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INCLUSION IN ACTION
SECOND EDITION

Edited by Phil Foreman

CENGAGE Learning™

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Acknowledgements
First published as Integration and Inclusion in Action in 1996 by Harcourt Australia Pty Ltd.
This second edition published in 2008.
The authors of the various chapters in this book have a strong view that special education is about good teaching. For this reason, much of this book is about teaching rather than about disabilities. If all teachers focus on the needs of the individual students in their classes, inclusive educational processes will follow. The concepts presented are about processes such as adapting curriculum to meet individual needs, planning teaching strategies, encouraging positive interactions and working collaboratively. These concepts are as applicable in regular education as in ‘special’ education, and to students with a wide range of varying abilities (or disabilities). The book therefore does not emphasise or describe specific disabilities, but rather focuses on an understanding of the reasons why children with disabilities attend regular schools and strategies that can be used to optimise the educational experiences of students with a disability in regular classes.

The approach in this book does not attempt to relate a teaching strategy to a particular type of disability. It is wrong to assume that a named disability will indicate the type of teaching approach to be taken. For example, knowing that a child has Down syndrome or cerebral palsy or spina bifida does not tell us much about the teaching approach we need to take. As with any other student, we would want to assess the child’s current attainments and set some educational goals based on a broad-based assessment. Certainly there are specialised teaching approaches for students with severe sensory disabilities, and they are not covered specifically in this text. Teachers can access information about specific disabilities when they have a child with that disability in their class – there is a special reference list in the back of this book for that purpose, and parents are often experts on their child’s disability. The Internet is also a brilliant source of the most up-to-date information about particular disabilities. However, for students with intellectual, physical or learning disabilities, the classroom teaching approach is determined more by assessment of their educational needs than by specialised knowledge of their disability.

The book is divided into four parts. The first part sets the scene by providing an overview of concepts, principles, legislation and policy related to inclusive practices. The second part introduces the concept of inclusion in an early childhood setting and examines effective teaching practices. The third part deals with specific difficulties in literacy, numeracy and communication. Finally, there is a section on instigating change, which looks at the role of teachers, the use of resources and transition to adult learning.

The book can be used as the basis of a semester-based course for undergraduate students. An online instructors’ manual is available which assists instructors with end-of-chapter activities. There is also an online course site for students, provided by the publishers.

Feedback from peers is very important in the development of a book such as this. I would particularly like to thank our reviewers Sharne Rolfe and Lee Coleman for their helpful and incisive suggestions on the outline and sample chapters.

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this chapter aims to:

discuss the importance of communication in classroom and social contexts

provide an overview of augmentative and alternative communication (AAC)

examine the impact of cultural diversity on communication

explore the concepts of language development and functional communication

provide a framework for assessing communication in educational settings

consider how teachers and therapy staff can work with students and their families to improve functional communication outcomes.
INTRODUCTION

In this chapter the focus is on students who are identified as having severe speech and language delay and on those who may not be able to use speech as their primary mode of communication. This group includes all students who rely on augmentative and alternative communication (AAC) to communicate. One definition of an AAC system is that of the American Speech-Language-Hearing Association, which states that AAC is 'an integrated group of components, including the symbols, aids, strategies and techniques used by individuals to enhance communication . . . the system serves to supplement any gestural, spoken, and/or written communication abilities' (ASHA 1991, p. 10).

Thus, the emphasis here is on those students who need additional help with expressive language and also those who have difficulties with understanding what is said to them. It includes students who experience no cognitive deficits, but who have a severe motor disorder that results in them being unable to produce intelligible speech (for example, students with cerebral palsy). Some students with severe intellectual disability do not easily develop the symbolic underpinnings of language and are unable to produce spoken language. They may be referred to as having nonsymbolic communication, presymbolic communication, or as being early communicators (Granlund & Olsson 1999; Snell 2002). Students who begin school with a nonsymbolic communication system may go on to develop the ability to learn a formal symbol system. Whatever the cause of the speech and/or language difficulty, collaboration is one of the keys to successful intervention and support for students who are in inclusive educational settings.

The use of collaborative teams to provide communication interventions, particularly in inclusive classroom settings, increases the potential for both academic achievement and social participation for students with severe communication problems and is consistent with education legislation and good practice (Sonnenmeir, McSheehan & Jorgensen 2005). The linguistic and cultural diversity in Australian classrooms is an additional reason for using collaborative teams, to allow community and family involvement to increase the potential for the students to succeed. Students may benefit from the use of AAC systems that support both their expressive language and their comprehension. The use of such systems will assist students to learn within the classroom setting and will facilitate interactions with their peers and teachers, help them to make sense of their world, help them order their day, support their language comprehension and assist them to be independent within the contexts of both school and home.

This chapter explains the role of functional communication in supporting students in inclusive contexts, and how teachers and therapists can work together to develop appropriate communication opportunities for students with different communication needs. The chapter will explore recent research that has focused on students with complex communication needs in inclusive educational settings. It will discuss some issues of cultural and linguistic diversity which will affect AAC use and professional–family interactions. In addition, it will provide a number of case illustrations and practical activities.

Communication is an essential part of all learning, and of all classrooms. As every teacher knows, we teach by talking, and we need our students to understand both what we say and what they read, and to be able to express themselves to us. A communication disability may need special provision for students to enable best learning to take place.

Students with a communication disorder may have that as their sole disability, or it may accompany other disabilities. For example, a student may have dyspraxia, a speech
disability which may make their speech largely unintelligible (Lewis et al. 2004; McCabe, Rosenthal & McLeod 1998). Alternatively, a student who has difficulty with literacy is likely also to have an oral language difficulty (Catts et al. 2002; Catts et al. 1999), and communication difficulties may accompany intellectual or physical disability. Autism spectrum disorders are characterised by both social and communication difficulties (Beukelman & Mirenda 2005).

COMMUNICATION, LEARNING AND INCLUSIVE SETTINGS

Communication is an integral facet of learning. The classroom is a communicative environment in which communication occurs continuously throughout the day. Teachers communicate with students formally (for example, explaining an algebraic equation) and informally (for example, asking a student how a favourite football team is progressing). Students must be able to communicate effectively with their teachers during learning activities and also with their peers during class and breaks (Kent-Walsh & Light 2003). Indeed, the school setting provides many opportunities for social interaction and the development of friendships. Clearly, a student with communication difficulties will be disadvantaged in both learning and social activities unless every effort is made to ensure that the student has an effective and functional means of communication (Beukelman & Mirenda 2005). The considerable diversity among students with disabilities along many dimensions further affects this disadvantage in learning. For example, if the student’s home language is not English, then effective participation in classroom learning and with peers may be limited.

When considering communication for students in educational settings, it is important not to overlook other communicative contexts in which effective communication is important. These include communication between teaching staff, therapists and other service providers, and communication between teachers, service providers and parents (Byron, Cockshott, Brown & Ramkalawan 2005; Danielsson, Ronberg & Andersson 2006; Downing 2005; Giangreco 2000). If family members have beliefs and social practices about disability and AAC which are not the same as those of the professionals, then misunderstanding and miscommunication can occur, limiting the student’s capacity to participate in learning (Vanbiervelt & Parette 2002).

Students with complex communication needs

As many as one in seven children has a communication disorder (Harasti & Reed 1994), yet most of these children will enter mainstream schools and cope in these settings with the help of a speech pathologist and possibly some additional educational support. These children may have difficulty understanding what is said or in making themselves understood. They are also at risk for problems with literacy (Hertzoni 2004; Sturm & Clendon 2004; Sturm et al. 2006). These students form part of the regular classroom population.

In this chapter the focus is on functional communication in the classroom for students with complex communication needs. Complex communication needs are:

- associated with a wide range of physical, sensory and environmental causes which restrict/limit [people's] ability to participate independently in society. They and their communication
partners may benefit from using Alternative or Augmentative Communication (AAC) methods either temporarily or permanently.

(Balandin 2002, p. 2)

Students with complex communication needs require additional time, support, resources and classroom adaptation if they are to maximise their learning and social opportunities in the educational setting. Often they have physical disability and are unable to write or easily join in spoken language activities (Beukelman & Mirenda 2005). If they are not proficient at using their communication system, or if their system is broken or lost, they will be unable to join in most classroom activities. Indeed, these students may spend a large part of their time in school unable to communicate or not participating in academic activities because they are still learning to use their communication systems (Beukelman & Mirenda 2005). It is essential that the AAC team includes all the people who are involved with the student in the inclusive context. This includes teachers, the student, class peers, parents, other service providers and administrative staff. The team must understand what is required to optimise the inclusive educational experience for each of the students with complex communication needs (Beukelman & Mirenda 2005). Full inclusion occurs when the student is fully integrated in the class, participating competitively or actively academically and socially and is as independent as possible (Beukelman & Mirenda 2005).

Increasingly, students with complex communication needs are attending inclusive educational settings. They may have cognitive impairment and or physical impairments
and, if they have no functional speech, will benefit from an AAC system (Beukelman & Mirenda 2005). Initially, general education teachers may feel overwhelmed by the prospect of working with students with severe communication problems; nevertheless, many of these students are participating successfully in inclusive educational settings and achieving their educational goals (Kent-Walsh & Light 2003).

○○○ AUGMENTATIVE AND ALTERNATIVE COMMUNICATION SYSTEMS

In order to consider AAC and its role with students with communication disorders, it is important to define the populations most likely to use and benefit from AAC systems. AAC is appropriate for use with students with expressive and/or receptive language disorders, including students with autism spectrum disorder (Bedrosian et al. 2003; Bopp, Brown & Mirenda 2004; Ganz & Simpson 2004; Millar, Light & Schlosser 2006), students with cerebral palsy (Carter 2003a; Fallon et al. 2004; Liboiron & Soto 2006; Lund & Light 2003), students with intellectual disability (Carter 2003a, 2003b; Hetzroni 2003) and students with challenging behaviours (Mirenda 1997; O'Reilly et al. 2005; Sigafoos & Tucker 2000).

AAC systems may be unaided (for example, signs) or aided (for example picture boards, alphabet boards, electronic communication aids) and are often referred to as being either high- or light-technology systems. High-technology communication systems, (that is ‘high tech’) (Sigafoos & Iacono 1993) use computer technology and specialised software. These have the capacity to provide printed and/or voice output. A device that has voice output is referred to as a speech-generating device (SGD) because it ‘speaks’. The speech may be digitised (that is, natural speech that has been recorded) or synthesised (that is, synthetic speech produced from stored digital data). Low- or light-technology communication systems, (that is, ‘light tech’) (Sigafoos & Iacono 1993), include communication boards, books and object boards that may be made commercially or by a service provider or family member. These systems also include devices operated by electromechanical switches. Light-tech systems are used by beginning communicators, those who are unable to access high-tech systems because of severe physical disability and as backup systems when an individual’s high-tech system is under repair or unavailable.

Many people who use AAC, as well as families and professionals, favour high-tech devices because they offer not only the power of voice output but can often be interfaced with other equipment (for example computers, environmental control systems). However, high-tech systems are not suitable for everyone, and are often expensive. Families may not be able to afford to buy an appropriate system and the educational facility may not have the financial resources to provide and maintain the equipment. They may also be reluctant to use systems if they find limitations in synthesised-voice qualities, symbol libraries, utterance sequencing routines and other features of computer-assisted AAC that interfere with a user’s ability to ‘fit’ into his or her environment and social milieu (Hetzroni & Harris 1996). This may be particularly the case in non-dominant cultural groups, although it is an important point for all. VanBiervliet and Parette say that ‘language is perhaps the most salient aspect of a person’s behavioural repertoire that identify him or her as a member of a particular cultural group’ (2002, p. 131). As this is an important issue for all people, it is a guiding principle for decisions on AAC systems. An overview of high- and light-tech AAC systems is provided in Box 9.1.
### AN OVERVIEW OF HIGH- AND LIGHT-TECH AAC SYSTEMS

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High technology</strong></td>
<td>Uses computer technology and specialised software</td>
</tr>
<tr>
<td></td>
<td>Synthesised or digitised speech</td>
</tr>
<tr>
<td></td>
<td>May interface with a computer, environmental control system or telephone</td>
</tr>
<tr>
<td></td>
<td>Accessed directly (for example using fingers or head pointer) or indirectly (for example, scanning using a switch)</td>
</tr>
<tr>
<td></td>
<td>Requires a power source (for example, battery)</td>
</tr>
<tr>
<td></td>
<td>Requires specialised repair</td>
</tr>
<tr>
<td></td>
<td>Expensive to purchase and maintain</td>
</tr>
<tr>
<td><strong>Light technology – aided</strong></td>
<td>No electronic parts but can include electromechanical switches</td>
</tr>
<tr>
<td></td>
<td>Accessed directly (for example finger pointing, eye gaze) or indirectly using another person to ask which symbol is required</td>
</tr>
<tr>
<td></td>
<td>Examples: letter boards, chat books, object communication systems, schedules, symbol boards</td>
</tr>
<tr>
<td></td>
<td>Easy to maintain but set up and maintenance can be costly in time</td>
</tr>
</tbody>
</table>

**Light technology – unaided**

- Manual signing
- Examples: Auslan, British Sign Language, Amerind, American Sign Language, Signed English
Symbol systems

Speech consists of spoken words that are used to fulfil four purposes (Light & Binger 1998):

1. communication of needs and wants
2. information transfer
3. social closeness
4. social etiquette.

Spoken or written words are symbols, but other types of symbols are also used for communication. Logos, road signs, pictures and gestures are all examples of symbols that can be used for communication. All AAC systems incorporate symbols that are used to encode and decode messages. Symbol systems used on AAC systems vary in transparency (ease of deciphering what the symbol means) and it is important to match the symbol system to the student’s level of cognitive ability and understanding (Mirenda & Locke 1989). The easiest or most transparent symbols are real objects, the most difficult written words. Mirenda and Locke’s hierarchy of symbols is provided in Box 9.2.

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**Box 9.2**

**Hierarchy of Symbols**

- Real objects
- Miniature/partial objects
- Photographs
- Line drawings
- Lexigrams
- Traditional orthography

EASY → HARD

Source: Mirenda & Locke 1989

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There are many symbol systems available commercially; these include pictures, line drawings and symbol systems that are designed to provide fast and accurate access to language (for example Boardmaker®, COMPIC, MINSPEAK® (Baker 1982) and Bliss symbols (Bliss 1965). Teachers working with students who use AAC may need to select the most appropriate system for the individual and be prepared to update the system if necessary. For example, early communicators may begin with an AAC system incorporating objects, then move on to pictures and photos, and may progress to a literacy-based system as their literacy skills develop. Ideally the AAC team will work together to select the most appropriate symbol system for the student but sometimes it is left to the teacher to select symbols or develop a symbol system.

One of the most common reasons for a student failing to use an AAC system is that the system is too difficult to comprehend. There has been a tendency for service providers, including teachers, to label students not using their systems as being unwilling to communicate, rather than recognising that the system may be unsuitable for the student. The unsuitability may relate to wider issues of social and cultural involvement and attitudes. There are variations across cultural groups in perceptions of disability, child-rearing practices, the value placed on education and the sense of what is appropriate.
for involvement of families in educational processes (Battle 2002; Cobb & Reeve 1991; H. P. Parette, VanBiervliet & Hourcade 2000). For example, having a child with a disability may be accepted as fate or God's will, or may be seen as punishment or a shameful thing (Multicultural Disability Advocacy Association 2000). Whatever we may feel about these attitudes, it is important to understand the family's point of view and to work with it, in order for AAC use to be successful.

Consulting families and finding out about their needs and attitudes can assist successful usage and adaptation of systems. For example, one study in the US produced specific pointers on how to change systems to be more usable from the cultural perspective of the family:

An aunt from a Navaho village talked about her family's desires to have the images on her nephew's communication system displayed using earth tone colours that are more representative of their culture rather than less familiar primary colours. A woman of Philippine heritage talked about how the food pictures depicted are not the foods her family eats. Others talk about the difficulty of incorporating the communication technology into their family lifestyles.

(VanBiervliet & Parette 2002, p. 138)

Huer, Parette and Saenz (2001) found in focus groups that apparently well-integrated students and their families from non-dominant cultures were not using their high-tech AAC devices at home, but preferred speech and low-tech AAC. A variety of factors was involved, for example the device was in the wrong language for home, had the wrong communication messages for that environment, marked out their child as too ‘different’ or the family were afraid of damaging expensive equipment. They also found that respect for service providers meant that the families did not want to ‘impose’ on the professionals, so did not take an active part in the decision process. Some groups will agree with whatever is suggested in order to ensure their child gets the service, and then not use it as recommended because it does not work for them.

All of these issues can be managed with the appropriate cultural awareness on the part of the education and other service providers, consultation with families and communities, and above all respect for difference. This requires schools and teachers to find out more about the lifestyles of persons from various cultures. Such work to enhance multicultural appropriateness does not come from goodwill alone; it requires an active commitment of time, ongoing maintenance and background research. The payoff, however, is that it will enable schools and teachers to provide more appropriate services for children from culturally diverse backgrounds.

Careful assessment of a student's abilities is essential when introducing AAC. Communication is a distinguishing feature of humans and an essential component of adequate quality of life. Students have the right to the communication systems and supports that will help them optimise their communication skills and to learn and interact in the school environment.

People with complex communication needs who use AAC have one thing in common; they are unable to use speech as a primary functional communication mode. It is not known how many students use AAC or how many might benefit from the introduction of an AAC system (Bax, Cockerill & Carroll-Few 2001). However, as noted above, most students who do use AAC have congenital disability, including intellectual disability, cerebral palsy, autism spectrum disorder and/or severe developmental dyspraxia of speech. Some children may need AAC after acquiring a communication disorder (for example, traumatic brain injury).
Just as every student has the right to be educated in an inclusive setting, so every student has the right to the services and technology that enhance communication and assist him/her in participating in both academic and community activities (National Joint Committee for the Communication Needs for Persons with Severe Disabilities 2002). Early introduction of AAC not only provides a functional means of communication but also reduces the likelihood of the use of disruptive and/or destructive behaviours as communicative acts (Beukelman & Mirenda 2005; Frea, Arnold & Vittimberga 2001; Green et al. 2005; Hertzroni & Roth 2003; O'Reilly et al. 2006; Sigafos & Tucker 2000). However, the introduction of AAC alone does not ensure effective communication. Students who use AAC require their communication partners to understand how to interact with someone with complex communication needs, as the story in Narrative 9.1 by Fiona, an adult with cerebral palsy and complex communication needs, illustrates.

**Narrative 9.1**

**AAC and Inclusion**

My education began at a school for children with special needs in 1983. My parents thought that this would be the best school for me, because of access to therapy services. Although I did benefit from this, my education suffered. The school did not cater for someone with my level of intelligence. The teachers were only prepared to teach the basics, and keep us entertained.

When I was about eight, I decided that I wanted to go to an inclusive school. Other children were integrating, but they were able to walk, and talk, easier than I could. However, I wasn't able to go because no one agreed with me. The teachers thought that it was too difficult for children who used AAC to attend a mainstream school.

In 1988 I changed school. In the beginning I attended classes in the support unit and gradually integrated more and more into mainstream classes. I went to a mainstream single-sex high school.

When I started high school, I did not have a high-tech AAC system. I had to rely on an alphabet board and typing messages into a laptop computer for people to read. This had an impact on my interactions with the teachers and other students. Socialising with the other students was difficult. I think it was because it took so much longer to communicate with me. I had an aide almost full time during my junior years at high school. The teachers and students talked to her instead of me. The aide encouraged this, as she had no formal training. She made friends with the girls, which was inappropriate. I had one teacher who walked out of the classroom as soon as he saw me, which was really demoralising for me.

I overcame some of my communication problems with the teachers over time. My social science teacher, in Year 8, noticed I answered more questions than other students. In Year 10, I got my first voice output communication device. It certainly improved my interactions with the teachers and students. It also enhanced my ability to participate in oral activities.

I would like to offer some advice to teachers who have students who use AAC in their class. Firstly, where possible, it is very important to speak directly to the student, instead of only talking to the aide. It may be easier to ask questions requiring yes or no answers. You will need to be aware that you will need to make some adjustments to the curriculum and the student may require alternative assessments. The most important point is to treat the student as an individual.

The inclusion of students who use AAC in inclusive educational settings can have very good outcomes if the right adjustments are made and the school has the right attitude. I managed to get a good HSC result and have a law degree and an honours degree in politics.

Fiona Given, Law graduate, New South Wales
Teachers’ experiences with students with complex communication needs in inclusive settings

To date there have been few studies that have explored the experiences of teachers with students who use AAC in inclusive settings. Soto et al. (2001) conducted a series of focus groups that explored educational teams’ perceptions of the critical issues of inclusion for students who use AAC. The participants agreed that inclusion was beneficial for students who use AAC, for parents, the school community and the students’ peers. They identified key indicators of successful inclusive programs. These indicators include:

- the classroom teacher welcoming and including the student who uses AAC as a full member of the class
- the educational team working collaboratively
- appropriate training for all the team and school staff
- the presence of a support worker who is involved with the student and the program
- involvement and support from peers in class
- interactions between the student who uses AAC and peers both in and out of school time
- academic participation of the student using AAC
- the student using the AAC system successfully
- availability of adequate services and supports
- the student using AAC feeling part of the class and school
- the classroom supporting the learning of students with different needs
- the school system supporting inclusion at school and area or regional level
- adequate support for the student within the classroom.

Although this study (Soto et al. 2001) was conducted in North America, it is applicable to Australia or indeed any school in which students who use AAC are included. Successful implementation of AAC requires a team effort (Beukelman & Mirenda 2005; Cumley & Beukelman 1992). In addition, there have been several studies in which researchers have explored attitudes towards students who use AAC (Beck & Fritz-Vertichio 2003; Lilienfeld & Alant 2002; McCarthy & Light 2005; Rackensperger et al. 2005). These studies have emphasised the importance of a positive attitude in ensuring that students who use AAC are accepted and included.

The participants in Soto et al.’s study (2001) identified some barriers to successful inclusion, including:

- lack of training in AAC
- frequent staff turnover
- lack of administrative support
- no time for collaborative team meetings
- lack of flexibility for people to move out of their individual professional roles
- case loads that were too big
- too much reliance for progress placed on the aide or support worker
- lack of opportunity for the student to participate in academic activities
- classroom structure that marginalises the student
- lack of transition planning
- team not feeling comfortable and confident with AAC technology
- AAC equipment breaking down and needing repair
lack of funding for equipment
- lack of loan equipment or equipment that could be used as a back-up
- limitations of the AAC system compared with natural speech.

Some of these barriers could be addressed through training; others (for example the need for funding, limitations of the system) require major policy changes and ongoing research and development.

An interesting aspect of this study was that participants noted how their own limitations (for example fear of failure, uneasiness about disability, feeling undervalued by the team members) have an impact on the inclusion of the student. In any collaborative team approach, time spent in planning and ensuring that all team members feel valued and have equal status on the team is well spent as it helps ensure the success of the team, particularly when there are problems to solve (Giangreco 2000; Santelli et al. 1998). Soto et al. (2001) concluded that there are three keys to successful inclusion of students using AAC: adequate administrative support, AAC training for all concerned and team collaboration.

Kent-Walsh and Light (2003) interviewed 11 teachers who had taught at least one student who used AAC in an inclusive educational setting. The teachers, in common with the participants in Soto et al.’s (2001) study, were able to identify many benefits, some negative impacts and some barriers to the inclusive experience. Participants reported that teachers, parents and peers benefited from the experience. Nevertheless, the teachers stated that some students who used AAC did not make adequate academic progress, were socially excluded and did not have equal status with their classmates. In addition, the teachers noted that the use of AAC in the classroom could be disruptive and that it was time consuming. The teachers were interested in AAC and wanted to learn more, but found that additional preparation time was sometimes difficult to schedule.

Some teachers noted that the school itself was not accessible for students with physical disability. They also indicated that large classes, particularly in high school, made it difficult to give enough individual attention to students who used AAC. In this study (Kent-Walsh & Light 2003), the teachers expressed frustration that they were not always included as part of the AAC team and were not always involved in goal setting for the students. They also noted that their expectations were sometimes different from those of the student’s parents. Teachers did not feel that they were well prepared to teach a student with complex communication needs who used AAC and that they experienced problems with setting up the equipment and assessing if the student was learning. They also noted that high-tech AAC systems were beneficial to inclusion but were problematic if broken or under repair, as the student then was without a communication system. At least two of the teachers stated that they preferred their students to augment their communication with signing.

The teachers felt that there was some resistance from other teachers to include a student who used AAC, although they conceded that teachers’ attitudes can improve. The teachers who participated in the study also reported negative experiences with teacher’s aides similar to those reported by Fiona (Narrative 9.1).

Interactions between students who use AAC and their peers have been consistently identified as an important issue (Alant, Bornman & Lloyd 2006; Arthur, Bochner & Butterfield 1999; Blackstone & Cassatt 1983; Calculator 1999; Carter & Maxwell 1998; Hunt, Alwell & Goetz 1991b; Kent-Walsh & McNaughton 2005; Lilienfeld & Alant 2005a; McCarthy & Light 2005; McConachie & Pennington 1997; Soto et al. 2001; von Tetzchner et al. 2005). Kent-Walsh and Light (2003) demonstrated that slow rates of
communication had a negative impact on interactions between students who used AAC and their peers. The teachers also noted that the students who used AAC were not always socially adept and that this impacted on their ability to make friends, particularly as they grew older. This highlights the need for careful preparation and training for students who use AAC and their peers prior to inclusion (Beukelman & Mirenda 2005). Indeed peer training can significantly increase interactions between students who use AAC and their peers (Lilienfeld & Alant 2005b). Lilienfeld and Alant provided eight 50-minute workshops that were designed to address specific communication difficulties experienced by an adolescent student with physical disability. The peers were encouraged and supported to interact with this student throughout the training. Subsequently, interactions within the classroom increased for all concerned and the student with the disability began to use a variety of communication modes. An additional bonus of the training was that during the workshops peers disclosed positive feelings about the student that were both rewarding and supportive and are likely to have contributed to the increase in communicative interactions. Nevertheless, training alone cannot ensure that a student with a disability will be included in peer groups and classroom interactions.

Teachers stressed the importance of students being able to access all the school buildings, classrooms and equipment. They also noted the advantages of small classes for students who use AAC. They considered it important to give the students with complex communication needs real grades for their work. The work and grading systems may be modified, but parents appreciate knowing how their child is progressing. The teachers who participated in Kent-Walsh and Light's (2003) study believed that teachers need time to adjust to having a student who uses AAC in the class. They also spoke about the mutual support that teachers can give to each other and that this is helpful in changing teacher attitudes and encouraging other teachers to willingly accept a student who uses AAC into the class.

The teachers were in agreement with the participants in Soto et al.'s (2001) study that collaboration is a key factor in successful inclusion. The teachers considered effective communication and collaboration with other team members important, particularly at transition times when the student was moving to another class. They emphasised the importance of having time to observe a student prior to accepting that student into a class and of having detailed notes from previous teachers. Therapists, parents, special educators and other team members all provide important information and support to the teacher and are critical to the success of any inclusion program.

Participants identified three important issues relating to successful curriculum development:

1. Set realistic academic goals.
2. Try to include students in some classes that are appropriate to their level of skill (for example, a lower aged class).
3. Some curricula (for example art, cooking) are easier to adapt than others (for example maths, science).

However, it may not be appropriate to include older children with complex communication needs in classes with much younger children. This segregation heightens feelings of difference and suggests that the student using AAC does not belong in the class (Schnorr 1990). It may be better to include all students in an activity and try to tailor the goal to each student's ability. Teacher's aides and increased time for curriculum planning may help with this.
The teachers identified a number of factors that they considered likely to facilitate inclusion for students who use AAC (Kent-Walsh & Light 2003). These included:

- honest open communication about the inclusion experience
- developing competency in using AAC
- requesting additional planning time
- respecting the student at all times
- including the student in all activities
- matching the technology to the activity
- providing peers with information about inclusion of the student who uses AAC
- maintaining effective team collaboration
- adequate training for team members
- providing the teacher with support from the team
- implementing effective transition planning
- selecting an AAC system that is appropriate for the student.

Thus, these teachers identified the team, student peers, AAC systems and technology, and the school itself as critical components of successful inclusion. The issues raised support those issues that are identified as important by specialists in AAC (for example, Beukelman and Mirenda 2005), other researchers (Soto et al. 2001), early childhood teachers (Smith & Kenneth 2000) and people who use AAC (see Narrative 9.1).

The two studies discussed here provide a clear indication of the issues that teachers and others who support students with complex communication needs consider important if the inclusion is to be successful. A teacher notes how important it is to have access to other specialist team members in Narrative 9.2.

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**NARRATIVE 9.2**

**WORKING TOGETHER**

We have a speech pathologist come over from town, she comes once a fortnight and she's been a great asset to us. She set up some good programs and she gives good advice, the children love that. She does actually work with the parents even in the holidays, she's been really good. She's been coming for nearly 2 years now, prior to that we had years with no service.

Jenny, Teacher, New South Wales

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### CULTURAL AND LINGUISTIC DIVERSITY AND COMMUNICATION ISSUES

Students with disabilities in inclusive settings who are from non-dominant cultural and language backgrounds present extra challenges to schools and teachers. Issues of different languages are often the most obvious, but they are not the only concern. Cultural communication differences can be more subtle and hidden, giving rise to greater and more long-lasting misunderstandings even when people speak the dominant language more than adequately (Scollon & Scollon 2001). For example, parents may hold a view that disability is a shame on their family, and that children with a disability are fragile and need to be protected, therefore the child must be kept at home as much as possible (Gannotti 2006;
Multicultural Disability Advocacy Association 2000). This may contrast with the assumption by the dominant culture practitioner that children need to socialise and communicate with a variety of people, and to have experiences that are as normal as possible for their age. Another common source of different assumptions is when families may think that the practitioners carry out the education and communication activities with the students, but this is not to be done at home or is not the responsibility of families; they are not the experts (Huer, Parette & Saenz 2001). Practitioners may wrongly assume that there is carryover of systems to home, and wonder why progress is not as rapid or consistent as expected.

There may also be practices of great importance to the family which the school does not follow. For example, for Indian families it may be very important that their children eat well, and food coming home not consumed may be seen as a sign of neglect by the school. For Chinese families, the balance of foods, using a Chinese perspective, may be more important than any swallowing issues (Chan 2006). Similarly, the central role of religion for Muslim families, including issues of modesty and clothing, may easily appear to be sidelined by school practices. Cultural beliefs such as the goal to make children independent and to be realistic about what can be achieved (which are common western values that may underlie the education system) may clash with cultural beliefs that value protection and the maintenance of hope. An Arabic health worker reported ‘You must never take away hope. Even if you think it is accurate, they will not come back [if] it will not be right for them’ (Royal Institute for the Blind 2006).

These differences in cultural attitudes can have an impact on the consequences of disability for the family. Mothers of children with disability from communally oriented cultures may tend to have higher levels of depression but lower levels of stress and anxiety than their western counterparts (Azar & Badr 2006; Gardner et al. 2004). However, migration can remove families from their traditional support networks, and it is important not to make assumptions about families’ beliefs or practices.

A study by Clark (2005) in New South Wales reported the problems about their child’s schooling that were perceived by parents from non-dominant cultural and language backgrounds who had children with a disability. These included:

- difficulties understanding reports on their child’s communication and other aspects of their disability (sometimes this was a language barrier, often it was not understanding the system or the purpose that was the context of these reports)
- difficulty navigating a range of different services and practitioners, with little sense of coordination or communication between them, when they felt unsure of the system
- lack of understanding of cultural issues on the part of schools and other practitioners; (for example, the importance of certain foods, dress or cleanliness)
- lack of their competence in English
- rejection of the limitations communicated to them, in favour of a belief that their child can do anything
- shame and stigma about disability that may be different to the attitudes assumed by school personnel.

All of these issues can be managed in an inclusive context. For example, working in teams is recommended for successful work across cultural and linguistic barriers. Some students using AAC may be bilingual, to varying degrees. Some work with students and families may require an interpreter and an English as a Second Language (ESL) teacher as well as a speech pathologist, to ensure key aspects of communication that meet government and education department policies on multiculturalism (New South Wales Department of
Education and Training 2005). There is no evidence that bilingualism or bilingual AAC systems hinder communication development, and many social and long-term reasons to maintain bilingualism (Baker 2000; Battle 2002; Genesee 2004). Studies indicate that items in the appropriate language enhance the use of AAC devices at home and other social contexts (Huer, Parette & Saenz 2001).

In Clark’s (2005) study, recommendations for enhancing success with students from culturally diverse backgrounds involve increasing communication, family involvement within a whole school approach. They include the following:
- Ensure clear, informative communication between the school system and parents from a non-English speaking background (NESB).
- Ensure policies and procedures are accessible to parents from a NESB.
- Ensure that parents from a NESB who wish to change current arrangements for their child’s education are aware of and able to participate in the student review and reappraisal process that the school has in place.
- Celebrate important cultural days and festivals at school invite parents and members of local communities to bring food to share have fun.
- Take part in cultural competence and disability awareness training.
- Appoint a school staff member to coordinate student access to all available support and services and to explain to parents any changes to policy and funding criteria.
- Use telephone interpreter services.
- Translate information into relevant community languages.
- Use community-based workers wherever they are available or create networks within your local community to help distribute information and assist communication between the school and families from a NESB. (Clark 2005)

Paul (2001) recommended a service such as a school or a health clinic have a consultative committee, made up of parents and other support personnel (such as ESL teachers, church elders, friends, representatives of interpreter services, community representatives). Their task is to meet regularly to discuss issues specific to culture and communication across a range of students and families. This enables ideas to be subject to feedback, solutions to be shared and a sense of communal aims to be fostered. For example, tests and language resources may be presented, so that their suitability or any problems with them can be raised and alterations suggested. Parents who are successfully using AAC devices with their children can pass on solutions to those who are wary. Narrative 9.3 illustrates that families may have different priorities from other team members and thus highlights the importance of a team approach.

**NARRATIVE 9.3**

**DISABILITY IN CULTURAL CONTEXT**

AR, a child with cerebral palsy aged 5 years 4 months lives with his parents and four brothers and sisters in a one-roomed house without electricity or telephone. The family share bathroom and kitchen facilities with their grandparents in their house next door. The family own their own home, a fishing boat and a car. AR has had twice-weekly intervention from a physiotherapist, occupational therapist and speech pathologist since 18 months of age and a special education teacher comes to his home twice weekly. He did go to a special school for a time, but his mother felt they did not take care of him properly. She said the other children were aggressive and the teachers did not change him often enough; they...
didn’t clean his mouth or his hands. Therefore, she preferred that he be at home where he could take care of him properly and to have the teacher come to them. It is very important to his mother that AR feels loved and that he live as contentedly as possible. She gives him an extraordinary amount of attention, and the extended family exhibit nurturing, protection and sympathy for him. They believe it is more important that children demonstrate loving and respectful behaviour than that they have independence, assertiveness or problem-solving skills. They want him to be safe, receive excellent care, and to be happy and not stressed or upset. The family members are prepared to put a great deal of their resources into achieving these things. The family also feel strongly that children can overcome their disabilities and they are committed to help AR reach his goals, especially to walk. Their goals are not independence but interdependence. AR is not verbal, but the family are not interested in a high-tech device although one has been offered to them. They cannot take care of it, and feel it is too ‘strange’. AR is exposed to two languages, one at home and another when he is at school, from his visiting teacher and the centre he goes to for therapy. His family would be happy to have a communication board, although are not sure what he would need it for.

Source: Adapted from Gennotti 2006

OOO LANGUAGE DEVELOPMENT AND FUNCTIONAL COMMUNICATION

Students with complex communication needs entering inclusive educational settings are likely to have a variety of language needs and abilities. Some may have very little functional communication and severe language difficulties, whereas others may have good language skills but limited or no speech. Functional communication implies that the student will be able to communicate in a variety of contexts in the most efficient way. Many students will use a variety of communication modes (for example vocalisations, speech, sign or gesture, facial expression or the use of a speech-generating device [SGD]) to communicate different messages to different partners in different contexts. Teachers need to be flexible in their approach to communication and to accept communication attempts that are socially acceptable. This is rewarding for the student and encourages further communicative attempts. There is no one way to communicate a message; all people use a variety of communication modes (speech, gesture, written symbols).

Language development and AAC

Despite recognition of the variety of communication modes that humans use and the need to be able to convey messages in the quickest and most appropriate way, teachers working with students who use or require AAC are often asked if the use of AAC will prevent a student from learning to talk or if AAC facilitates language development.

Comprehensive longitudinal research on the use of AAC to promote language and communication has been conducted by Romski, Sevcik and colleagues (Romski & Sevcik 1996, 1999; Romski, Sevcik & Adamson 1997) with children and young adults with intellectual disabilities. These researchers have used the System for Augmenting Language (SAL) to successfully increase language production in primary school students, adolescents in secondary school (Romski & Sevcik 1996) and very young children with intellectual impairments (Romski, Sevcik & Forrest 2000).

Teachers taught the students to use a SGD and used the SGD in their communication with the students. Over time, the students learned to use the SGD independently and increased
their use of language. A detailed description of SAL is beyond the scope of this chapter, but interested readers can find more information in the work of Romski and Sevcik (1996).

Both intrinsic factors (that is, those that the student brings to acquiring language through AAC) and extrinsic factors (for example AAC system, teaching approach) are important to consider when creating a framework to understand language development using AAC (Romski, Sevcik & Adamson 1997). Romski and colleagues suggested that students need to understand not only the relationship between a spoken word and its referent but also the relationship between a visual symbol and the spoken word. Students with limited comprehension must first learn the relationship between a visual symbol or manual sign and its referent before they can use AAC expressively. Some students may never understand this relationship and will communicate using idiosyncratic gesture, vocalisation and physical manipulation of others in the environment (Cress 2001; Cress & Wood 2001; Granlund & Olsson 1999; Pebley & Koppenhaver 2001; Siegel & Cress 2002; Sigafos, Arthur-Kelly & Butterfield 2006). These students are sometimes referred to as functioning at a pre-linguistic or pre-symbolic level.

Despite limited research into AAC and language development, there is considerable research indicating that students with intellectual disabilities, students with autism spectrum disorder and students with severe physical disability may benefit from the use of AAC.
Nevertheless, as noted above, a number of barriers exist that may impact on services to these students and thus delay their introduction to functional communication systems (National Joint Committee for the Communication Needs for Persons with Severe Disabilities 2002). Such barriers include a lack of professional staff knowledge (Balandin & Iacono 1998) and lack of training for families and support staff (Light & Binger 1998).

Students with intellectual disability

The use of sign and gesture to support the language development of people with an intellectual disability is one of the earliest reported uses of AAC (Walker 1976). Sign and gesture are commonly used with and by students who have an intellectual disability. The use of sign provides a visual cue to comprehension and expresses a message. In a recent study of three children with Down syndrome (Chan & Iacono 2001), the children produced different gestures for a variety of communicative functions. Limited use of gestures coupled with a lack of clarity in children’s communicative intent may predict poor spoken language and vocabulary development because adults have problems interpreting the children’s gestures and other behaviours, and therefore cannot provide language models appropriate to the children’s communication attempts (Wetherby, Warren & Reichle 1998). Chan and Iacono (2001) reported that the children in their study demonstrated use of gesture common in children at a similar level of language development, but did not develop speech concurrently, unlike their peers without an intellectual disability. This study provided support for the argument that manual communication may be an advantage for children with Down syndrome, for whom speech may not be an accessible modality, particularly in light of work that has shown that there is a strong association between gestures and language development (Thal & Tobias 1988, 1994; Thal, Tobias & Morrison 1991).

People with intellectual disability are unlikely to learn to be fluent users of a signed language, but may benefit from the use of sign. Key word signing (Beukelman & Mirenda 2005; Fristoe & Lloyd 1979; Grove & Walker 1990; Windsor & Fristoe 1989) is commonly used with students who have language impairments and who may be helped by the visual representation of a word as an addition to the auditory stimulus. In key word signing only the most important content words in the utterance are signed. Frequently the signs are supplemented with natural gesture and may include idiosyncratic signs and gestures that are familiar to the individuals. Key word signing is always accompanied by speech and is sometimes termed simultaneous communication (Beukelman & Mirenda 2005).

It is important that those who interact with the student learning to sign (for example teachers, teacher’s aides, student peers, parents) also sign consistently. It is also important that the student has the physical ability to make the signs (von Tetzchner & Martinsen 2000). Thus, teachers and peers will need to learn the signs the student is able to use and to build up their knowledge of sign to keep pace with the student’s language needs. Learning signing in school is an activity that students, particularly younger students, are likely to enjoy. However, it is an additional task for teachers. Speech pathologists or parents can often assist and provide training and resource materials.

Students learning sign are likely to benefit from both implicit and explicit teaching (von Tetzchner & Martinsen 2000). In implicit teaching of sign, the student is exposed to a variety of signs that are meaningful within different contexts but no effort is made to directly teach the signs. In explicit teaching, the relationship between the word and the sign is made explicit and the student is helped to learn the sign. This teaching includes practising and being prompted to use the sign and may also include hand-over-hand modelling.
Several studies have explored how best to select and teach signs to children who require a system other than speech to communicate (Fristoe & Lloyd 1979, 1980; Iacono & Parsons 1987; Reichle, Williams & Ryan 1981; Spragale & Micucci 1990). A focus on functional communication means that signs should be selected for the relevance they hold for an individual child within a given communicative context (for example the classroom, playground, school bus). Consequently, it is best to teach signs that are most relevant and meaningful for the student and for those who interact with him/her and, therefore, are most easily learned. This focus on functional selection of signs means there is no longer a pressure to adhere to a developmental pattern of learning sign (Walker 1976, 1985; Walker & Cooney 1984). Signing may be able to be used across languages, so that a child from a bilingual background may be able to use signs in some aspects more effectively than they would be able to use speech. It is important to consult with families to ensure that the signs are salient to be carried over to home. Care may be needed for consultation in cross-cultural contexts.

If signing is used as an aid to comprehension, it is important that all those interacting with the student use the signs consistently and that the student is rewarded for using sign. It can be argued that the onus is on those without a disability who interact with the student to learn signs and to use them in order to promote communication and language development. However, there is some reluctance on the part of some to use sign, or its use may be dropped (for example, when new staff are employed or when a student moves class). This can occur despite the fact that signing has been shown to be an effective communication tool with the particular student. Additionally, teachers need to be aware that in order to sign, students must have adequate hand function to form the signs. It must also be remembered that many students who use sign may also benefit from other forms of AAC. The case study of Abdul in Narrative 9.4 demonstrates the important role that a teacher plays in ensuring optimal communication opportunities for a student with an intellectual disability.

**THE ROLE OF THE TEACHER IN OPTIMISING COMMUNICATION**

Abdul is a 7-year-old boy who enjoys playing computer games and soccer. He has two older sisters and a younger brother and they all attend a local primary school. Abdul has a moderate intellectual disability. He is in a class of 29 students and a teaching assistant provides 15 hours support each week to his class.

Abdul’s parents were born in Lebanon and have lived in Australia for 16 years. Arabic is the primary language spoken at home. Abdul and his siblings use Arabic when speaking with each other outside of school. Abdul’s parents also speak English.

Abdul’s teacher was concerned that he frequently appeared tired and had been unwilling to participate in some class activities. He had also hit out at some of his classmates to protest and to have them leave him alone. This was unusual behaviour for Abdul.

Abdul’s teacher organised a meeting with Abdul’s parents to discuss his behaviour and learning and support needs. An occupational therapist who had been working with Abdul at school to develop his handwriting skills, also attended the meeting.

During the meeting, Abdul’s father said that he felt Abdul had progressed well in his first year at school, but that his skills were regressing and he may need to move to a support class. The teacher told them about Abdul’s tiredness and unusual behaviour. He suggested that a support class may not be necessary as Abdul’s learning should improve if he were more alert at
school. Abdul’s father then told the teacher that Abdul had been experiencing epileptic seizures during the night and that he had therefore only been sleeping around six hours a night. He reported that Abdul had recently seen his paediatrician, but was awaiting a neurological assessment. The teacher talked to Abdul’s parents about the impact of his seizures and disturbed sleep on his learning and behaviour.

Abdul’s mother expressed concerns about Abdul’s speech and language development. The teacher stated that he had also been concerned about Abdul’s development in this area, even before his recent tiredness at school. The occupational therapist suggested that a speech pathology review assessment occur to provide strategies and resources for home and school. The teacher agreed that specific ideas on how to support Abdul’s language development during class activities would be beneficial and said that the teaching assistant could spend some time implementing a speech program if one-to-one support was required.

The teacher later received a copy of the neurological report, stating that medication was being trialled and that the seizures may have resulted in some regression in Abdul’s skills.

Following the stabilisation of Abdul’s epilepsy, a private speech pathologist assessed his speech and language. The assessment involved observations of Abdul interacting at home and school and formal assessment in a clinic. The assessment revealed the following:

- He primarily used 1 to 2 words in English.
- His use of Arabic was more advanced than his use of English.
- He rarely initiated with his classmates, but frequently with his siblings.
- He didn’t always respond to communication directed to the class or a group.
- A need to develop receptive vocabulary for everyday items, places, people and basic concepts.
- A need for AAC to support his understanding of what was expected of him at school and at home.

The speech pathologist and teacher met and determined the following strategies to develop Abdul’s communication within existing school activities:

- Use of modelling and expansion of verbal language across activities.
- Class to act out scenes from books being read by the class and take photos to create class books. Students to later provide the text words to the stories.
- Targeting receptive vocabulary within play activities, such as a memory game for household items, within physical activities such as an obstacle course for positional words and during deskwork activities, such as handwriting pages.
- Use of photos from home to create personalised readers for use with the teaching assistant.
- Class timetable made from photos to assist Abdul’s understanding of when activities occurred.
- Class and school rules made from pictorial symbols to enhance Abdul’s understanding.
- Use of software, such as interactive readers, with support from Abdul’s ESL teacher to develop vocabulary and expand his use of language for different purposes.
- Use of key concept signing to support Abdul’s understanding, especially within class and group settings.
- A speech generating device to assist Abdul in using language for different purposes with his peers, such as giving directions and making comments during a game of Simon Says.

The teacher organised another meeting with Abdul’s parents and the professionals involved, so that Abdul’s learning and support needs could be discussed further and coordinated between school and home. The proposed activities for Abdul’s communication development at school and home were discussed. Similar strategies to those proposed for school were also recommended for use at home. For example, a home timetable would be made from photos to assist Abdul in understanding when activities occurred and a speech generation device was recommended to assist Abdul in using language for different purposes with his siblings.

Abdul’s father raised a concern about the proposed strategies. He and his wife were concerned about the use of AAC with Abdul, as they felt it would stop him from talking. The speech pathologist explained that speech
Communication for students with physical disability

Some students with physical disability will not find signing to be a functional communication mode. Some students with physical disabilities have communication disorders that are associated with intellectual disabilities. Others with physical disabilities have intact language abilities but may not have the physical abilities to express their language through speech. Students with cerebral palsy comprise the bulk of those with physical disabilities that affect speech as well as other physical skills. This section focuses on those students with physical disabilities who have little, if any, concomitant intellectual disability.

Despite some early research on the language of young children with physical disabilities who use AAC (Light, Collier & Barnes 1985a, 1985b, 1985c), the body of research in this area is limited (Paul 1997). Paul surmised that the limited research was because those who specialise in AAC have tended to focus on ensuring that children who need AAC have functional working AAC systems rather than on empirical evaluation of the processes of serving the children. She suggested that some principles of normal language development are undoubtedly useful to consider when working with young children with physical disabilities who use AAC, but that there are challenges that are specific to these children. For example, if the levels of cerebral palsy of children are so severe that they have little functional speech, they also have severe motor problems and are often unable to walk or indeed to move easily. As already noted, this creates problems with both learning and socialisation for students in inclusive settings (Kent-Walsh & Light 2003; Soto et al. 2001). These students may need to rely on a wheelchair for mobility or on others to move them, and require all areas of the school to be easily accessible. They often require assistance with mealtime management and activities of daily living, and take longer to complete tasks in class. Poor hand function and lack of mobility means that they require assistance with many learning tasks and that class materials must be modified. Secondary students need additional time to complete academic work and may become fatigued when trying to keep up with the school curriculum, including homework. Teachers need to adapt teaching materials and academic curriculums to accommodate the needs of the
individual student. This includes presenting materials in different formats and ensuring that the demands on the student are feasible in view of the level of physical disability.

Students may be absent from school frequently. When young, these students may have spent much time at medical centres, therapy programs and other appointments, and so have had little time for the activities that are known to be critical in early language and reading development (for example, play and activities that foster early literacy skills) (Beukelman & Mirenda 2005; Catts et al. 2002; Koppenhaver et al. 1992; Koppenhaver et al. 1995; Light 1997; Pebly & Koppenhaver 2001; Trudeau, Cleave & Woelk 2003; Wood 2001). Consequently, they may require additional help with literacy skills and modified reading materials. Many students with severe physical disability have poor levels of literacy, despite having no or little cognitive impairment. Teachers in inclusive settings may feel challenged when developing an accessible curriculum for these students and will benefit if they can draw on the expertise of a collaborative team that include psychologists, therapists and parents, and involves the student with physical disability. Any AAC system must be flexible enough for a student to transition from one level of linguistic complexity to another and from one communicative context to another (Paul 1997).

Many symbol sets or AAC systems are not true language systems but rather words and phrases selected by caregivers or speech-language pathologists to support communication and meet the student’s immediate communication needs (Light 1997). These systems usually consist of nouns and therefore the communication partner must use guessing, checks and
questions in order to assist the person who uses the system to complete a sentence (Balandin 1994; Balandin & Iacono 1993). Adults, including speech–language pathologists, parents and educators, may not be aware of all the vocabulary that a student needs to support their play, socialisation and learning (Marvin 1994; Marvin, Beukelman & Bilyeu 1994; McGinnis & Beukelman 1989; Morrow et al. 1993). Thus, the system may not be adequate to meet all of the student’s communication needs. Teachers play an important role in ensuring that the student has access to the vocabulary needed to support interaction and learning across all of the school and classroom contexts (Morrow et al. 1993) and that this is kept up to date. Despite studies that have indicated that AAC systems must be constantly updated and changed if they are to keep pace with the learner’s needs (Beukelman, McGinnis & Morrow 1991), AAC systems are not always updated frequently enough to keep pace with the user’s needs.

Finally, access to a suitable AAC system that a student with a physical disability can use comfortably and without undue fatigue is of paramount importance. Many students have AAC systems that they cannot easily reach, that they are unable to switch on by themselves, or that are not always available. Students must have a suitable system, know how to use it, communication partners who understand how to interact using the system, and the same opportunity for learning as their peers without disability.

Technology has changed the lives of many students with physical disability accessing inclusive educational settings. Before acquiring any technology, a student will require careful assessment by a team of experts that should include educational staff who have an understanding of the student’s needs within the context of school and learning. Narrative 9.5 provides an overview of the barriers and some solutions to inclusion experienced by Annie, a young student with cerebral palsy.

**ANNE AND HER EARLY SCHOOLING**

Annie attended a state primary school in a city in rural New South Wales and was in her second year of formal schooling. She was the first child with a severe disability to enrol in this school. Annie was diagnosed with cerebral palsy at birth. She has speech dyspraxia and dysarthria, difficulty with the execution of fine motor activities and uses a walking frame. Annie successfully developed a strong social identity with her peer group and, although only partial enrolment was granted for the first three terms of the year, Annie attended the school full time in the final term. She subsequently progressed to Grade One, receiving approximately 18 hours special-aide time per week for the school year.

Annie’s ability to produce natural speech has been severely affected by oral-motor problems associated with cerebral palsy, thus resulting in an expressive–receptive language discrepancy. However, in familiar or comfortable environments it is evident that Annie comprehends most conversational language and is very quick to learn when given verbal explanations accompanied by real-life demonstrations.

Annie successfully augments her communication with a multi-modal language approach: natural gestures, some signs from the Makaton Vocabulary (Walker & Cooney 1984), animated facial expressions, vocalisations, and a very limited repertoire of spoken words. A low-tech alternative communication system had been evolving in book and board form to assist Annie to achieve the communicative functions of greeting, accepting, acknowledging, asking questions, rejecting, denying, protesting, talking about people and places, and teasing.

The contents and format of the communication book has not changed significantly since Annie commenced school. Each page was single sided with nine symbols approximately 2 cm × 2.5 cm. The index included feelings, people, food, school activities, places and holiday activities. The ‘people’ page.
Students with autism spectrum disorder

The use of AAC may benefit students with autism spectrum disorder who have no functional spoken language and those who have difficulty in comprehending language or in understanding and managing their school and home routines. AAC can be used to support both the expressive communication and also the understanding of students with autism spectrum disorder (Light et al. 1998; Mirenda 2001). Students with autism spectrum disorder may be gestalt processors (that is, processing the whole rather than components) (Prizant 1983) and frequently experience difficulty in taking the perspectives of others. This inability to think of the parts of a problem or situation or consider others impacts negatively on the student’s ability to learn in the classroom and to socialise with peers. AAC
strategies can be used to facilitate communication development and reduce challenging behaviour (Mirenda 1997; Sigafus, Reighle & Light-Shriner 1994; Sigafos & Tucker 2000; Stephenson 1997). Indeed, Beukelman and Mirenda (2005) stressed the benefit of commencing AAC interventions early. Yet, despite a strong focus on communication throughout the literature dealing with autism spectrum disorder, there is still only a small empirically based research literature that reports the use and efficacy of AAC for students with autism spectrum disorder (Mirenda 2001; Ogletree & Hahn 2001).

Echolalia (repeating words and phrases that have just been uttered or uttered some time previously), self talk, literalness of meaning and idiosyncratic use of words are all common in students with autism spectrum disorder who do develop speech. The use of AAC may be helpful in supporting the communication of students who exhibit these linguistic behaviours. Some children with autism spectrum disorder appear to have superior visual memory and visual spatial skills that may result in unusual reading or spelling skills and the ability to perform tasks that are at odds with their overall level of functioning (for example, the ability to find particular words in the telephone book). Such skills may mask a student’s receptive language difficulty, resulting in high levels of frustration for all concerned and limiting language and communication development. However, teachers can capitalise on the student’s visual ability by introducing AAC systems (for example, schedules and scripts) that ensure that educational activities are supplemented with visual supports.

Students with autism spectrum disorder typically benefit from the use of AAC systems that support their comprehension and allow them to make sense of their world by using visual symbols (for example photographs, words, signs, schedule boxes and calendars) to help them order their day, support their language comprehension (Wood et al. 1998) and assist them to be independent within the contexts of both school and home. These students may be able to use Picture Exchange Communication Systems (PECS) to improve their spontaneous communication (Bondy & Frost 1994; Kravits et al. 2002). PECS is a structured program that encourages the student to exchange a picture for an activity or item. It encourages the student to initiate communication as well as to exercise choice and preference (Kravits et al. 2002).

The use of a variety of communicant modes including visual timetables and behaviour scripts for an adolescent with autism spectrum disorder is described in Narrative 9.6.

**THE USE OF AAC WITH AMY, AN ADOLESCENT WITH AUTISM SPECTRUM DISORDER**

Amy is a 15-year-old girl who lives with her mother and 17-year-old sister. Amy’s parents are divorced and Amy and her sister live with their mother and stay at their father’s home regularly. Amy loves to listen to music, watch DVDs and read magazines. She also participates in a social group that goes to concerts, does horse riding and has picnics. Amy is in her fourth year at high school. She has autism spectrum disorder and a mild intellectual disability.

Amy’s comprehension of others’ communication is generally functional within daily activities at school, home and in the community. People who are familiar with Amy’s communication support needs will keep their language to an appropriate level and naturally use supports when she requires them, such as modelling what she is expected to do or pausing to allow her time to process.
the message. This allows her to follow most
directions, questions or comments within familiar
situations.

Amy, however, has great difficulty
understanding more complex language, such
as directions involving inferences, especially
within new situations. Amy is literal in her
interpretation of language and is unable to
comprehend figurative language, such as idioms
and metaphors. Also, Amy’s comprehension of
others’ communication decreases when she is
anxious, and she requires additional supports
at these times, such as pictorial systems. At
times, Amy also has difficulty remembering
information. She may have comprehended what
was initially said to her, but does not recall it
when required.

Amy communicates verbally at a
conversational level and is able to use language
for a variety of purposes. She will sometimes
engage in self-talk. This is often when she is
anxious about a situation or also when she
is happy. When in a new situation, such as
speaking at the school assembly, Amy will use
self-talk to alleviate her anxiety. She repeats
directions that her teacher has given her in this
example saying, ‘Look at the people and use
the microphone. Read your notes. It will be ok’.

Amy also frequently uses learned phrases,
but these are generally appropriate for the
context. She usually, for example, replies to the
question, ‘What is your name?’ by saying, ‘It’s
Amy, spell A, M, Y, not A, I, M, E, E’. The rigid use
of the phrases, however, and a level tone to
her voice, affects others’ perception of her and
this naturally impacts on her social interaction
and development. Amy also uses learned
phrases when she is very anxious or upset, as
she has great difficulty generating appropriate
sentences at these times. When she once had a
seizure at home, for example, and an ambulance
was called, Amy said to her mother, ‘Only
call 000 if it’s an emergency’ as she felt okay
and didn’t want to go in the ambulance. Amy
had been learning about emergency services
at school.

Amy also has great difficulty using language
to express complex functions, such as providing
explanations, giving detailed comparisons and
solving problems. Her language use in these
instances is concrete in form, lacks detail and is
based on personal experiences. For example,
when Amy was asked by one of her teachers
what she would do if she lost the class when
on an outing to the city, Amy replied, ‘Wait for
my mum to come and get me’ as she had once
got lost when in the city with her family and her
mother had found her. When another teacher
once asked her, ‘Why do you need to use
deodorant?’ Amy answered, ‘Because it’s in my
toilet rack’.

Amy enjoys school and is progressing
well. In recent years, her learning has focused
on the development of functional skills. To
participate in class outings, for example, she
has been learning to read train timetables and
calculate the cost of activities with support from
a teaching assistant.

Amy’s educational program has also
focused on the development of her social skills.
Supports, such as Social Stories™ and scripting
of interactions, have been used within specific
situations to support her in this area. As new
situations are encountered, especially those that
impact most significantly on her learning and
emotional state, new supports are implemented.
These are developed by her mother and sister,
a support teacher or in consultation with a
speech pathologist when required.

As part of her class physical education
program, Amy has been attending the local
gym. This activity also provides Amy with the
opportunity to interact with students from
another school. Amy enjoys talking to them and
initiates conversations, but repeatedly tells them
how to use the gym equipment. During the last
gym visit, Amy told one of the students that he
smelt funny. This resulted in the other students
laughing and it caught her teacher’s attention.
The teacher had not taught Amy before and was
unfamiliar with Amy’s communication difficulties.
She said to her, ‘That’s enough of that Amy, if
you’ve had enough you can go and have a
shower, or if you want to keep working out, you
need to quit mucking around and be sensible’.
Amy was unable to cope with this situation as
she felt the other students were laughing at her
and although she couldn’t understand what the
teacher had said, she felt she was angry with
her. Amy stormed off and later refused to have
a shower and get changed. When she got home
she told her mother that she hated going to
the gym and that the teacher was mean. Amy’s
mother asked who the teacher was and did not
recognise the name. Therefore she assumed that the teacher was unfamiliar with Amy’s communication difficulties.

Many of the functional and social skills Amy has been learning have assisted in preparing her for a formal vocational skills program. For the last week, Amy has been attending a work experience placement at a fast food restaurant. Amy enjoys the work. She clears and cleans the tables, empties the bins and mops the floor. Amy, however, is becoming obsessed with the toys that are included in the children’s meals. She was given one by the manager of her first shift and expects to receive one each day. She will stop her work and go to look at the toys to make sure that the one she wants to receive is still in the box. This situation has the potential to escalate and jeopardise her work experience placement. The manager had been willing to trial Amy on the registers, but is now concerned that Amy wouldn’t cope.

Amy’s mother and father recently contacted Amy’s school principal to inform her of their concerns about Amy’s behaviour and desire to review her learning program. The principal organised for her parents to meet with a teacher who had been supporting Amy’s placement and the year adviser.

Amy’s parents raised concerns about recent changes in Amy’s behaviour. They felt that she hadn’t been coping with the news that her father was remarrying and were concerned that Amy possibly wasn’t coping with her school program. Her parents said that Amy’s ability to cope with changes to routine had decreased and that situations that may have previously resulted in small tantrums were escalating to aggressive behaviour at times. Additionally, Amy was refusing to complete her assignments or to help with the housework.

The following were agreed to at the meeting:

- That Amy’s support teacher would speak to the physical education teacher about the incident at the gym and explain the need to give clear, concise directions and the difficulties Amy has in interacting with others.
- That new Social Stories™ would be implemented for interacting with students at the gym, being part of a step-family and working without receiving toys at the fast food restaurant. The aim of the Social Stories™ would be to provide clear information, a routine for the activities and social cues that would support Amy in coping with these situations.
- That a script for serving customers be developed if Amy’s obsession with the toys could be addressed by implementing the Social Story™. This would involve writing the lines for Amy to say when serving customers and could be rehearsed prior to using it at work experience.
- To assist in developing Amy’s ability to manage her emotions, a pictorial representation of different levels of feelings would be developed with input from Amy. Amy could then use this to monitor how she was feeling. The teacher recommended a picture of a thermometer as it includes a scale and temperature is a concrete association with feeling calm (cooler) or angry (hotter). Pictorial guidelines of what to do when feeling a certain way were also recommended. For instance, when feeling angry, Amy could calm down by listening to music or by talking to someone.
- To assist Amy in understanding what was expected of her at home, a written timetable would be reintroduced. These had been successful with Amy in the past but had not been used at home for some time. The timetable would outline the housework she was expected to assist with, homework and assignments to complete and when she could enjoy some free time.

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Moore, McGrath and Thorpe (2000) have suggested that computer-aided learning may be of benefit to students with autism spectrum disorder, and could be used to teach students to use multimedia systems to learn about appropriate social interactions such as playing with others, and through observations, role-plays and the use of virtual reality. Group work should also be included to prevent the student from becoming isolated from
the class. These authors also suggested that computer-aided learning is also helpful for improving communication skills, in teaching symbols, non-verbal skills, and in particular conversational skills, including simulated conversations. The authors believed that it has the potential to facilitate inclusion for students with autism spectrum disorder in the future; however, further research is required.

FUNCTIONAL ASSESSMENT

An AAC assessment involves more than assessing a person’s current level of communication and suggesting a communication aid (Beukelman & Mirenda 2005; Cockerill & Fuller 2001). The goal of AAC assessment is not only to identify a system that will be functional for the student but to select one that will allow the student to meet future communication needs and challenges (Beukelman & Mirenda 2005). It is also important to remember that assessment is only a part of any AAC intervention. Providing a suitable communication system does not, in itself, ensure that a student will use it or communicate more effectively. As noted previously, it is important to train both the student and the communication partners to use the system.

AAC assessment involves a team approach. Currently, the Participation Model of assessment (Beukelman & Mirenda 2005) is used by many AAC teams. The three phases of this model are summarised in Box 9.3.

DESCRIPTION OF THE ‘PARTICIPATION MODEL’ OF AAC ASSESSMENT AND INTEGRATION

<table>
<thead>
<tr>
<th>Phases</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I: Initial Assessment</td>
<td><strong>Aim:</strong> To gain a picture of the child’s current level of functioning in order to develop a communication system that will meet the child’s immediate needs</td>
</tr>
<tr>
<td>for Today</td>
<td>Current communication needs assessed</td>
</tr>
<tr>
<td></td>
<td>Physical, cognitive, language and sensory skills assessed</td>
</tr>
<tr>
<td></td>
<td>Cultural and language issues investigated</td>
</tr>
<tr>
<td>Phase II: Detailed Assessment</td>
<td><strong>Aim:</strong> To develop a system that will serve the child in a variety of contexts with varied communication partners, including in different languages if needed</td>
</tr>
<tr>
<td>for Tomorrow</td>
<td>System needs to facilitate a variety of interactions (for example academic participation, social closeness)</td>
</tr>
<tr>
<td></td>
<td>Future interactions and participation considered</td>
</tr>
<tr>
<td>Phase III: Follow up Assessment</td>
<td><strong>Aim:</strong> To ensure that the system continues to meet the child’s needs as he or she matures and becomes involved in different activities across a variety of contexts and partners</td>
</tr>
<tr>
<td></td>
<td>Frequency of follow-up varies depending on the needs of the individual</td>
</tr>
<tr>
<td></td>
<td>Young children developing language skills need more follow up assessment; adolescents with developed language starting work need less frequent assessment</td>
</tr>
</tbody>
</table>
### Levels of Involvement

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td>Same classroom with same age peers, considered part of the class — activities may vary according to student’s ability</td>
</tr>
<tr>
<td>Selective</td>
<td>Present part of the day, attends some classes and services outside the inclusive setting</td>
</tr>
<tr>
<td>None</td>
<td>Not included in age-appropriate general education classes/environments</td>
</tr>
<tr>
<td>Competitive</td>
<td>Academic expectations and evaluation the same as for age peers. Work may be adjusted</td>
</tr>
<tr>
<td>Active</td>
<td>Academic expectations lower than for peers but content is similar.</td>
</tr>
<tr>
<td></td>
<td>Individualised assessments</td>
</tr>
<tr>
<td>Independent</td>
<td>Able to participate in an activity with no assistance</td>
</tr>
<tr>
<td>Setup</td>
<td>Can participate with assistance to set up (for example, switch on computer)</td>
</tr>
<tr>
<td>Assisted</td>
<td>Requires assistance from another to participate</td>
</tr>
</tbody>
</table>

Adapted from Beukelman & Mirenda’s participation model of assessment (2005)

As can be seen from Box 9.3, the emphasis is on ongoing assessment. Beukelman and Mirenda (2005) stated that ‘assessment is not a one-time process. Assess to meet today’s needs, then tomorrow’s, and tomorrow’s, and tomorrow’s . . . ’ (p. 149). Because many students with complex communication needs can and do use some speech or vocalisations, it is also important to assess the student’s potential to use natural speech, as well as his/her language ability (Beukelman & Mirenda 2005). However, assessing language is often problematic. Morse (1988) suggested that norm-referenced standardised assessment tools may be used but care must be taken to note any changes and adaptations made to the testing procedures, and of course, scores from standardised tests would not be valid if adaptations were made. It is also the case that it is not valid to report standard scores if the child does not match the standardisation sample, which is nearly always the case for children who come from non-dominant cultural and language groups. It is important to recognise that there are many individuals who use AAC who have been wrongly diagnosed as having an intellectual disability because the testing materials were unsuitable or the individuals were physically unable to perform the tasks. This misdiagnosis can have a lasting and damaging effect on a student’s educational program. There is growing evidence that children from non-dominant groups are especially likely to be over-represented in this way (Clark 2005). In contrast to using standardised, norm-referenced tests, professionals experienced with AAC may complete a full and accurate assessment using skilled observation and in-depth interviewing. Similar advice is given for language assessment with non-dominant culture and language individuals (for example, Battle 2002). Teachers have an important role to play in such an assessment as they bring experience of education and specific knowledge about the student and the classroom environment to the assessment team.

Observations and interviews with communication partners form a major part of every AAC assessment (Beukelman & Mirenda 2005; Cockerill & Fuller 2001). Among the interview questions should be a range of those about language background, expectations and language exposure from the home and community (Baker 2000) to help understand the pattern of bilingualism and cultural communication issues that might apply to that student and family (Battle 2002; Paul 2001). It is important to observe how different
communication partners, including peers, interact with the student. As already discussed, it is essential that communication partners know how to interact effectively with a student who uses AAC. It is important that partners do not limit the student by being overly directive or by denying the student a wide range of communication experiences (Hunt, Alwell & Goetz 1988, 1991; Light 1997).

It is also important to assess the barriers to successful communication in order to develop strategies to overcome these. Barriers as noted earlier (Kent-Walsh & Light 2003) include negative attitudes, lack of training, limited access and lack of appropriate policies to facilitate communication (Beukelman & Mirenda 2005).

If a student is to use an AAC device (for example letter board, communication book, SGD), the team will also need to assess the type of device and the most suitable symbol system (Mirenda & Locke 1989). In many parts of Australia and in other countries, the family’s financial resources to purchase and maintain the devices may govern the choice of device. There are students who could use a high-tech device but who are unable to afford one and rely, instead, on light-tech devices (for example communication board, communication book). The family’s opinions and attitudes towards AAC devices should also be assessed, often through a support person or community liaison. Families may agree to systems because they do not want their children to miss out or they wish to be cooperative, rather than because they find it suitable for their contexts and needs (Gannotti 2006).

AAC assessment is a complex and time-consuming process. It is likely to include a motor assessment as well as assessment of vision and hearing. Any student who uses AAC will require follow-up assessment to ensure that the system is still appropriate. This is particularly important not only because needs change but because technology, and AAC technology in particular, is a rapidly advancing field. Currently, new technology is enabling students with severe levels of disability to ultimately lead independent lives within the communities of their choice.

TECHNOLOGY

Few readers of this chapter would be unfamiliar with technology and most rely on technology to facilitate their study, writing and day-to-day activities. Such technology includes computers, word processing software, the Internet and electronic diaries. Increasingly, many professionals and students alike are limited in what they can achieve if their technology fails. Recent technological advances have had a positive impact on the inclusion of students in regular schools (Parette & Marr 1997). Assistive technology, including power chairs, switches, high-tech AAC devices, page turners, joysticks and speech readers facilitate the inclusion of students with disability in educational environments and enable them to participate in class as actively involved learners.

However, successful implementation is, to a large extent, dependent on the knowledge, skill and commitment of the classroom teacher (White, Shelley & Donna 2003). Throughout this chapter there has been an emphasis on teachers’ need for appropriate training and support if they are to include students with disabilities in their classes. White, Shelley and Donna (2003) suggested that higher education institutions must take some responsibility in preparing student teachers to deal with technology in the classroom setting. Assistive technology can facilitate the independence of a student and at the same reduce the one-to-one teaching load of the teacher. However, teachers must have some skill in using
the technology, and appropriate support if the equipment is not working. Without this knowledge or support, students may spend a great deal of time unable to participate in the class activities or to learn. Often the technology may be tied to one particular context (for example, the general classroom) and students may not be able to use it in specialised contexts (for example, the science laboratory), thus technology can never fully replace the teacher or peers in academic learning or social interactions.

Indeed, as noted above, it is important that students who rely on technology do not become isolated from their peers at school. Beukelman and Mirenda (2005) recommend that the whole class becomes conversant with any assistive technology used by one of their peers. This approach ensures that students without disability learn more about the student with a disability, which in turn can lead to improved social interaction and peer support.

Assessment of technology is an ongoing process (Iacono & Balandin 1992; Schutz-Meuhling & Beukelman 1990). The student's needs and abilities may change with maturation or experience and the research and development in the fields of technology means that new technology is being developed and old superseded at a rapid rate. Thus, it is vital that students have ongoing access to appropriate assessment, funding and training and that there are policies to ensure that students are able to take advantage of the assistive technology available. Similarly, teachers require ongoing training and support to ensure that they can use the technology and facilitate the student's participation in the academic and social environment of school. The assistive technology team is an invaluable resource for teachers, parents and students and an important part of the collaborative team approach (see Chapter 10).

WORKING COLLABORATIVELY WITH STUDENTS, FAMILIES AND OTHER PROFESSIONALS TO IMPROVE FUNCTIONAL COMMUNICATION OUTCOMES

A clear understanding of students' abilities and support requirements is needed to meet students' functional communication needs (Downing 2005; Kent-Walsh & Light 2003). Determining these areas and meeting students' needs requires the collaboration of significant people in the students' lives including generalist teachers, aides, parents, therapists and other students. Individual consultation may occur with the students, parents and other family members, people who know the students well, and other professionals. It is preferable to meet and work together in a coordinated approach (Giangreco 2000; Giangreco, Edelman & Broer 2001; Pugach & Johnson 1995). By working collaboratively, team members are able to contribute knowledge, reflect on the input of others to enhance their own input and share responsibilities and, consequently, intervention for the student can be coordinated and interwoven into a single educational plan.

Collaboration must occur at all stages, from assessment to design of communication systems and implementation and evaluation. A commitment from each member to fulfill designated responsibilities and to respect each team member's role is essential. Ongoing communication is a crucial element to the collaborative approach (Santelli et al. 1998).
Initial planning meeting

Collaboration begins when team members meet to plan for the development of the student’s communication. This may be the sole purpose of the meeting or the student’s communication development could be discussed as part of an overall educational planning meeting. The purpose of the initial meeting is to discuss and document:

- the student’s current communication skills and priority areas to address, including languages spoken and family attitudes towards communication
- opportunities for communication and learning new skills
- proposed strategies to support the student’s communication development
- areas requiring further assessment
- the responsibilities of team members and proposed timeframes for completion of tasks
- required resources and personnel
- procedures and timeframes for reviewing the plan.

Each team member should receive a copy of the communication plan. The role of each team member is dependent on their knowledge of the student, past experiences, training, time available and access to resources. Designated responsibilities should be negotiated at the initial meeting and renegotiated as required.

Role of parents in a collaborative team

Some parents coordinate the collaborative team, while others prefer to contribute to the team without leading it. It is important for schools to remember that parents from non-dominant cultural groups may not feel confident to participate, although may do so more if in groups or with their own support people, than on their own. Parents are able to support their child’s communication development by:

- sharing knowledge of their child’s current communication skills, language background, any AAC systems that may be in place and strategies that have worked in the past
- identifying skills to be taught and long-term considerations for their child’s communication, such as future employment options
- informing the team of factors that may need to be considered such as changes in the home environment, cultural considerations and bilingual or multilingual issues
- contributing to the design, creation and implementation of AAC systems and communication programs
- evaluating the effectiveness of programs and suggesting required changes
- supporting the acquisition of resources to support communication programs across environments.

Role of teachers in a collaborative team

Teachers usually coordinate the collaborative team and initiate the process by seeking support. Following an initial planning meeting, teachers play an ongoing role in the collaborative team by:

- completing identified responsibilities in the communication plan
- contributing to key tasks that other members may be fulfilling, such as attending interviews for assessment purposes or training sessions
- making the environment actively supportive of parents
○ seeking ongoing information and support as required, including increasing cultural awareness and knowledge
○ committing to the consistent implementation of AAC
○ educating and supporting others to understand the need for AAC and how to use it
○ supporting the acquisition of resources
○ implementing recommendations from other professionals, such as modification of own communication style with the student.

Role of speech pathologists in a collaborative team

The speech pathologist’s primary role is to offer expert guidance in the area of communication. Speech pathologists generally work as consultants within inclusive settings and the amount of support provided depends on the complexity of students’ communication needs and the resources available. Emphasis is generally placed on the development of knowledge, skills and confidence for teachers, parents and support people to be able to provide daily, ongoing support to the students within natural contexts. Speech pathologists therefore work side-by-side with teachers, implementing AAC systems and teaching strategies within the existing class activities. Current good practice is that speech pathologists working with students who have significant disability do not withdraw the students from the classroom for individual intervention. To promote the development of functional communication skills, it is essential that support be provided during usual class activities. In addition to consultations and direct guidance, speech pathologists are able to provide the following:

○ functional assessment of students’ receptive and expressive communication skills. Assessment involves observation of students across contexts and with different communication partners, interviews with teachers, parents and family and other significant people and formal assessment as required. This includes working with interpreters and doing bilingual assessments where possible or appropriate.
○ Reports outlining students’ skills and specific recommendations on functional outcomes and implementation strategies. Functional outcomes are developed by considering a student’s current abilities/strengths and the skills required to participate in priority activities that occur regularly at school, home and in the community.
○ Recommendations for AAC systems.
○ Demonstrations of how to use AAC and support to promote successful implementation of students’ AAC.
○ Training for all people involved in supporting the students’ communication.
○ Access to resources, including AAC systems.
○ A link between home and school to promote consistency of systems and teaching strategies.

The role of peers

Peers without disability can act as role models for students with disability (Downing 2005). They may help support students and include them in school activities. They may also work directly with the student with a communication disability by adapting material and helping the student interact with others. This can lead to a more equal relationship with other students and assist the student with disability to behave appropriately within
the group (Downing 2005). Nevertheless, peers will require some instruction if they are to interact successfully with students with communication disability (Downing 2005). A communication dictionary that outlines different behaviours that are potentially communicative may be helpful for peers and facilitate the inclusion of students with communication impairments into social contexts where friendships are more likely to develop. Downing (2005) noted the importance of collaborative teams in assisting students to maximise their communication potential. She also stressed that students in high school may require additional support if they have not mastered functional communication skills prior to attending high school. She also stated that it is imperative that students in high school are given opportunities to develop communication so that they leave school with skills that will serve them in their ongoing vocational option or employment. Collaborative teams not only help ensure that the student receives help from those involved in their education but also ensure that the student experiences a variety of communication partners across a range of contexts.

Speech pathology consultations

As mentioned previously, a key function of the collaborative team is to identify the priority areas for students’ communication development. The priority areas cover receptive and/or expressive communication and are generally identified because of their significance in promoting access to the curriculum, allowing students to reach their full potential or because of their role in addressing challenging or socially inappropriate behaviours. The selected areas and proposed AAC systems are always based on the individual needs of students and although the specific layouts of systems or symbols used may differ between students, common strategies and systems are frequently employed to meet the needs of students with disabilities.

Following an initial planning meeting or as a starting point, teachers and speech pathologists should discuss the following topics and select areas to be addressed.

Environmental changes

A key purpose to modifying the students’ environment is the creation of a structured learning environment that facilitates the development of communication and, if required, minimises the occurrence of challenging or inappropriate behaviours. These areas underpin the successful implementation of AAC.

Speech pathologists, for example, are able to offer suggestions to teachers on interaction and communication style. Changing the way in which people interact with the students can make significant improvements in students’ comprehension. This may involve changes such as simplifying language, increasing pausing and use of natural gesture, or key concept signing for those students for whom it is important.

The physical layout of the room can also be modified. Some students may need to be seated closer to the teacher to improve attention or be moved away from distractions, such as a turning fan. Students may also need to have clearly defined areas of the classroom for different lessons or labels with corresponding symbols for classroom areas and items. Physical changes to the room may also be required, such as positioning a display board with visual systems near a student’s desk.

To promote functional communication, AAC is overlayed onto an existing structure of activities. It is therefore essential that consideration be given to selection of activities,
students’ participation within activities and the expected outcomes for individual students. Sometimes natural indicators to the beginning and end of activities also need to be implemented, such as getting a student to put craft materials away or ringing a bell to indicate the end of free play.

Schools are environments rich in opportunities to develop communication. For students with disabilities, however, skills are unlikely to develop without specific intervention. Speech pathologists are able to assist teachers to identify opportunities for students to expand receptive and expressive communication skills. Sometimes these will need to be created, such as having an item out of reach to prompt a request or asking another teacher to pay an impromptu visit, so that a student can recount an event that he has rehearsed in class.

Ongoing support for students’ communication development requires consistent input from all people who regularly interact with them. It is important that training is provided and that AAC systems are always accessible and explained to new people.

**Common AAC systems**

Structures and routines exist within classrooms and schools that can be augmented with communication systems to promote the learning of students with disabilities. Other common AAC systems that are initially implemented are generally components of a behaviour management plan and/or target the development of social skills.

One of the first systems usually introduced is a visual timetable. This may be for a whole class or an individual student and may represent part of a day, a whole day or a whole week. Timetables help students to know their routine, what they are expected to do and to transition between activities, helping them to attend classes. Changes in routine should be represented on timetables for those students who have difficulty coping with it.

An ability to make requests is a fundamental expressive communication skill. It is imperative that AAC systems are implemented to promote this skill. For younger students or students with significant disabilities, requesting usually involves the use of single symbols to ask for motivating items, such as leisure or food items. Other students may require symbols to serve as a prompt to make appropriate requests, such as a reminder to ask, ‘Can you help me please?’ rather than becoming upset. Cultural issues may apply, for example questioning adults may not be appropriate for some groups, including some Samoan and some Aboriginal groups, but children will look instead to their peers or people close to them (Clark 2005; Genesee, Paradise & Crago 2004). A crucial system to support appropriate behaviour for students with disabilities is the visual representation of class and/or school rules and the accompanying rewards and consequences. This ensures they have an understanding of what is expected of all students and because it is represented visually, it serves as a permanent reminder and emphasis can be placed on appropriate behaviour.

In addition to visual class/school rules, behaviour scripts may also be required. Behaviour scripts can be used to highlight a single desired behaviour and the resulting reward through the use of symbols and an arrow between the two. The student is expected to interpret the script as ‘If you do this, then this is what will happen/you’ll receive’. For example, ‘If you read quietly you can use the computer’. On the reverse side of the positive script is the related negative script ‘If you talk, you won’t be able to use the computer’.
Expectations of children’s behaviour should be discussed with parents, as families may have different expectations and tolerances to school.

Some students may benefit from the use of Social Stories™ to teach them new skills or remind them of expected behaviour. Social Stories™ can be utilised for those students who are able to understand a simple narrative. They outline the behaviour expected from a student in a particular situation, such as shaking the hands of opponents when losing a game and congratulating them. Social Stories™ should be examined for cultural appropriateness, and may be productively discussed by the consultative group mentioned previously. Negative behaviours are not included in the stories. The desired behaviour is the sole focus and the stories largely consist of positive statements about what will happen and provide social cues. Social Stories™ can be augmented with photos or picture symbols. Students read through them to help them understand what is expected, remember the expected behaviour and use it in the actual situation.

In-service and support for teachers
Specific areas for training and support to assist teachers in meeting students’ communication needs should be identified as early as possible. Common areas are the design and use of low-tech AAC systems, use of technology, such as communication software programs or voice output devices, and ways to assess communication or identify the communicative function of inappropriate behaviours.

A recent training protocol indicates that there are eight steps to successful training (Kent-Walsh & McNaughton 2005). These are:

1. Assessing trainees’ commitment to the program.
2. Describing the strategy and the skills needed.
3. Modelling the targeted strategy.
4. Naming and describing the required steps.
5. Practising the strategy in a controlled environment with instructor feedback.
6. Implementing the strategy in a variety of natural contexts.
7. Post-test commitment and review of skills.
8. Generalisation of targeted strategy.

Kent-Walsh and McNaughton (2005) suggest that the use of this protocol, based on strategy instruction, not only provides clear guidelines for training but also helps ensure that a comprehensive training program is implemented rather than training isolated skills that do not generalise across communication partners and contexts as has occurred in the past. There is also some evidence that web-based online AAC courses may be useful for teachers, providing that they include some face-to-face meetings at which teachers can practise their new skills (for example preparing materials, communicating with children using AAC) (Lebel, Olshtain & Weiss 2005). In addition, teachers and teacher’s aides may find that courses on cultural awareness and on bilingualism and cross-cultural communication issues are also helpful to facilitate a positive communication environment within the classroom. Other people may also be able to offer assistance in these areas — parents, psychologists and support teachers.

By considering these areas, teachers are able to meet a number of communicative needs for students and provide a firm basis for the implementation of further AAC systems and teaching strategies as required. Additional needs are generally identified from assessment of individual students or as students encounter new situations.
SUMMARY
This chapter focused on communication and students with complex communication needs in inclusive settings. It included an overview of AAC and a summary of the research that has explored inclusion of students with complex communication needs, and some cross-language and cross-cultural communication issues.

The importance of appropriate assessments, the need for ongoing training and for academic and environmental adaptations were emphasised. Finally, the importance of a collaborative team approach and the role of the speech pathologist in supporting the student and the classroom teacher were discussed.

DISCUSSION QUESTIONS
1. Luke is a 10-year-old boy who has a mild intellectual disability and severe physical disability and he uses a speech generation device to augment his speech. His teacher believes the device sounds too robotic and is disruptive in class. The teacher frequently asks Luke to turn off his device and only use his speech. Luke tells you how frustrated he is by this and asks you to help him. What would you do?
2. What are the main reasons for using AAC with students who have poor or limited speech and/or language?
3. Ahmed, a child from an Arabic-speaking family who is non-verbal, is about to enter your class. What practices would you put in place to allow for language and cultural differences?
4. A high school with 850 students has four students who use AAC. Two students with cerebral palsy use speech generation devices and the other two students with Asperger syndrome use some light-tech systems. Another two students, a 12-year-old boy with autism spectrum disorder and a 14-year-old girl with Down syndrome have recently commenced at the school and require AAC. What can be done at a whole school level to support the use of AAC at the school?
5. How can teachers of students with additional needs modify their own communication to promote students' understanding and expressive communication ability?
6. List some possible barriers to effective collaboration between students, teachers, parents and therapists.
7. In what ways can AAC be used with students to prevent the occurrence of inappropriate behaviours and as a tool to teach new skills?

INDIVIDUAL ACTIVITIES
1. List the resources required to make and use AAC systems.
2. Most people use visual tools, such as a calendar, or symbols, such as business logos, as part of everyday life. The tools often aid memory, comprehension and may also allow quicker processing of information or completion of actions. Make a list of common visual tools and types of symbols.
3. Indicate whether the following statements are true or false and give reasons for your answers:
   a. Functional communication implies that the student is able to communicate in a variety of contexts in the most efficient way possible.
   b. It is best that students' AAC devices use only English at school, even if there is another language spoken at home.
   c. Supporting a student to use sign language prevents the development of speech.
   d. Collaboration is a key feature in the successful inclusion of students who use AAC.
   e. Speech generation devices should only be used with non-verbal students.
   f. A line-drawing symbol is more difficult to associate with the real item than a photo symbol.
   g. A functional communication assessment should involve observations of the student and interviews with people who regularly interact with the student.
Cultural communication issues may be subtle and hidden, and require consultation and awareness to work with successfully.

Early introduction of AAC reduces the likelihood of students using disruptive and/or destructive behaviours to communicate.

Determination of a student's AAC needs requires a one-off assessment.

Letter boards, chat books and schedules are all types of light-technology AAC systems.

Students with autism spectrum disorder may become anxious if unsure of upcoming activities or if activities are changed suddenly.

4 Read Narrative 9.4 and identify the key factors in promoting the successful development of Abdul's communication.

GROUP ACTIVITIES

1 People communicate for a variety of purposes, such as to give information or to request assistance and also express themselves in a variety of ways. Create a list of some of the reasons why people communicate and how people communicate. Include some cultural variations.

2 Read Narrative 9.6 and answer the following:
   a What factors would need to be considered when designing a visual communication system for Amy? Design the visual system incorporating a picture of a thermometer to assist Amy in identifying her emotions and how to cope with them.
   b Which aspects of Amy's behaviour and communication can be associated with autism spectrum disorder?

REFERENCES


Siegel, E. B. & Cress, C. (2002). Overview of the emergence of early AAC behaviors: progression from communicative to symbolic skills. In J. Reichle,


FURTHER RECOMMENDED READING


INFOTRAC TERMS

**Online reading**

**INFOTRAC® COLLEGE EDITION**

For additional readings and review on functional communication in the classroom, explore InfoTrac® College Edition, your online library. Go to: [www.infotrac-college.com](http://www.infotrac-college.com) and search for any of the InfoTrac key terms listed below:

- augmentative communication
- communication disorder(s)
- autism