: A practical handbook*. New York: Pergamon Press.

Keefe, F.J., Kopel, S.A., & Gordon, S.B. (1978). *A practical guide to behavioral assessment*. New York: Springer.

Keller, F.S. (1974). Ten years of personalized instruction. *Teacher of Psychology, 1*, 4-9.

Keller, F.S., & Sherman, J.G. (1982). *The PSI handbook*. Lawrence, KS: TRI Publications.

Livingston, S.A. (1977). Psychometric techniques for criterion-referenced testing and behavioral assessment. In J.D. Cone & R.P. Hawkins (Eds.), *Behavioral assessment: New directions in clinical psychology* (pp. 308-329). New York: Brunner/Mazel.

Mash, E.J., & Terdal, L.G. (Eds.). (1981). *Behavioral assessment of childhood disorders*. New York: Guilford Press.

McCarver, R.B., & Campbell, V.A. (1987). Future developments in the concepts and application of adaptive behavior. *Journal of Special Education, 21*, 197-207.

Nihira, K., Foster, R., Shellhaas, M., & Leland, H. (1975). *AAMD Adaptive Behavior Scale (Revised)*. Washington, DC: American Association on Mental Deficiency.

Ontario Ministry of Community and Social Services. (1987). *Challenges and opportunities: Community living for people with developmental handicaps*. Toronto: Author.

Popovich, D., & Laham, S. (Eds.). (1981). *The adaptive behavior curriculum* (vol. 1). Baltimore: Brookes.

Popovich, D., & Laham, S. (Eds.). (1982). *The adaptive behavior curriculum* (vol. 2). Baltimore: Brookes.

Salvia, J., & Ysseldyke, J.E. (1985). *Assessment in special and remedial education* (3rd ed.). Hopewell, NJ: Houghton Mifflin.

Smith, W.L., Schumann, C., & Yu, D. (1990, May 27-31). *Teaching adaptive behavior assessment of psychogeriatric patients to health care staff by self-instruction, individualized feedback and rehearsal*. Poster presented at the 16th Annual Convention of the Association for Behavior Analysis: International, Nashville.

Walls, R.T., Werner, T.J., Bacon, A., & Zane, T. (1977). Behavior checklists. In J.D. Cone & R.P. Hawkins (Eds.), *Behavioral assessment: New directions in clinical psychology* (pp. 77-146). New York: Brunner/Mazel.

Wehman, P., Renzaglia, A., & Bates, P. (1985). *Functional living skills for moderately and severely handicapped individuals*. Austin, TX: Pro-Ed.

Wilcox, B., & Bellamy, G.T. (1987). *The activities catalog: An alternative curriculum for youth and adults with severe disabilities*. Baltimore, MD: Brookes.

Yu, D., & Feldman, M. (1988). *Essential community living skills: Validation of a criterion-referenced assessment for moderately and mildly developmentally handicapped persons*. Unpublished manuscript.

Yu, D., Martin, G., Hardy, L., Leader, C., & Quinn, G. (1985). Developing a behavioral assessment system for the mentally handicapped: A behavioral approach. *Canadian Journal for Exceptional Children, 1*, 117-123.