

## Maximizing community inclusion through mainstream communication services for adults with severe disabilities

HILARY JOHNSON<sup>1,2</sup>, JACINTA DOUGLAS<sup>2</sup>, CHRISTINE BIGBY<sup>2</sup>, &  
TERESA IACONO<sup>2-4</sup>

<sup>1</sup>Communication Resource Centre, Scope, Australia, <sup>2</sup>La Trobe University, Australia, <sup>3</sup>Centre for Developmental Disabilities Health Victoria, Australia, and <sup>4</sup>Monash University, Australia

### Abstract

Government policies in developed countries have emphasized the importance of community inclusion to improve the health and wellbeing of citizens. In order to achieve this, a reorientation of human services to include all people with disabilities has commenced with specialist disability services providing only limited supports. One vulnerable group of adult citizens are those with severe cognitive impairments. These citizens live either with their family or in small group homes supported by paid staff. Many of these people have little or no functional speech and are at an increased risk of social exclusion. This paper presents a discussion of the relevant literature underpinning the provision of mainstream speech-language pathology services to adults with severe cognitive disabilities. In particular we focus on practice considerations that might assist speech-language pathologists in providing effective and efficient services that support people with severe intellectual disability to live meaningful lives in the community. Five main considerations are discussed: (1) applying a holistic model to communication practice; (2) understanding terminology and the process of assessment; (3) considering the role of communication partners; (4) training communication partners; and (5) using communication supports to assist community inclusion.

**Keywords:** *Adults, Augmentative and Alternative Communication (AAC), complex communication needs.*

### Introduction

Over the last 20 years, there has been a move towards the integration and inclusion of people with disabilities into the community throughout the western world (Cambridge et al., 2002; Young, Sigafos, Suttie, Ashman, & Grevell, 1998). In particular, there has been a focus on moving adults from large residential institutions into smaller group homes, composed of three to five residents with disabilities. Government policies, both nationally and internationally, have espoused a vision where people with disabilities are valued, respected and included (Department of Health, 2001; Department of Human Services, 2002; Lecompt & Mercier, 2007; United Nations, 2006). This vision has provided a stimulus for change in the practices of people working in the disability area. Simultaneous with deinstitutionalization, the care model for these people shifted from the medical to the social model (Coles, 2001; Duchan, 2003; World Health Organization, 2006). The social model recognizes that

although people may have impairments that affect their functioning, it is society that disables people by placing barriers to access. Access barriers serve to limit social connections and so maintain negative attitudes that stereotype people with disabilities. According to Duchan (2003) the social model focuses on setting goals with the person based on his/her interests and tackling community barriers as part of the intervention. O'Brien (1989) suggests that utilizing a person-centred approach recognizes the uniqueness of each individual and promotes his/her ability to make decisions. Further, consideration of processes that develop and maintain relationships with others now is seen as integral to including a person in the community.

People with intellectual disabilities form the largest group of people who have benefited from deinstitutionalization. In Australia, 3% of the population have intellectual disability (Wen, 1997) with 1.8% of the total population having a severe or profound disability (defined by IQ score below 35 on standardized intelligence tests). Communication

difficulties are a common characteristic of people with intellectual disabilities and those with severe intellectual disabilities present particularly complex communication challenges (Nigam, Schlosser, & Lloyd, 2006; van der Gaag, 1998). Indeed, people with severe intellectual disabilities may have little or no speech and may benefit from augmentative and alternative communication (AAC) systems to enhance their communication (Beukelman & Mirenda, 2005).

Difficulties in communication for people with intellectual disabilities limit community participation (Australian Institute of Health and Welfare, 2003) and greater supports are needed to ensure social inclusion. Consequently, the policy move toward community inclusion may well generate increased requests for speech-language pathology services. The service system may not have the capacity to fulfil such requests due both to the shortage of speech-language pathologists experienced in this field and the limited number of funded positions (Iacono, Johnson, Humphreys, & McAllister, 2007). In Victoria, Australia, the only significant increase in therapy funding for adults with disabilities in the last 10 years has been to develop a hub and spoke model of service to enhance the skills of generic speech-language pathologists to meet the needs of people with a disability in their local communities (Johnson, 2004). This service aims to provide peer support for speech-language pathologists, particularly in the area of AAC, develop effective and efficient services and build the capacity of the broader community to be better communication partners. Teaching communication partners to recognize the importance of modifying their communication with a person with severe intellectual disability and complex communication needs can be a demanding task. The challenges to speech-language pathologists are to modify their knowledge in assessment, intervention and modes of practice to meet the needs of different populations. In this paper, we focus on considerations that might assist speech-language pathologists in providing effective and efficient services that support people with severe intellectual disabilities to live meaningful lives in the community. These considerations include embracing a holistic model of practice that incorporates dynamic assessment, the inclusion of communication partners and individualized communication supports.

### Applying a holistic model of practice

Clinicians are familiar with the International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001). The ICF establishes a common international language to further the understanding of individuals from a broad health-related perspective. It is grounded in the social model of disability and considers a person's

ability to participate in society as a dynamic interaction between the individual with a health condition and his/her total environment. Recently, O'Halloran and Larkins (2008) discussed the overlap between communication activity and communication participation. They suggested that participation can only be truly measured subjectively by the person/people involved. Thus, in order to evaluate speech-language pathology service provision, speech-language pathologists need to ensure the collaboration between the client and their environmental communication partners. The practical application of the ICF around communication impairments remains a conceptual tool still in the developmental stage. It maps and categorizes possible societal influences that affect participation, but does not guide the clinician through assessment and intervention. However, the Participation Model developed by Beukelman and Mirenda (2005) initially developed in an education framework, can be applied to working with adults in the community.

The participation model (Beukelman & Mirenda, 2005) provides a basis for planning individual communication services. There is an underlying premise that services for people with an ongoing condition may require long-term intervention. In order to make this clinically manageable and pertinent to the adult's needs, Beukelman and Mirenda suggested the initial assessment leads to a *today* solution and further ongoing assessment leads to a *tomorrow* intervention. In this way, an adult receives a strategy he/she can use immediately while working on a strategy requiring further training for the future. Unique individual circumstances can be considered by examining two sets of barriers. These are opportunity barriers relating to the environment surrounding the person (policy, practice, attitude, knowledge and skills) and access barriers relating to the capabilities of the individual (current communication skills, environmental adaptations, operational profile, constraints profile and capability profile).

Understanding the opportunity barriers within a person's environment can expedite a practical and achievable communication solution. Evaluating policies (e.g., the amount of funding available for support), practices (e.g., whether the person's communication aid is readily available or locked in a cupboard to keep it safe), and the attitude, knowledge and skills of current communication partners provides a starting point for implementing intervention. Understanding access barriers further informs intervention. Evaluation of access barriers includes (a) examining current communication skills and potential for improvements (e.g., developing clearer articulation); (b) considering environmental adaptations (e.g., the ability of the person to enter the shop in order to make a purchase); and (c) assessing the possibilities for an AAC system. The possibilities of using an AAC system depend on three aspects.

The first is an operational profile, relating to the person's ability to use it. The second is a constraints profile, relating to the preferences of the person and communication partners. The third is a capability profile, relating to the person's physical, sensory, cognitive, linguistic and literacy skills. Overall, adoption of the participation model ensures the assessment yields information that can be used to maximize community inclusion.

### Terminology and the assessment process

Assessment is especially challenging in the context of severe intellectual disability. Even terminology is not straight forward in that various terms have been applied to people with severe intellectual disabilities: these include severe and multiple disabilities (Bloomberg, West, & Iacono, 2003), severe developmental disabilities (Chambers & Rehfeldt, 2003; Ronski, Sevcik, & Rumbaugh, 1985) and significant disabilities (Casella, 2004). These terms are widely used in the literature without being based on formalized assessment (Anderson, Sherman, Sheldon, & McAdam, 1997; Bloomberg et al., 2003; Casella, 2004; Zilber et al., 1994). Where formal cognitive assessments are used, the term severe intellectual disability refers to someone with an IQ score of between 20–35 on standardized intelligence tests (e.g., Wechsler Intelligence Scale for Children). More recently, adaptive behaviour scale assessments (e.g., standardized checklists of skills across life domains completed by someone who knows the person well) have been required to confirm the result. Reliance on the results of formal testing may be particularly problematic because of difficulties associated with valid assessment of people with severe intellectual disabilities (Wen, 1997). Difficulties include motor restrictions, impaired attention, and impaired comprehension of verbal instructions, all of which can result in inaccurate or inconsistent responses leading to unreliable results. Indeed, recent legislation in Victoria no longer requires standardized assessment of a person with an intellectual disability in order for that person to receive services (Victorian State Government, 2006). Other than for making a diagnosis, the aim of assessment is to provide a basis from which to form a plan of action.

A relationship between pre-linguistic cognitive skills and language has been demonstrated in the research literature (Abbeduto & Boudreau, 2004; McLean & McLean, 1993; Simeonsson, Granlund, & Bjorck-Akesson, 2006). In particular, language emerges from early symbolic skills seen in gestures and play, with associations between these skills being indicators of language delay, including in children with intellectual disabilities (Chan & Iacono, 2000; Iacono, 1999). It is generally agreed that language development is more impaired than sensori-motor skills among adults with intellectual disability

(Lobato, Barrera, & Feldman, 1981). McLean and McLean (1993) emphasized the wide range of communication skills observed among adults with severe intellectual disabilities. These skills could be considered to be in one of two categories: (a) those that are linguistic as indicated by the ability to create novel utterances with words or other forms of symbols; and (b) those that are non-linguistic whereby communication includes more informal than formal modes. McLean, Brady and McLean (1996) attempted to ascertain detailed information on the communication mode of people with intellectual disability. Of 211 children and adults with intellectual disabilities who participated in their study, 94 adults met the IQ inclusion criteria of 25–40. Communication skills were categorized as symbolic, intentional informal, unintentional and other. Communication skills were rated by staff comprising speech-language pathologists (50%), qualified intellectual disability professionals (27%) and "others" (22%). Results showed significantly more adults were rated as symbolic communicators than were children. Indeed, 80% of the adults were reported to be symbolic; of the remaining, 14% were rated as informal and 6% as unintentional. These results are consistent with the suggestion that as children with intellectual disabilities grow older, their symbolic skills develop.

The McLean et al. (1996) study remains one of the largest descriptive studies of communication skills among adults with severe intellectual disabilities. The results indicate these adults express themselves through a small number of symbols (words, pictures or signs), but are not at a truly linguistic stage as indicated by the ability to combine symbols to generate novel utterances. Other smaller scale studies have provided further supplementary evidence (Chambers & Rehfeldt, 2003; Ronski, White, Millen, & Rumbaugh, 1984). The particular skills evidenced may vary considerably from person to person (Bedrosian & Prutting, 1978; Chambers & Rehfeldt, 2003; McLean et al., 1996). Clearly, detailed communication assessment is required in order to ascertain an individual's skills.

Many formal communication assessments designed for adults (usually those with acquired disabilities) commence at a level of understanding that is beyond that of a person with severe intellectual disability. Further, there are few assessments that are appropriate for adults with symbolic but non-linguistic skills (Bloomberg & West, 1999; Van der Gaag, 1988). Even if appropriate assessments are available, they should be used as part of a dynamic assessment which occurs in tandem with intervention.

Use of tools that identify early communication skills helps reveal the person's capabilities. Such tools are typically based on developmental checklists, often underpinned by Piaget's sensori-motor stages (Dunst, 1980; Granlund & Olsson, 1993).

Care must be exercised in drawing parallels between early communicative development in children and the level of cognition and language of an adult with intellectual disability, as the focus for intervention differs (Calculator, 1988; McLean & McLean, 1993). The focus for young children with intellectual disabilities is likely to be increasing the complexity of skills hierarchically as maturation and growth occurs. In contrast, for adults the focus is on increasing the frequency and functionality of current communication modes (Granlund, Björck-Åkesson, Brodin, & Olsson, 1995), as new skills are unlikely to emerge but could be unmasked. Moreover, an adult has had many more life experiences resulting in a communication profile that will contrast to that of an infant at a similar cognitive stage.

Currently the developmental literature provides the only model to describe early communication behaviours seen in adults and it may be useful to consider their communication stages rather than their communication age (Bloomberg & West, 1999; Coupe & Goldbart, 1988). Several researchers have suggested logically derived categories (Beukelman & Mirenda, 2005; Bloomberg & West, 1999; Dowden, 2006; Rowski, Sevcik, Hyatt, & Cheslock, 2002; von Tetzchner & Martinsen, 2000). In their study, McLean et al. (1996) were the first to apply descriptive categories to the communication skills of adults with severe intellectual disabilities. They selected three main categories of non-intentional, intentional or symbolic communication stages, with the symbolic stage being further divided into the number of symbols used and ability to produce symbol combinations. The non-intentional communication stage referred to communicators who demonstrated “like and reject” but who did not realize a communication partner could be useful to get their needs met. The intentional level included communicators who could understand some limited symbols (e.g., respond to someone calling their name), use gesture rather than words to communicate and knew to use a communication partner to get their needs met (e.g., take a person to the fridge to get a drink). Bloomberg, West and Johnson (2004) have suggested the two symbolic stages be termed basic and advanced. The basic stage refers to individuals being able to recognize that symbols stand for real objects (e.g., they can recognize a picture/photo of a cup) and can use up to five symbols (i.e., words, pictures or signs) expressively. Those who are at a symbolic advanced stage can use up to 50 symbols functionally, understand two stage commands out of context, combine some two symbol utterances functionally and may be considered at a linguistic stage.

The use of this terminology can enhance an understanding of each communication stage without referring to child development norms, thus maintaining age appropriate language. As people with intellectual disabilities are frequently reliant on paid

workers for support, the presentation of assessment results in clear and simple language is essential to furthering an understanding of communication skills. In addition, such descriptive terms facilitate a dynamic approach to assessment, as they suggest a range of interventions suitable for people who sit at various points of the continuum from non-intentional to symbolic advanced communicators. Once communication strategies are put into place, the dynamic process of trialling intervention commences, such that the outcomes inform an ongoing assessment and the development of more effective communication and interaction strategies.

### **The role of communication partners**

Communication partners are people with whom communicative interactions occur and may include a wide range of roles such as family, friends, support workers, educators and shopkeepers. Kent-Walsh and McNaughton (2005) suggested there are two main categories of communication partners- those who have an educative or paid role (e.g., support workers and health professionals) and those who have a social role (e.g., family and friends). Communication partners have a central role in the assessment of adults with severe intellectual disabilities in that observation of interactions over time and in different contexts reveals their range and breadth of communication skills, and the extent to which the adult’s skills vary with different partners (Calculator, 1988). In addition, extended observations enable the partners to share their knowledge of the person’s capabilities in different environments (Cascella, 2004).

Speech-language pathologists working with large caseloads and time constraints are particularly reliant on communication partners from a range of environments to take a key role in both the assessment and intervention processes. Van der Gaag (1989) stated that a collaborative approach, whereby communication partners are engaged from the assessment through to choosing and implementing interventions, increases the probability of successful outcomes for the adult with severe intellectual disability. Information gathered is based on the communication partner’s ability to observe and derive meaning from observations. However, it cannot be assumed that an experienced staff member can correctly interpret non-verbal behaviours. Van der Gaag (1989) demonstrated that people who knew the participants well could collect accurate data, but this data was affected by the communication opportunities observed and the amount of time spent in a particular environment. Gleason (1993) agreed with this observation stating that communication attempts among adults with severe disabilities could only be fully understood by observers where the context and activity were taken into account.

Interpretation of nonverbal signals is especially challenging for communication partners. McConkey, Purcell and Morris (1999) found that even when staff members knew the person well, they still had difficulty interpreting nonverbal signals accurately. Thus, training is needed to increase the ability of communication partners to recognize nonverbal behaviour and this training may need to be tailored and focused for specific individuals. Further, staff may need to be made aware of their own role in the transactional process of communication. This process (first identified in the child development area) consists of recognizing that communication is reciprocally affected by different people, activities or environments and is dynamic, rather than static. McLean and McLean (1993) emphasized the importance of understanding this co-constructional process in order to learn how to adjust communication styles and modes to meet the changing needs of each communicative interaction.

Although the collection of information from staff members is critical to the assessment process, this needs to occur with consideration that even experienced staff can lack critical observation skills (McLeod, Houston & Seyfort, 1996). Thus, potential inaccuracies in the information need to be considered, without discounting its value. Where staff members complete checklists of observed skills, for example, accuracy can be improved if clinicians question the respondent and critically analyse the appropriateness of the responses. Where unusual communication patterns emerge from checklists, clinicians may need to spend time observing the person with disability in his/her environment. While there are limited communication assessments applicable for use with adults with severe intellectual disabilities, there are even fewer that yield reliable results that practically inform intervention.

Both the Communication Assessment Profile-CASP (Van der Gaag, 1988, 1998) and the Triple C: Checklist of Communicative Competencies (Bloomberg & West, 1999) were designed to be completed by people who know the individual with an intellectual disability well. The developers of both tools suggest the involvement of speech-language pathologists in the administration or interpretation of the assessment. The CASP provides an integrated planning tool while the Triple C requires an additional manual to assist with communication supports (Bloomberg et al., 2004). Clearly communication assessments do not lead to any positive change for an individual, unless the information is linked to functional communication strategies. A number of different interventions can be applied to tackle the various barriers to effective communication in a person's life. Some strategies occur simultaneously and multi-modal AAC systems are applied. People with severe intellectual disabilities

need interventions that are targeted at both themselves and their communication partners.

### Training communication partners

Speech-language pathologists are most likely to come into contact with family and/or paid staff who are the main communication partners of their clients with severe intellectual disability. Most adults with severe intellectual disabilities have many paid staff in their social networks (Kennedy, Horner, & Newton, 1990; Robertson et al., 2001). Many attend daytime group activities or live in group homes where they are supported by paid staff who are often employed on a casual basis or, may frequently change workplaces (Department of Human Services, 2006). These paid disability support workers provide personal care, but the extent of their training and background qualifications may vary. Due to critical shortages, support workers with no training or experience may be employed. In addition, there are few opportunities for support staff to receive group or individualized training for communication with people with severe intellectual disabilities. As the aim of service provision is to support people to participate meaningfully in their communities (Department of Human Services, 2002), it is essential that staff members have knowledge about communication. Further, staff members can play a pivotal role in the quality of life of adults with severe intellectual disabilities.

A focus of providing communication support has been on teaching skills to improve paid staff's communication (Bartlett & Bunning, 1997; Granlund et al., 1995; Granlund, Terneby, & Olsson, 1992). The need for training is evident from research showing that paid staff misunderstand the non-verbal communication of people with intellectual disability (McConkey, Morris, & Purcell, 1999; McConkey, Purcell, & Morris, 1999; Purcell, Morris, & McConkey, 1999), have difficulty adjusting their own communication to match the understanding of a familiar person with an intellectual disability (Bradshaw, 2001; McConkey, Morris et al., 1999; Purcell et al., 1999), are unaware of their own non-verbal communication styles (McConkey, Purcell et al., 1999), and place the responsibility for change and improvement on the person with intellectual disability (Purcell et al., 1999). These findings provide a focus for the content and style of communication training for staff.

In addition to examining the literature on staff training the current evidence on what makes a good communication partner needs to be considered. While the lack of skills demonstrated by support staff may be due to insufficient specialist assistance, it may also indicate that some support staff do not see communication support as part of their role. Previous knowledge and belief systems of the support

staff may also affect outcomes (Fenwick, 1995). When Dennis (2002) analysed data from focus groups, composed of support staff who saw their role as supporting communication, she identified characteristics of competent communication partners. These partners attributed their success around supporting communication to having a strong belief in the communication abilities of the person with a disability, a commitment to the person, respect for idiosyncratic ways of communicating, an awareness of their own personal attributes and limitations, and an ability to change themselves. These results support the notion that attitudes and beliefs may be important factors in integrating or validating new information.

The importance of attitudes and beliefs has been further highlighted by the work of Bogdan and Taylor (1998). They conducted a series of interviews with people (parents, staff and managers of disability services) who accepted and valued people with severe intellectual disabilities. The researchers commented on the beliefs of the interviewees who emphasized the *humaneness* of each person with a disability irrespective of cognitive skills. Some interviewees noted evidence of thinking and that “thinking is different from communicating thought” (p. 248). Some believed they knew what the partner was thinking or could read them intuitively. Some parents, counter to professional judgements, believed their son or daughter could think and could understand. They felt professionals frequently underestimated abilities. Family members also noticed subtleties in behaviour to which they assigned meaning to those behaviours. They rejected labels, such as severely disabled, and chose nicknames that emphasized the personality of the person with a disability. They also commented on the positive, reciprocal nature of the relationship.

Speech-language pathologists need to consider all the evidence presented and work together with families and paid staff to provide the best outcome for the person with a severe intellectual disability. The use of descriptive labels that characterize a person’s communication should help all the communication partners to recognize and support communication attempts, and facilitate seeing the humaneness of each person. Anecdotally this understanding is illustrated by the words of a support worker when referring to a person with severe intellectual disability who moved from being a “client” to a “loved friend” who was visited regularly. The support worker stated “I know he is an unintentional communicator but to me he understands everything I say” (personal communication).

The results of the studies by Dennis (2002) and Bogdan and Taylor (1998) suggest that communication training should utilize a person-centred approach that promotes the positive strengths of people with an intellectual disability. Person-centred approaches focus on such positive strengths and

consider what is important to the person, their dreams and aspirations and find ways to meet those desires (Holbourn & Vietze, 2002). Training that takes a strengths-based approach might enhance positive attitudes and promote respect. There is, however, very little research into the relationship between the characteristics of people with severe intellectual disabilities and staff behaviour, values and performance (Hatton, Rose, & Rose, 2004). Even less research attention has been directed to the effect of attitudes of paid staff on their communication interactions (Dobson, Upadhyaya, & Stanley, 2002; McLeod, Houston, & Seyfort, 1996; Smidt, Balandin, Reed, & Sigafoos, 2007). There is some limited evidence to support the development of more positive attitudes among undergraduate and graduate speech-language pathologists towards working with people with complex communication needs (Johnson, Bloomberg, & Iacono 2008), but there has been very little emphasis on strategies that may change attitudes of support workers. Of concern, however, is the extent to which attitude shifts result in positive outcomes for people with intellectual disabilities. Hatton et al. (2004) pointed out that attitude change can occur, but sometimes without a demonstrated behaviour change. Speech-language pathology interventions aimed at support staff have not focused on changing attitudes, but rather at changing their communication interaction skills (Bloomberg et al., 2003; Bradshaw, 1998; Purcell, McConkey, & Morris, 2000). Addressing staff member values and attitudes in training may result in people with severe intellectual disabilities being supported more effectively.

Additional challenges to training staff to become effective communication partners for adults with severe intellectual disabilities has been with staff turnover and large numbers of staff. To address these challenges, several skill development communication training packages have been developed (Bloomberg et al., 2003; Jones, 1990), but there is little evidence of long-term effectiveness. Maes, Lambrechts, Hostyn, and Petry (2007), in a systematic review on quality of life for adults with profound intellectual and multiple disabilities, reported moderate success in staff training programs. They suggested enhanced outcomes were achieved when a problem solving approach was coupled with ongoing opportunities to observe good practice examples. Adoption of such strategies requires a shift in the way speech-language pathology services are often delivered, in particular, from working with individuals in clinical contexts to working with groups in community contexts.

Group staff training has often been focused on a whole service model (e.g., residential houses and/or day service), where the capacity building of staff and families has become accepted practice (Bloom, Walker, & Grant, 1999; Dobson, Upadhyaya, & Stanley, 2002; Horne, 2005; Johnson,

Bloomberg, & Butler, 1999). Current provision of whole service models includes pre-training visits and pre- and post- workplace assessments. The pre-training visits provide the basis for developing training content, which is then supported by post-training modelling and ongoing coaching in the workplace. The aim is to provide an overarching communication framework that can be adapted to provide individualized practical strategies (Bloomberg et al., 2003). Dobson et al. (2002) suggested that collaborative problem solving followed by documented care-plans maintain positive outcomes. Clinical experience, in providing a whole service training model in homes and day services for people with little or no speech suggests that the maintenance and development of successful communication relies on a number of factors: (a) ongoing support from a speech-language pathologist or communication specialist, (b) training for all the staff in a facility, (c) a proactive manager or service coordinator who promotes a person-centred approach, (d) time release for staff members to receive specific training and/or develop aids, and (e) the provision of materials on site in order to construct communication aids.

Research findings and clinical observations reinforce the importance of working in partnership to reveal the communicative strengths of the person with a disability and providing practical training with opportunities to model good practices. Working in partnership can be time consuming, but provides the opportunity for reflection, the expression of beliefs and values, and the coaching of skills.

### Communication supports

The aim of communication supports is to facilitate communication interaction in everyday activities. Communication supports include a variety of AAC systems designed to repair or minimize communication breakdowns with familiar and unfamiliar partners. To achieve these goals, four strategy types are proposed (a) those that provide information for the communication partner in order to better understand the person and interpret any idiosyncratic behaviours; (b) those that provide visual supports to compensate for any verbal comprehension or literacy difficulties; (c) those that provide an expressive means as a supplement or alternative to verbal communication; and (d) those that may augment both expressive and receptive communication. Often a person with a severe intellectual disability will have a number of AAC systems, often in the form of communication aids, that are used in different situations with different partners.

#### *Aids that provide personal information*

These aids provide a partner with information to enhance their understanding of the person's

communication. The content of these aids relies on close and accurate observation of the person by familiar communication partners from different environments. There are a variety of aids that meet these purposes, including a personal history and/or a book about me (Bloomberg et al., 2004; Life's for Living, 2008; Rowland, Schweigart, & Dorinson, 2001), a personal communication dictionary/gesture dictionary (Beukelman & Mirenda, 2005; Bloomberg et al., 2004), a personal communication passport (Millar & Aitken, 2003) and/or multimedia profiles (<http://www.acting-up.org.uk/>).

#### *Visual supports to compensate for comprehension difficulties*

As speech is an abstract symbolic code, people with severe intellectual disabilities often have difficulty understanding speech alone. Once it is paired with objects, pictures/photos or gestures, the meaning becomes more transparent. The pairing of visual systems with speech may also have the effect of slowing the communication partner's rate of speech and simplifying the language content. Information presented in both transient and static formats may be more effective (e.g., speech and pictures) than speech alone. Static information includes objects, pictures, photos and line drawings and these symbols can be used in developing environmental supports such as picture schedules, menus, shopping lists, and *Who's Here Today* boards (Bloom & Treloar, 1997; Bloomberg et al., 2004; Hodgdon, 2000). For people who have difficulty understanding what is going to happen in new or infrequent situations (e.g., a visit to a dentist), simple social stories using pictures to illustrate the process may be helpful (Gray, 2003; Hodgdon, 1999).

#### *Aids that support expression*

Aids that provide a way for the person to express him/herself include those that get a need met and those that assist with social interaction. In environments that support a number of people with intellectual disabilities (e.g., residential/day services), there are often few opportunities for people to make choices as routines are established and needs anticipated. However, community inclusion offers greater opportunities to use both low tech and high tech aids. Low tech aids include picture exchange (Frost & Bondy, 1996; Liddle, 2001) and community request cards (Bloomberg, 1996; Bloomberg et al., 2004). These aids require the person to be able to pass an object or picture symbol to another person in order to get a need met. High tech aids may also be used and there is a wide range of speech generating devices (SGDs) currently available. For people with severe intellectual disabilities, SGD's need to be simple to use, robust and easy to carry.

The devices have additional advantages of assisting communication at a distance, but may be difficult to hear in a shopping centre or similar noisy environment. As it is the responsibility of the communication partners to store, program, electrically charge and organize repair of SGDs, such devices are only effective in very supportive environments.

Social interaction can be encouraged through the use of chat books. A chat book consists of a collection of news items or mementos which arouse positive memories. These may be photos or objects accompanied by text. The aim of the book is to present information that can be shared with a communication partner who can read in order to provide opportunities to exchange information (Bloomberg et al., 2004; Hunt, Alwell, & Goetz, 1991). The aim is to extend the number of turns from one to a series of turns. The turn taking relies on the triggers that are written to accompany a photo or memento. The format chosen depends upon the communicative turn taking abilities of the person with a disability.

#### *AAC systems that assist with both expressive and receptive communication*

The use of key word sign, also known as Makaton, can be useful as both a receptive and expressive strategy. This unaided system can be used by the communication partner and the person with an intellectual disability. When the communication partner signs a key word in a sentence, the accompanying speech is simplified and delivery slows down, which offers the potential to enhance message comprehension for the person with an intellectual disability (Grove & Walker, 1990). The communication partner's use of the system also signifies that he/she values the AAC system, thus promoting its everyday use to others in the environment including peers. The advantages of using key word sign are portability, guessability (includes many natural/transparent gestures) and the fact no equipment is required. There is also an extensive network of trainers and resources available in Australia (University of Newcastle, 2008) and in many other countries. The disadvantages of key word signs are that relatively good hand skills are needed, signing is transient and that some signs are opaque and not easily guessable by the general public.

#### *Choosing the type of AAC supports*

The communication support strategies that are chosen relate back to the presence of opportunity and access barriers in a person's life. Policies that limit funding and service provision are key drivers in decision making with respect to choice of support strategies. For example, most Australian states have some funding available for SGDs, but currently only

one state, Victoria, funds the production of non electronic communication aids for adults (NECAS). The attitude, knowledge and skills of the communication partners along with the capability profile of the individual with an intellectual disability are fundamental in the decision-making and intervention process.

### **Summary and conclusions**

People with intellectual disabilities are now living in the community and needing communication strategies to ensure social inclusion. Governments are expecting mainstream services to meet the needs of a diversified community. Meeting such expectations requires community speech-language pathologists to consider different models of speech-language pathology assessment and intervention to meet the social and participation needs of adults with severe intellectual disabilities. In this paper, we have discussed several key considerations drawn from the literature to assist speech-language pathologists in providing effective and efficient services. Principal assessment and intervention recommendations from these considerations are summarized in Table I.

Although intervention focuses on developing strategies to meet the needs of an individual with communication difficulties, we recommend that a greater emphasis is placed on developing positive attitudes and communication skills of paid staff and other potential partners in the community. Providing group or whole-service training to staff members may be an effective way of building basic communication skills and awareness. Building the capacity of community members to communicate effectively with people with little or no speech will assist the

Table I. Key considerations for providing speech-language pathology services to people with severe intellectual disabilities.

<b>Assessment</b>	<ul style="list-style-type: none"> <li>● Select a framework that links assessment to intervention</li> <li>● Use reliable adult communication assessments</li> <li>● Engage familiar communication partners from different environments</li> <li>● Utilize a collaborative, dynamic, problem solving process</li> <li>● Incorporate naturalistic observation</li> </ul>
<b>Intervention</b>	<ul style="list-style-type: none"> <li>● Utilize a person centred approach</li> <li>● Explore the beliefs and attitudes of communication partners</li> <li>● Teach interaction skills to communication partners</li> <li>● Provide opportunities for collaborative problem solving</li> <li>● Model good communication practices</li> <li>● Consider whole service training where organisational support exists</li> <li>● Develop a process for ongoing communication support</li> </ul>

development of a welcoming and inclusive community for all.

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