Using Augmentative and Alternative Communication Strategies in Schools in Namibia

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Introduction

Globally, the school environment provides children with a daily mix of social and educational encounters spread over up to 13 years. This means that for most children, a large part of their childhood is spent at school, as is mandated by national and international law. The school is the place where children form friendships and learn what it takes to be a friend, but this is also where they are prepared for life in the workplace and specifically for the career path that they wish to pursue.

However, the same is not always true for children with disability, who often face significant barriers restricting their opportunity to attend school. For these children, the social and educational opportunities so readily available to their typically developing peers are different, as is the length of education, and often it is not mandatory for children with disability to attend school, even if they are of school-going age. For these children, it might be far more difficult to learn how to make friends, especially if they have a communication disability, as social skills are heavily reliant on communication skills (Rossetti & Keenan, 2018). The unemployment of persons with disability is also a grave concern, as many of these individuals do not have the work skills to be successfully employed.

In the Participation Model, Beukelman and Light (2020) describe five prominent opportunity barriers that have a negative impact on school attendance of children with disabilities. They describe opportunity barriers as those barriers that lie outside of the individual and identify:

(i) *Policy Barriers:* In many African countries, including Namibia, inclusive education pol-

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icies are relatively new (Eleweke & Rodda, 2010). Despite the fact that many of these policies are regarded as progressive and relevant, their implementation is not monitored and enforced (Donohue & Bornman, 2014).

(ii) *Practice Barriers:* These often encapsulate physical barriers such as the fact that schools may be far away, especially in rural areas, making the journey to school practically impossible. Specialized transport for children with mobility aids such as wheelchairs is not provided, and parents are often not able to finance such transport themselves (Human Rights Watch, 2015). In cases where schools might be closer to home, their facilities (such as the toilets) might not be accessible. If electricity is not available, classrooms might be quite dark, making it difficult for children with visual impairments (such as albinism) to see the blackboard, thus excluding these children from education (Baker et al., 2010). Schools might not have ramps, making it impossible for children in wheelchairs to gain access. Learning materials and assistive devices, such as braille readers or hearing aids, may not be available. Schools may have their own admission policies that are not in line with national inclusive education policies, and children with disabilities may be turned away from both their neighborhood schools and various special schools (Human Rights Watch, 2015). Large classes with high learner-to-teacher ratios and no additional therapeutic or other support (e.g., personal assistants to assist with mobility and basic care activities) may make it untenable for children with disabilities to attend their regular neighborhood schools or even some of the special schools (Van Niekerk & Tönsing, 2015).

(iii) *Attitudinal Barriers:* Some families may believe that their child with disability is not able to benefit from education, as they have not seen evidence of positive educational outcomes. Therefore, families may send their children without disability to school to learn, while in the case of their children with disability, the focus falls on care. Sometimes, children with disability themselves falsely think

that they cannot learn, as they grow up with low self-esteem and are told that they cannot do things. Their self-perception then reflects their disability, rather than focusing on the things that they can do (i.e., their abilities) (Basil, 1992). Bullying and negative attitudes of other children, parents, teachers, and other professionals make the educational experience and going to school difficult for children with disability (Engelbrecht et al., 2005; Ngcobo & Muthukrishna, 2011). Moreover, other parents might not want children with disability in their school, as they fear that this will lower the expected teaching standard and divert the teacher's focus away from the learners without disabilities, believing that the child with disabilities will demand all the attention. Teachers in both mainstream and special schools have been reported to have low expectations of children with disabilities (Human Rights Watch, 2015).

(iv) *Knowledge Barriers:* In some cases, a lack of information about the right to education or a lack of knowledge regarding the support that is available for children with disability results in families not pursuing educational placements for children with disabilities. In addition, teachers themselves may not be knowledgeable about strategies to successfully include and educate learners with disabilities, as they may be unaware of curriculum adaptations and alternative methods of assessment (Bornman & Donohue, 2013; Bornman et al., 2016).

(v) *Skills Barriers:* Many teachers lack appropriate information and training regarding the teaching of children with disability (Engelbrecht et al., 2015). The result is that they fear that they will not know what to do with a child with a disability in their classroom and thus often oppose having such a child in their classroom (Donohue & Bornman, 2015). Teachers may furthermore lack the skill to use assistive devices to facilitate learning in the classroom (Tönsing & Dada, 2016) and, in general, struggle to facilitate the active participation of learners in the classroom (Kathard & Pillay, 2015).

Understanding the Namibian School Context

Educational Opportunities in Namibia

Most countries try to provide their children with educational opportunities in order to prepare them to be part of a community, seek out a living, study for a career, and find employment. The same opportunities are envisioned for children with disabilities in Namibia. The United Nations Children's Fund (UNICEF, 2015) has reported that as many as 16.9% of children under 10 years of age in Namibia have a disability. Article 20 of the Constitution of the Republic of Namibia (1990) states that all persons shall have the right to education and that primary education shall be obligatory for all children until they complete such schooling or attain the age of 16. In 2013, free Universal Primary Education was implemented through the Sector Policy on Education (Ministry of Education 2013), and in 2016, free Universal Secondary Education was initiated by the Namibian Government to address socioeconomic barriers to education (UNICEF, 2016). Namibia thus has a progressive, inclusive education policy (Ministry of Education 2013; UNICEF, 2016).

The Namibia Fifteenth School Day Report (Ministry of Education, Arts and Culture, 2016) states that Namibia had around 1796 government and private schools across the country at the beginning of 2017. Most of these schools are situated in rural areas spread across the vast country. The enrolment rate across the board for primary and secondary education has increased since the turn of the twenty-first century (Ministry of Education 2013; Ministry of Education, Arts and Culture, 2016). Namibia does not have the capacity yet to provide preprimary education for all children, as is evident from the difference in enrolment statistics of preprimary and primary schools (see UNICEF, 2016 and Ministry of Education, Arts and Culture, 2016). Although one year of preprimary education is recommended, no child may be refused school placement in Grade 1 if they lack such prior schooling.

According to the new Basic Education Act (Republic of Namibia, 2020), it is expected of all children to start Grade 1 in the year that they turn 6 years old and to attend school until the last school day of the year in which they reach the age of 18 years old (or older for children with disabilities) (UNICEF, 2016). It was, however, observed that children with and without disabilities also tend to start school later (Ministry of Education, Arts and Culture, 2015; UNICEF, 2016). However, the proportion of children with disabilities who never attend school in Namibia is high (16%) compared to 6% of peers without disability (UNICEF, 2015). This inequality is more marked in the most disadvantaged communities and minority groups such as the Himba and the San.

Challenges Within the Namibian Educational Context

In this section, six different challenges related to the educational context in Namibia will be described.

Classroom Size and Composition

In Namibia, factors such as classroom size (in mainstream classes as well as special learning support units) and the composition of such classes constitute a primary concern about the teaching of children with disabilities. In practice, class sizes in Namibia range between 30 to 40 for children in the larger mainstream government schools and 25 to 30 for children in private schools. The ratios reflected in the Fifteenth School Day Report differ from those seen in practice, and the report states that there are even fewer children in a classroom (Ministry of Education, Arts and Culture, 2016; UNICEF, 2016). In a learning support unit, suggestions of 15 children in a class are often followed (or at least recommended). Children with disability require more individual attention and a high ratio in such classes between teacher and children can have a negative impact on both the group and on the individual child/children with disability.

Certain mainstream schools have special classes or learning support units. The composition of these units differs from school to school. What is of concern about the composition of such classes in mainstream and special needs schools is that different types of disabilities are accommodated in these units. This requires the teachers to possess various specialized skills to effectively teach these children. Children with severe intellectual disability will be referred to special schools where possible or special institutions if available, but often they are mixed into the same classes/units. It should be noted that Namibia has only one school for hearing and visually impaired children but several units for children with hearing impairment in rural areas. There are two schools for children with intellectual disability and also a school with different classes for children with visual, hearing, and intellectual disability. In order to be placed in a special school, the parents or guardian(s) of the child concerned need to submit an application form issued by the government for public schools or by the private schools themselves. This form needs to be completed by various health professionals, for instance, an optometrist, medical doctor, audiologist, occupational therapist, or speech therapist.

Lack of Teaching Assistants

The Sector Policy on Inclusive Education (Ministry of Education 2013) recommends desired outcomes based on the envisioned policies, yet monitoring and enforcing these envisioned policies can prove to be difficult, as previously stated by Donohue and Bornman (2014). Currently, there is no law that instructs a school to assign a teacher's assistant. However, the inclusive policy states that one of its desired outcomes is the training and appointing of teacher's assistants or support professionals in general and progressively in each school (Ministry of Education 2013). At the moment, only a selected few special schools retain teacher/class assistants who are employed by the school. In general, if a child requires extra support in the classroom, the parents are advised to appoint an assistant for that child. An example in case is the Christian Academy School in Windhoek, which allows for the child's

personal assistant to accompany him/her to school. In some instances, the schools do not support the appointment of a teacher's assistant. The reasons for this may be attributed to social, financial, educational, and logistical factors and opportunity barriers (Beukelman & Light, 2020), as well as to a lack of human resources and professionals with scarce skills (a situation that presents itself widely in Namibia).

Lack of Trained Teachers in Special Education

Not all teachers have training in special/inclusive education, although the University of Namibia offers it as a selection subject as part of an undergraduate degree after which a master's degree in this field can also be undertaken. Funds for such training as part of continuing professional development are limited. Schools neither have the skilled teachers to assist children with disabilities nor the necessary equipment. This situation proves to be one of the largest skill barriers in this country. Furthermore, the scarcity of resources and the rural/urban context exacerbate the execution of the stated desired outcomes. Opportunities for vocational training are very scarce in Namibia. One resource school in the south of Namibia caters for most secondary school children with special needs in respect of vocational training such as welding or hairdressing courses. In Windhoek, there are only two secondary schools that offer a vocational stream for children with learning disabilities who struggle with the academic workload.

Limited Special Schools/Lack of Special Schools in Rural Areas

A further barrier to children with disability is the fact that, in Namibia, most special schools are situated in the capital, Windhoek. Distances in rural settings (between the homestead and school) or between the rural and urban contexts (children moving from their rural setting to live in the hostel) pose a complex problem due to the lack of resources. It is a huge problem to reach educationally marginalized children, such as those with learning difficulties, orphans, vulnerable children, and child-headed households.

Language Barriers/Suitability of the Educational Program

Furthermore, as Namibia is a vast country, children with disability often come from rural areas where they speak their home language, which is seldom English. If they get placed in a hostel in the special school, the language barrier is maintained, due to the fact that the medium of instruction in special schools is mostly English. As a consequence, many children from rural areas will go to a mainstream school in their area or will be kept at home because they are not proficient in English. Another problem related to language arises with children with hearing impairment and sign language. Namibian Sign Language is taught at schools for children with hearing impairments, but in mainstream schools, teachers often do not have any sign language training. Moreover, teachers in special schools or learning support units do not necessarily have or need an advanced diploma or degree in disability studies, inclusive education, or special needs. Therefore, children with special needs do not always obtain the necessary support in terms of referral to professionals, learning support, or assistive devices in general. Certain private schools choose their own curriculum, and this is not always suitable for the needs of children with disabilities. The schools that use a more inquiry-based program find that they can implement the inclusive policy better. Unfortunately, serious financial constraints generally limit access to such programs.

Opportunity Barriers

Further limitations placed on children in gaining access to adequate educational programs arise from parents and teachers themselves. In certain communities, attitudinal barriers become apparent when the parents still see the child with a disability as a reflection of who they are and their standing in their community. They often seem to exclude the child from the community and do not consider educating the child at all (Ministry of Education, Arts and Culture, 2015). These parents need education in terms of awareness of their child's needs and education possibilities. What is more, not only is the education of parents about their child's posi-

tion paramount yet often lacking, but also teachers lack the necessary skills and education in their approach toward children with disability and their parents. The lack of training with regard to special needs leaves teachers feeling inadequate to deal with these children. Some teachers believe that children with a disability do not belong in a mainstream school. Other teachers in mainstream schools might tolerate a child with a disability in their class but would not be able to accommodate the child's special needs in the classroom environment. Some mainstream schools do not want to be labeled as a school for children with disability and even have a strict regimen on which children (including those with disability) will be admitted to their school. Knowledge barriers contribute to parents not knowing about education possibilities for their children and to teachers and schools not realizing the need for inclusive education.

An Introduction to Augmentative and Alternative Communication

What Is Augmentative and Alternative Communication?

Augmentative and alternative communication (AAC) includes all the forms of communication (other than oral speech) that human beings use to express their thoughts, needs, wants, and ideas (American Speech–Language Hearing Association, 2017). We all use these communication strategies when we use facial expressions to show emotions such as delight or disgust, when we nod or shake our heads to indicate "yes" or "no", when we use natural gestures such as waving to say goodbye, or when we put a finger over our lips to indicate silence. We may also point to pictures to show that we like something or want something, or, if we are literate, we may even write or type a message on a cell phone. Persons with severe communication disabilities may also use AAC strategies (for a temporary or permanent period) to supplement existing speech. For example, they use AAC when their speech is not understandable, or in some cases, AAC acts as an alternative if they have no speech. The fact that a person communicates (using any

form of AAC) is far more important than how he/she communicates because communication is a basic human right. Ultimately, these individuals use AAC to compensate for the lack of spoken language (speech), to facilitate their participation in society, and to increase their independence. Using AAC may increase social interaction, facilitate learning (and thus enhance school performance), aid with behavior regulation, reduce challenging behavior, and foster feelings of self-worth.

It is important to highlight that implementing AAC strategies does not mean that one has "given up" on speech, or that it would stop a person from learning to speak. Research suggests the opposite – in many cases, AAC can boost speech and language development (Millar et al., 2006; Schlosser & Wendt, 2008). AAC strategies are used to enhance the communication of children with severe communication disabilities, not to replace or inhibit their existing skills.

Benefits of Augmentative and Alternative Communication Within the School Context

In the school context, using AAC strategies holds many benefits:

- It increases participation in the classroom and on the playground.
- It promotes comprehension (receptive language skills), particularly in children with poor receptive language skills (Dada & Alant, 2009) and in children who need to learn in a language that is different from their home language (e.g., they speak Damara, Oshivambo, Nama, or Oshiherero at home, while teaching and learning in school takes place in English).
- It provides an alternative form of expressive language (output) for children who cannot rely on speech to meet all their communication needs.

- It supports language development (receptive and expressive) in children – and language is a prerequisite to learning and acquisition of literacy.
- It supports timely and interactive communication with other children and with the teacher (e.g., the child can respond when the teacher asks a question).
- It supports literacy skills.
- It can assist children to understand classroom rules and instructions.
- It can decrease the depression, frustration, and isolation often experienced by these children when they are consistently not understood and/or ignored.
- It provides positive behavioral support, for example, visual schedules help children to predict activities, which makes transitional planning easier.
- It addresses individual educational plans and personal goals (although this is not the focus of this chapter).

AAC is based on the principle that every single person can and does communicate – sometimes not in a way that is understood by everybody, sometimes not at the same speed as others, and sometimes using other forms of communication (e.g., with a specific type of body movement). It is imperative that we observe the child closely so that we can discover and recognize these forms of communication. Another principle is that we aim to implement a "try-and-see" approach, in which different AAC strategies are implemented, rather than a "wait-and-see" approach because the implementation of AAC holds so many benefits for all children. For a person who has a severe communication disability, an AAC system has the same power that a hearing aid has for a person with a hearing disability or a wheelchair has for a person with a physical disability. It is the means through which these individuals participate in activities and experience a sense of belonging.

Augmentative and Alternative Communication Systems and Strategies

As shown in Fig. 32.1, AAC systems can broadly be divided into two groups: unaided and aided systems. Unaided AAC systems rely on the person's body to convey messages, for example, natural gestures, body language, sign language, finger spelling, and facial expressions. Aided sys-
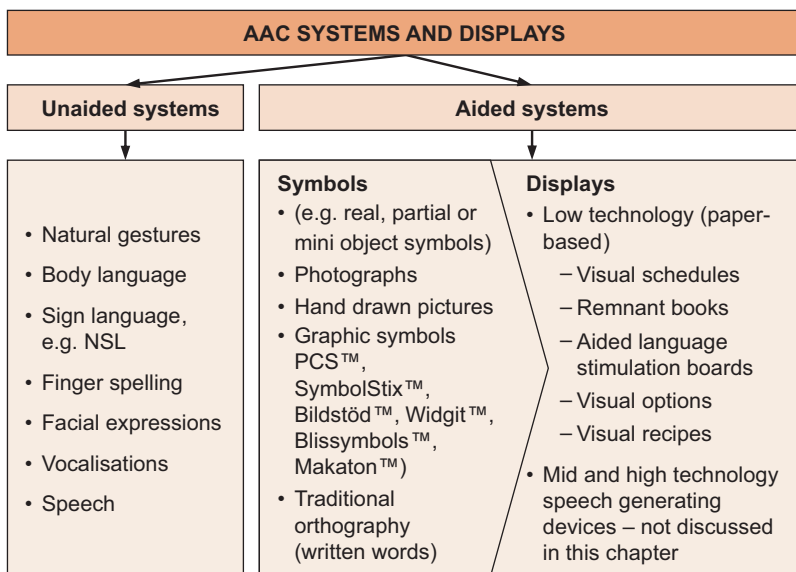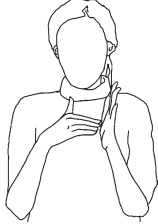

Fig. 32.1 An outline of different AAC systems and displays

Table 32.1 Examples of natural gestures

Sleep	Come here	Eat	Stop

tems, on the other hand, involve something in addition to the person's body, such as objects, photographs, graphic symbols, hand-drawn pictures, or traditional orthography (alphabet letters). These symbols can be viewed along a continuum, ranging from low technology (paper-based systems such as communication boards and books) to easy-to-use mid-technology devices such as sequential message communicators and simple speech-generating devices) to high-technology devices using specific applications and software, such as an iPad with Proloquo2Go. A few examples of unaided and aided systems will now be described in more detail, with application to the classroom context. Please note that high-technology devices will not be discussed in this chapter.

Unaided Systems
What Are Unaided Systems?

Unaided AAC systems include the whole range of communication options that involve only the person's body. At the simplest level, it involves systems that are intuitive for everybody and easily understood. Examples are head nodding and head shaking (to indicate "yes/no"), pointing with the eyes, showing with an outstretched arm or pointing with a finger (to request that you want/need something), body posture and movements, facial expressions (typically used to show emotion, e.g., smiling to show happiness), natural gestures (gestures generally understood by people within a specific culture or society that require no additional training such as *sleep*, *come*, *eat*, and *stop*), finger spelling (one-handed finger spelling is typically used – remember that this can only be used if a person is literate), and

sign language. Sign language is country-specific and British Sign Language is used in the UK, American Sign Language in the USA, Kenyan Sign Language in Kenya, and Namibian Sign Language (NSL) in Namibia and Angola. Four examples of natural gestures are shown in Table 32.1.

However, it is important to distinguish between sign language (which is used by deaf individuals) and keyword signing, which is typically used as an AAC strategy. Sign language has its own grammar and own linguistic rules, whereas keyword signing uses the spoken language (which is English in Namibian classrooms) while simultaneously signing the key words. The sentence "The teacher reads a book to the children" would be signed by using the signs: *the + teacher + reads + a + book + to + the + children*, but in keyword signing only three concepts will be signed: *teacher + reads + children*. Keyword signing is therefore preferable, as the majority of children who have severe communication disabilities and who use AAC can hear. These children need a different way of getting their message across, other than speech. Through keyword signing, the children might learn signs (from sign language) and use them to convey their own messages. They are still exposed to the spoken input, which they can hear and which is important to build their receptive language skills. They may also understand the message better because of the extra visual input that is provided by the signs (McDowell & Bornman, 2022).

So, how does a teacher go about teaching unaided strategies in a keyword signing format? The answer is by using five easy steps that will now be described in more detail.

Five Steps to Teaching Keyword Signing

Step 1: Decide on the vocabulary you want to include The teacher should consider the aims of the lesson and decide what the most important concepts are that she would like to teach. It is always a good strategy to ensure that generic words (e.g., *please*, *help*, *more*, *finished*) are combined with the verbs, nouns, prepositions, and question words. Using these signs can enable the child to fulfill different communication functions, such as requesting *help*, requesting *more*, indicating *finished*, and displaying social etiquette (e.g., by saying *please* and *thank you*). Please refer to Table 32.2 for examples of generic signs from NSL.

Step 2: Take into consideration which signs are easier to learn First, the movement aspects are important: signs that make contact, where two hands come together, are easier to make, as are signs that require symmetrical movement (where both hands perform the same action). Signs produced within view and those that require single movements are also easier to make. Second, attention should also be given to the level of representation, as more abstract vocabulary (e.g., the word

beautiful) is more difficult to sign than more concrete words (e.g., *car* or *eat*). Transparent signs that have a visual similarity to the concept are also easier, such as the sign for *drink*.

Step 3: Locate resources This step is country-specific as the teacher will need to obtain a copy of the country's sign language dictionary (the website na.signwiki.org contains a dictionary of NSL). In many countries, there are also associations for persons who are deaf (e.g., CLaSH in Namibia) and they might have training material such as books and/or videos and trainers available. The Internet can be a useful resource, as can competent signers who live or work in the area where the school is located.

Step 4: Start using the signs in the classroom and provide a model for use The teacher should feel comfortable in making the signs (practice using the signs in front of an imaginary class) and model the use of the signs. The teacher can also support the children to make the signs through different teaching methods, for example, shaping (the teacher places her hands over the child's hands and molds them into the appropriate handshape), or through imitation (the teacher makes the signs and asks the children to copy her).

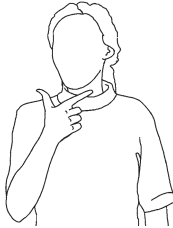**Table 32.2** Generic signs from Namibian Sign Language (NSL)
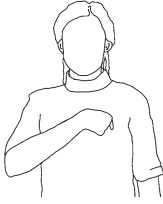
| Please | Thank you | Help |
| More | Give | Finished |

Table 32.3 "He's got the whole world in His hands"

He's got the	**God**		**Amount** **Whole**
World	**In**	**His hands**	

God **I** **You** **Sister** **In** **His hand**
He's got me
He's got the whole world in His hands (repeat 1st line)
Other

| **Baby** | **Brother** | **Teacher** | **Mother** | **Father** | **Grandmother** |

Step 5: Sign all the time Incorporate the use of keyword signs in all lessons: tell stories with signs, sing songs with signs, use signs while teaching rhymes, and explain the key concepts of the academic lesson by incorporating signs. For example, the key words of the song "*He's got the whole world in His hands*" can be signed while the children in the class sing along (Table 32.3). If possible, try to also teach these keyword signs to siblings, parents (e.g., during parent events at

schools), and others in the community – even if they only learn the six generic manual signs.

Advantages and Disadvantages of Unaided Systems

Unaided systems have proven successful for children with various disabilities, such as children with Down syndrome (Launonen, 1996) and children with autism spectrum disorder (ASD) (Tincani, 2004). They are also quick and readily available (the child cannot forget to take the system along), the child can use them wherever he/she is, no expensive equipment is needed, and the system cannot break down. Gestures can be effective for meeting basic needs (e.g., asking for something to eat or drink), but are not always effective in telling a story about a specific event. Try to imagine using gestures to talk about a cousin's wedding two weeks ago, with somebody who does not understand the gestures!

The biggest disadvantage of unaided systems, particularly when using sign language, is that they require training. Some signs are not easily guessable and are therefore more difficult to learn. Keep in mind that unaided communication strategies must be understood by others in order to be effective. The motor demands of some signs make them unsuitable for some children, for example, those with physical disabilities such as cerebral palsy.

Aided Systems
Symbols That Can Be Used in Aided Systems

Aided communication systems require the use of tools and/or equipment in addition to the person's body, for example, a communication board, book, or speech-generating device. Various symbols can be used on these boards, books, or devices. These symbols can include object symbols (e.g., real objects that are similar to the object that will be used in the activity, such as a toothbrush; partial objects, such as a piece of chain to represent "swinging"; or miniature objects such as doll utensils) photographs, hand-drawn pictures, line drawings (graphic symbols such as Picture Communication Symbols or PCS™, SymbolStix™, Bildstöd™ [a free tool for pictorial support made in Sweden. For information

go to www.bildstod.se], Widgit™, Blissymbols™, Makaton™) or traditional orthography (written words) (see Table 32.4).

The level of representation of aided symbols typically develops along a complexity continuum starting with the following:

- Real objects
- Photographs
- Line drawings (some symbols are more concrete and easier to learn, while others are abstract and more difficult to learn)
- Print awareness (e.g., awareness of printed words versus pictures in storybooks)

However, this continuum should simply be used as a guideline for typical development to decide what type of symbol should be used. The aim is therefore not to do a complete diagnostic assessment of cognitive age, but rather to select the most appropriate symbol. Children with sensory disabilities (e.g., children who are blind or who have cortical visual impairments) or with irregular symbolic development (e.g., children with ASD) do not necessarily follow this hierarchy.

The most important aspect to remember is that the symbol, irrespective of whether it is an object symbol or a graphic symbol, is a representation of the real object or activity. So, for example, if a glue stick is used to represent a gluing activity, the glue stick that is the object symbol should not be used in the activity, but rather one that looks similar to it. In order to emphasize the distinction, object symbols are often mounted on a piece of thick cardboard or pressed wood. These aided symbols can then be presented in a variety of ways, ranging from pen-and-paper options to communication books or boards to devices that produce voice output and/or written output. These devices are also known as high-technology speech-generating devices, but they fall outside the scope of this chapter.

Visual Schedules for Classrooms

A visual schedule is a valuable teaching tool that can be used by teachers, parents, and therapists to provide the child with information about the day's program. The activities that the child will partici-

Table 32.4 Examples of aided symbols

Real objects	**Partial objects**	**Miniature objects**
Using a photograph to request and receive an item	**Line drawing**	**Traditional orthography**

The line drawings are made on www.bildstod.se, a free tool for pictorial support made in Sweden

pate in during the day can therefore be depicted through symbols (e.g., objects, line drawings, or written words) in chronological order (see Table 32.5). Using visual schedules in a classroom holds many advantages for teachers:
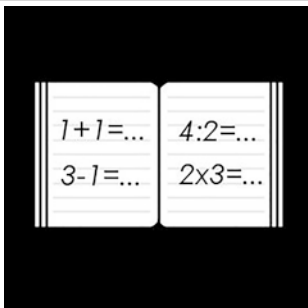
- It ensures that classroom time is used optimally and that children can stay on task.
- It assists children in anticipating what the next activity will be, thereby also reducing anxiety between transitions (in a similar way that adults use their diaries).
- It helps to redirect children to the activity as it acts as a visual reminder of the activity.
- It serves to reduce challenging behavior because the visual overview of the sequence of activities gives the children control over the environment by showing them what will happen next.
- It helps the children to understand that unexpected events or change are inevitable, for

example, they might plan to play outside, but an unexpected thunderstorm could prevent that activity.

When designing a schedule, the teacher should be encouraged to write down the activities in chronological order, for example, morning welcome, the weather activity, a mathematics activity, and story time. Next, appropriate visual symbols should be selected, and in order to accommodate all the children, more than one type of symbol (objects, photographs, line drawings) is needed. Thereafter, suitable symbols that most of the children will understand should be selected for each activity as shown in Table 32.5.

After deciding on the content of the visual schedule and planning whether object symbols, photographs, or line drawings will be used, the teacher should decide on the preferred format. Visual schedules can take on many different formats, as shown in Table 32.6.

Table 32.5 Object symbols, photographs, and line drawings for a visual schedule
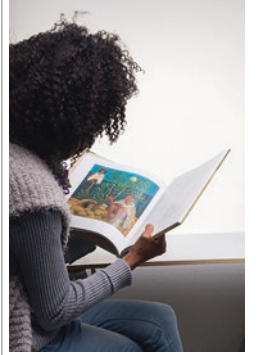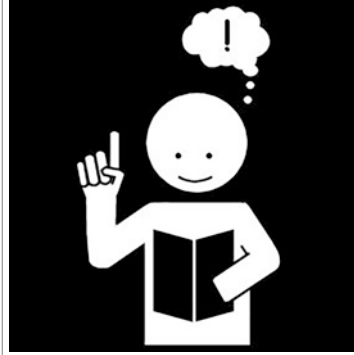
Activity	Object symbol	Photograph	Line drawing
Wash hands			
	Soap wrapper	Person washing hands	Line drawing for "washing hands"
Mathematics			
	Calculator	Person pointing to calculator	Line drawing for "mathematics"
Arts and crafts			
	Beads/crayons	Person stringing beads	Line drawing for "arts and crafts"

(continued)

How is a visual schedule implemented in the classroom? First, the teacher should display the visual schedule somewhere in the classroom where it is easily accessible to all the children and where they can clearly see it. Before each activity, the teacher should go to the visual schedule and highlight the symbol that represents the activity (e.g., by moving a big red arrow to indicate the specific activity). She then discusses the activity "*Can you see that we will now talk about the weather? It is time for the weather activity*." When the activity is complete, the

Table 32.5 (continued)

Activity	Object symbol	Photograph	Line drawing
Story time			
	Book	**Person reading**	**Line drawing for "story time"**

The line drawings are made on www.bildstod.se, a free tool for pictorial support made in Sweden

Table 32.6 Different visual schedule formats
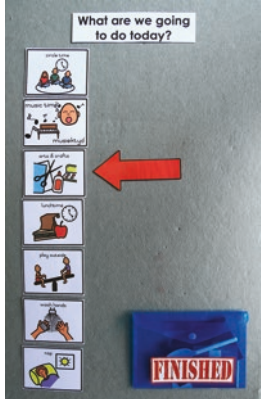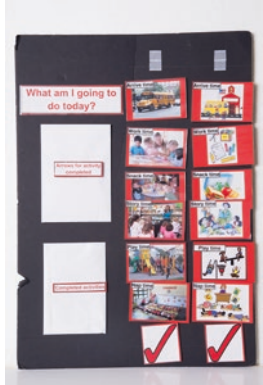
Visual schedule with objects	**Washing line format**	**A visual schedule using a clockwise display**
A visual schedule with line drawings going from left to right and an arrow that indicates the specific activity	**A Velcro strip-based schedule going from top to bottom**	**A visual schedule with photographs on the left and line drawings on the right. Envelopes for finished activities are on the far left**

Table 32.7 Using the "*finished*" symbol

Teacher taking symbol off and turning it over.

Teacher taking the lid off the next container.

Teacher putting symbol in "*finished*" basket.

teacher highlights the symbol for the next activity and indicates that the previous activity is over. She might take the symbol off the visual schedule and turn it over; she might cover it (with a lid or fabric) or take the lid off the next container, or she might put it in the "*finished*" basket as shown in Table 32.7. Teachers should also be encouraged to use the manual sign for "*finished*" on completion of the activity while turning the symbol over or placing it in the "*finished*" basket. Children will have made the connection between a symbol and the activity as demonstrated when they smile when they see the symbol for a preferred activity, or when they see the symbol and proceed to the next activity, or when they frown or try and avoid an activity that they do not like.

Remnant Books

Teachers often have a "news" activity in which children are required to share something that happened at home (e.g., relatives came to visit) and sometimes teachers also want to share what happened at school (e.g., the school nurse came to visit). Sharing news or stories might be difficult for children who have very limited speech, but the fact that they are not able to talk does not mean that these children have nothing to say! By using a remnant book, these children can be guided to talk about past events and share stories.

Remnant books are inexpensive to make and they hold visual and tactile cues to help a child remember a specific activity. Remnants or scraps (souvenirs) are saved and displayed in a photo album or pasted into a book, as a way to document the child's story. There are no rules when it comes to selecting the remnant except that it should be meaningful for the child and that the child should associate it with the place it came from. Therefore, it is always more effective if the child helps to select it. For example, if the school nurse visited the school to give all the children injections, the empty syringe can be used as a remnant, or if the child helped with washing clothes, the soap wrapper can be used. Collecting remnants can also be a fun activity for siblings to participate in.

How does one make a remnant book? First, the book should be sourced – flip files or regular exercise books are typically used. The child's photograph can be placed on the outside cover of the book with a label such as "*Christa's Talk Book*." Each page of the book is dedicated to a specific day, the remnants are collected and laid out on the correct day, and a short sentence is added to describe it, for example, "*I went to the shop with my mother. We bought eggs*." These sentences should always focus on the child, and

what the child's role was in the activity. The remnant book allows the child to answer questions such as "*What did you do over the weekend?*" or "*What did you do at school today?*" However, the purpose is not to ask accuracy questions, for example, "*Where are the eggs?*" or The questions that are asked should not have a right/wrong answer – they must be fun! The teacher should just open the book and go through it with the child to talk about what has happened lately – it is like reading a story together, but it is the specific child's story. She should talk about the places and activities in the remnant book: "*Oh, I see you went to a party! Did you have a good time?*" The teacher can make the interaction fun and casual and have a conversation about the place or activity in the book when the child indicates that he/she is interested. She can also encourage the child to say the word of the place or activity the remnant represents. Table 32.8 shows examples of different remnant books.

Aided Language Stimulation (AiLgS)

Aided language stimulation (AiLgS) is a strategy that aims to provide children with a strong foundation for receptive language (understanding), based on the principle that receptive language precedes expressive language (Dada & Alant, 2009; Goossens, 1989). One can also visualize receptive language as filling an empty glass with water – the water represents the receptive language, and when the glass is full, it starts to spill over – with the overflow representing the expressive language. In AiLgS, the teacher points to graphic symbols on a communication display as she speaks, as shown in Table 32.9. Thus, pointing to these symbols serves as a supplementary visual input to the auditory input (the teacher's voice) that the child receives.

Why is AiLgS such an effective classroom strategy? First, it challenges earlier classroom practices where the emphasis was primarily on output/production/expressive abilities. Teachers commonly use it to interact with children by asking them questions, by giving them commands, or by asking them to demonstrate actions, for example, "*show me*." AiLgS challenges the perception that the emphasis should only be on output, and therefore, the most important principle of AiLgS is that one should provide input before expecting output (expression). It is an accepted principle that typically developing children hear language for 1 year before they start talking; children with communication disabilities should therefore in the same way first be provided with a model (AiLgS) before they can be expected to use language expressively. Implementing AiLgS in the classroom can be divided into five easy steps, and each of these steps will now be described in more detail.

Step 1: Adapt the physical layout of the classroom to ensure optimal learning Teachers should be aware of interruptions or disruptions during the AiLgS lesson, as children lose their focus and concentration when a teacher is distracted. Teachers should consider rearranging the classroom for different activities, for example, for arts and crafts the classroom layout might be different than for the circle time activity early in the morning. The traditional classroom layout of children's desks placed in neat rows can also be adapted so that the desks are arranged in a U-shape with the teacher in the middle as shown in Fig. 32.2.

Figure 32.2 shows that a U-shaped classroom arrangement will allow all children to see the teacher clearly. Teachers should also carefully consider who sits where, for example, children who use AAC should sit centrally, children who are blind should sit close to the teacher, children with challenging behavior should not sit next to each other, and children who give the most feedback should be evenly dispersed among children who give minimal or no feedback.

Teachers should also ensure a clear visual focus for the AiLgS board. It can either be placed on a floor easel or an area against the

Table 32.8 Examples of remnant books

An example of a front page for a remnant book	An example of a page in the remnant book that tells about the child's visit to the doctor	Another example of remnants that were collected while having a birthday party at McDonald's
Two more examples of pages in the remnant book: one is about a visit to the restaurant "Spur" and the other about a school concert	This is another example of remnants from a school concert in which the child participated	An example of remnants that were collected while on an outing to a restaurant ("Spur")

wall, with a background that is not distracting. The teacher should also make certain that the board is at the eye level of the children, and she should make regular eye contact with each child during the group activity. If she notices that the child is not looking at her, she can gently touch the child to draw his/her attention back to the activity.

Step 2: Select a fun and suitable activity (content) The teacher should select an activity based on the content (theme) of the lesson that she wants to teach the children (e.g., insects). Next, she needs to consider how to present the activity

in an age-appropriate format. For young children, she might simply divide insects into ones that fly (e.g., butterflies and bees) and those that crawl (e.g., ants and cockroaches), while older children can be taught about specific characteristics (e.g., number of legs, type of wings, functions, and habitats). Please see Table 32.10 for a display of eight different examples of AiLgS boards.

The teacher may also plan to incorporate an element of surprise into her lesson to hold the children's attention. Rather than asking them to answer questions in a predetermined order, she can pull the children's names or even a photo-

Table 32.9 Pointing to an AiLgS communication display

| Teacher pointing to symbols on a song board | Teacher pointing to symbols on a story board |

Fig. 32.2 U-shaped classroom arrangement

graph of the child out of a hat or use a spinner that randomly selects a name. Children could also be encouraged to select the next child by using the "pick-a-friend" strategy. Teachers could furthermore be encouraged to wear a funny hat or oversized glasses for a specific activity, as this will persuade all the children to keep on looking at her.

Step 3: Decide on the type and number of graphic symbols that will be used When implementing AiLgS, teachers should always remember

Table 32.10 Examples of AiLgS boards

A story board with general vocabulary for reading any story, as well as vocabulary specific to the story: The Three Little Pigs	**A board for a general "cooking" activity. Note the Velcro strips that can be used to custom-make the board for a specific activity: making fruit salad**
A board for a specific children's rhyme: Five Little Monkeys Jumping on a Bed	**A song board for the children's song: Twinkle, Twinkle Little Star**
A board for the church song: Jesus Loves Me	**A board for the children's rhyme: Mary Had a Little Lamb**
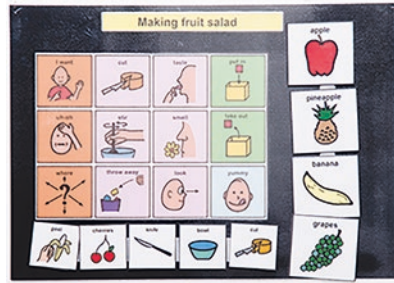
(continued)

Table 32.10 (continued)

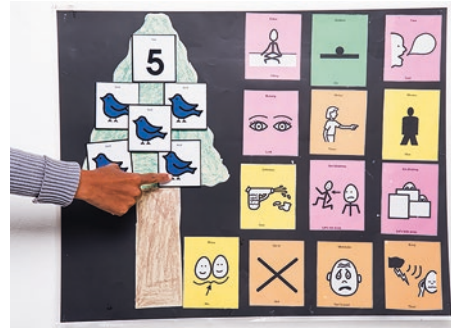| A board for the children's song/rhyme: Baa Baa Black Sheep | A board for the children's rhyme: Five Little Birds |

to include the use of manual signs and gestures to retain a multimodal focus. For children who are blind, teachers can use braille letters or cut out the first letter of their names in sandpaper or carpet fabric, so that they can feel the letters and know when it is their turn to participate. The type of symbols that are used should have an immediate effect and therefore the ease of learning should be considered, bearing in mind that objects are the easiest to understand, followed by photographs, graphic symbols, and finally letters of the alphabet. Symbol reproduction should also be considered. For example, the teacher may draw the symbols, photocopy them, print them from the Internet, or cut them out from magazine advertisements.

Step 4: Prepare the necessary material and practice on your own Careful consideration should also be given to the number of graphic symbols that will be placed on the board. For example, for young children, a board with eight symbols might be sufficient, while older children might need as many as 36 symbols. Furthermore, all of the symbols included on the board should not be from the same word class. The selection should contain nouns (*book*, *butterfly*, *flower*), descriptive words such as adverbs (*fast*, *slowly*, *often*) and adjectives (*big*, *friendly*, *naughty*), verbs (*fly*, *sit*, *make*), prepositions or position words (*up*, *under*, *next to*), and miscellaneous words that include wh-question words (*who*, *what*, *where*), exclamations (*oh no! oops!*), pronouns (*I*, *you*, *he*), and negative words (*No! Stop! Don't!*).

How Can Aprons Be Implemented in the Classroom?
- Using the same strategies as those described earlier under AiLgS, an apron can act as an alternative AiLgS surface/board/display.
- Including different choices on the apron for the specific activity to encourage choice making. For example, during a creative art activity, each child can select the color of the crayon they want to use from the number of options displayed on the apron. This is an effective strategy for teaching the names of colors.
- Tapping on the symbol is also effective for drawing or redirecting a child's attention and therefore increases opportunities for joint attention.
- Showing keywords that are relevant to the specific lesson on the apron – this helps children who have difficulty in summarizing large amounts of text and who get lost in the detail.
- Including more than one language with the graphic symbol, for example, the

English word above the symbol and the home language word below the symbol, as that helps the child to get incidental exposure to the written form of both. It can also help the teacher to use both the English and the home language word to strengthen understanding.

- Including behavior control words, for example, *Stop! Wait! No!* Using these symbols, rather than having to consistently speak these words, creates a more positive classroom atmosphere and also allows the children to manage their behavior. A *wait* symbol can be handed to children who have challenging behavior and consistently seek the teacher's attention. The child can be taught that when the teacher is seated at her desk, he/she can trade the *wait* symbol with the teacher, and that will ensure that the teacher gives undivided attention for a period.
- Providing an alternative form of communication for quick messages, for example, a request to go to the toilet.

Peanut Butter Balls (24 Balls)
Ingredients
½ cup (120 g) honey
½ cup (120 g) peanut butter
1 cup (250 g) milk powder
1 cup (250 g) instant oats
2 teaspoons (10 mL) vanilla essence
Wax paper
Method
Mix all ingredients and then roll the mixture into 2.5-cm balls (size of a coin).
Lay the balls on waxed paper. Refrigerate or leave in a cool place until set.

When making the board, a hard black board is preferred as it avoids possible distractions and provides an effective contrast color. The teacher then needs to collect the material that will be needed, depending on the children's level of representation (e.g., objects, pictures, graphic symbols). She should also look up the different manual signs that would be needed in the relevant sign language dictionary.

In order to effectively use AiLgS, a teacher should be encouraged to practice using it (pointing while speaking) with an imaginary class until she feels comfortable using this strategy. The teacher should point at the symbol at least seven out of ten times while speaking the particular word. So, if the teacher uses the word *fly* ten times, she should simultaneously point to the symbol representing *fly* at least seven times (Goossens et al., 1992). Seeing that the focus is on developing receptive language skills, a ratio of 80:20 (statements vs. questions/commands) should be used. Teachers should also provide expectant pauses (count silently for 5 seconds) in conjunction with cueing, as this will help the child to respond more effectively. Cueing involves giving the child additional information, or a clue, to help him know what is expected. This can be done by providing a visual clue, for example, the teacher can point to the symbol, or an auditory clue, when the teacher provides the initial sound for the target word, for example, "*l*" for *lamb*.

Step 5: Implement the AiLgS in your classroom and measure progress Teachers should avoid focusing on each child individually in a group activity, as that means that children often have to wait too long before they have a turn. This results in them losing interest, becoming restless, and disrupting the group. Incorporating songs and rhymes into activities allow more than one child to participate in an activity. Providing equal turns (not focusing only on the verbal children), engaging children equally, calling their names, and making eye contact with all the children foster optimal participation and learning.

Measuring progress using AiLgS is easy, as a teacher can count the number of symbols that the children understand receptively and expressively, and this measuring can be done at various points in time.

Visual Aprons
The visual apron makes the language more concrete and less fleeting for children who require

specific objects or graphic symbols to aid with their receptive language (understanding). It is a teaching aid that assists with enhancing receptive vocabulary as it makes the vocabulary visible as the symbols (object symbols, photographs, or line drawings) are displayed on the apron. It is a very appealing strategy for teachers to use when working with large groups of children, as all children would benefit from additional receptive language input.

The apron is usually made from a durable, firm fabric (such as denim) with a number of receiving (soft) Velcro strips stitched to it in rows, as shown in Table 32.11. The different symbol options are then attached to the apron by using the hard (male) Velcro. This means that the teacher can point to the various symbol options while still having her hands free for keyword signing, pointing, or visually directing the child's gaze while talking about the symbols. All aprons

Table 32.11 Examples of aprons

Empty apron

Apron with photographs and object symbols that can be used in a fruit salad activity

Apron with photographs and line drawings for a story time activity: Three Little Pigs

Apron for choice making in a music activity: choosing a musical instrument

should have large bottom pockets so that the needed symbols (including object symbols) can be kept there. Table 32.11 shows the empty apron as well as three different examples of aprons. This not only allows the teacher to access extra symbols but also ensures that the symbols are readily available. If the teacher has to break contact with the group in order to find the symbols she needs, it might be difficult to capture the children's attention again.

Visual Recipes

Participating in a functional activity such as preparing food is a favorite activity for many children. Teachers also sometimes include a cooking activity in the classroom when they teach the activities of daily living. Children develop specific skills during these activities and are exposed to a whole new set of vocabulary. Using a visual recipe is an excellent way in which the teacher can guide the children to receptively understand an activity, and it can also be used to teach certain mathematical skills. In the example below, a Grade 5 math teacher wants to teach the class about halving and doubling and metric volumes (milliliters and liters, as well as grams and kilograms). She can teach these concepts as part of a fun activity and encourage optimal classroom participation because she knows that this is the best possible teaching strategy to ensure that the children remember the new concepts. She decides to give them all a visual recipe for making peanut butter balls and provides the whole class with the same recipe:

She then divides her class into three groups. Groups 1 and 3 are essentially the same in terms of their learning potential and cognitive skills, and they need no modifications to their worksheets, except for the fact that the children in Group 3 have significant sensory or motor impairments (Bornman, 2021). For example, these children will all be asked to rewrite the recipe for four times the quantity – first by doubling the ingredients (e.g., 250 g of oats × 2 = 500 g) and then by doubling them again (2 × 500 g = 1000 g = 1 kg). Please see an example of the worksheet for Group 1 in Table 32.12. Although the content on the worksheets is the same for these two groups, the children in Group 3 may require braille or

sign language, or they may need a scribe to adapt the recipe.

The children in Group 2 may have a cognitive disability or learning problems, which may range from mild to severe. These children may take longer to learn or require more concrete forms of input, and although the teacher will also teach them about double and halve, they will not do so with grams and kilograms, but they will be expected to double the nonstandard units, for example, the tins or packets (e.g., 2 × 1 cup = 2 cups or 2 × 2 teaspoons = 4 teaspoons). By participating in the activity in this way, all the children will experience true inclusion and a sense of belonging. Please see an example of the worksheet for Group 2 in Table 32.13.

A visual recipe can also be used to assist children to increase their receptive language skills and learn how to follow step-by-step instructions. It is important to break down the activity into the different steps and to have clear guidelines (either through photographs or line drawings) for each of the different steps. As with the mathematics exercise, the difficulty level of the recipes may also be increased and can assist in teaching children to become more independent, for example, teaching them how to use a stove. Please see Table 32.14 for examples of visual recipes.

Place Mats

Mealtimes provide valuable communication opportunities due to their social nature, as well as valuable opportunities for language learning and development (Harding et al., 2013). However, since traditional communication boards might be considered as "being in the way" during this activity, displaying the graphic symbols that the individual needs on a placemat (as opposed to a communication board) is simply more functional. Teachers need to ensure access to communication during mealtime activities, and thus, they can take advantage of the predictability of mealtime routines by building interaction opportunities around this routine activity. Routines are effective for communication training as their predictability helps children understand what is expected of them, thereby creating a foundation for active participation. Mealtimes also happen regularly; hence, they give children lots of

Table 32.12 Example of a worksheet for Group 1

Subject: Mathematics Worksheet for Group 1			
Aim of the lesson:	To teach the learners about halving, doubling, and metric volumes		
Group 1: Recipe for peanut butter balls			
		Column A	Column B
Ingredients	**Line drawings of the ingredients**	Double the measurements for each of the following ingredients (e.g., 250 g × 2 = 500 g)	Double the measurements once more for each of your answers from column A (e.g., 500 g × 2 = 1000 g/1 kg)
120 g honey			
120 g peanut butter			
250 g milk powder			
250 g instant oats			
10 mL vanilla essence			

opportunities to practice their new skills. A place-mat usually contains a small array of words that are relevant for conversation that takes place during this activity (see Table 32.15).

Contrary to popular belief, much of the conversation during mealtimes does not revolve around the food, but rather around socialization, for both the children with and without disability (Harding et al., 2013). Therefore, the words included on the place mat (around the periphery of the mat, so that the plate does not cover the symbols) should contain generic words to allow

Table 32.13 Example of a worksheet for Group 2

Subject: Mathematics			
Worksheet for Group 2			
Aim of the lesson:	To teach the learners about halving, doubling and metric volumes		
Group 2: Recipe for peanut butter balls			
		Column A	**Column B**
Ingredients	**Photographs of the ingredients**	Double the measurements for each of the following ingredients (e.g., 1 cup × 2 = 2 cups)	Double the measurements once more for each of your answers from column A (e.g., 2 cups × 2 = 4 cups)
½ cup honey			
½ cup peanut butter			
1 cup milk powder			
1 cup instant oats			
2 teaspoons vanilla essence			

Table 32.14 Examples of visual recipes

How to make a sandwich	**How to make hot chocolate**

How to make a grilled cheese sandwich

Table 32.15 Examples of place mats

Place mat using a tray as the receiving surface on which the communication board is mounted	**A place mat with core vocabulary along the edges and a few loose food symbols (fringe vocabulary) on the Velcro strip that can be changed on a daily basis**

for communication. For example, include phrases with which the child can direct the conversation, for example, "*my turn*" and "*your turn*." The words should also allow them the opportunity to give feedback to others *("I like it"*; *"No, stop"*).

Conclusions

The challenges that children with disabilities, and specifically those with communication disabilities, face in the Namibian education context are by no means unique. Similar barriers have been noted in, for example, the United Nations country reports on the right to education following visits to other African counties such as Uganda (Tomasevski, 1999), Botswana (Muñoz, 2005), and Algeria (Singh, 2015), and in the Human Rights Watch report on South Africa (2015). Low resources and multilingualism characterize many education settings of children with communication disabilities on the African continent. What should become clear from this chapter, though, is that solutions are available and that they need not be particularly costly. In the hands of motivated and dedicated teachers, everyday objects, photographs from advertisements, and hand-drawn pictures can become effective tools to bridge communication gaps and assist children to understand as well as to express themselves.

Every barrier that teachers break down today is one less barrier that children with disabilities will have to face tomorrow. Teachers should thus embrace the challenge of creating change and fostering inclusive classrooms in which all children experience not only a sense of belonging but also the opportunity to grow and develop new skills.

Children are as impressionable as wet cement – whatever falls on them leaves an impression. Hence, it is up to the teacher to decide whether that impression will:

- Continue to feed the *vicious circle* of prejudice and stigma, which results in low expectations from children with limited learning opportunities and poor skills that magnify the disability, or
- Create a *virtuous circle* based on the teacher's knowledge and skills, which results in realistic

expectations from the children, with children striving to meet those expectations (the so-called Rosenthal effect), ultimately strengthening and expanding the child's skills

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