Paper-based AAC: A Guide

This resource aims to provide information on a wide variety of mainly paper-based Augmentative and Alternative Communication (AAC) tools. Environmental supports which facilitate successful AAC implementation are described, followed by suggestions of paper-based and some partner-based AAC tools.

This guide does not cover every possible AAC tool or strategy, but we hope that key elements of a paper-based AAC Toolkit are included and that the links to further resources prove useful. Whilst every care has been taken to provide reliable links to resources, we are not responsible for the content of external websites or documents.

Although this resource focuses mostly on AAC tools for the individual to use to express themselves, it is worth highlighting that AAC also supports and develops the understanding of language.

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Introduction

AAC can be described as a toolkit of strategies, resources and techniques to support an individual's communication (see Figure 1 below). This 'toolkit' includes 'partner-based', 'person-based', 'paper-based' and 'power-based' AAC.

At Barnsley Assistive Technology (Barnsley AT), we are promoting these concepts as a way of reframing the existing terminology of 'unaided', 'low-tech', 'light-tech' and 'high-tech' AAC in a less hierarchical way. The aim of developing more neutral terminology is to reduce the potential for the value of these AAC methods to be prejudiced by the label that is attached to them, and to move away from the concept that there is a sequential progression from one method to another.

The AAC Toolkit is presented in Figure 1 as being non-linear. This is because strategically competent AAC is about utilising the best tool (power-/person-/paper-/partner-based AAC) for the job (successful communication) in a particular situation.

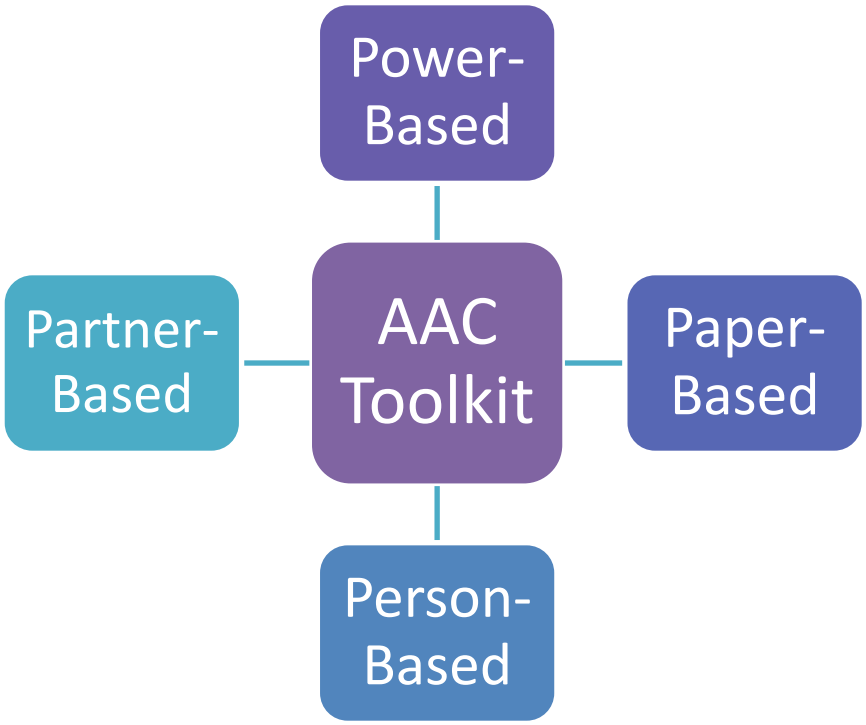


Figure 1: The AAC Toolkit (Barnsley AT Team 2018)

Suggestions and strategies relating to the whole AAC Toolkit may often form part of the recommendations from an assessment by the Barnsley AT Team. Frequently, individuals request further information about paper-based AAC, so to support this, paper-based AAC is the primary focus of this resource; apart from a few exceptions, person-based, partner-based and power-based AAC tools are not included.

Please see the Barnsley Assistive Technology Team web pages for our referral criteria and key guidance documents.

Non-powered AAC

Non-powered AAC can cover a wide range of techniques and strategies, designed to enable and enhance an individual's communication skills. Non-powered AAC utilises tools with no electronic technology to support communication. These include:

- **Person-based AAC** – AAC strategies which are unaided by external resources or tools. These include gesture, body language, eye-pointing, signing, speech and vocalising.
- **Partner-based AAC** – AAC strategies which are partner-dependent and listener-enabled. These include supported conversation techniques as well as partner knowledge and skill at reading person-based communicative signals.
- **Paper-based AAC** – AAC strategies that utilise resources which are predominantly printed on paper or other media. These include picture or symbol (including text) communication charts and books, eye transfer (e-tran) frames and EyeLink boards.

Power-based AAC

Powered communication aids can vary from simple aids with single recorded messages to more complex aids on computers which generate synthesised speech. Powered communication aids are also referred to as 'Speech Generating Devices' (SGDs), 'Voice Output Communication Aids' (VOCAs) and 'Talkers'.

Why use non-powered AAC?

- Can be quicker, less effortful and more effective than powered AAC. Often builds on existing natural methods to select, e.g., eye/hand pointing, or a vocalisation or small movement for listener-mediated (partner-assisted) scanning.
- Sometimes preferred as it can be a more natural, interactive way of communicating, with both partners involved the whole time. Misunderstandings are shared and worked out together rather than the onus all being on one individual.
- A competent communication partner can respond instantly to an AAC user with appropriate levels of support, which a computer is unable to do.
- Can be used in places where a power-based AAC system may not be feasible, such as around water or in transport: often less affected by environmental conditions such as lighting and noise.
- Relatively robust, reliable and low cost, and can be quick to develop with resources close at hand in situations where AAC is needed quickly.
- Competencies using non-powered AAC systems are transferrable to powered AAC systems.
- Sometimes preferred, as in some contexts, technology can create a barrier. Can require less technical skill to support and develop.

Contents

Part 1 – Background Considerations

When beginning the journey to develop AAC with an individual, it is essential to know a number of things about them and the people and environments they interact with. This includes their past and present experiences and future hopes for communicative interactions.

Using a model of communicative competence (Light, 1989; 2003) can be useful to identify the areas to investigate. Social models of communication (e.g., Blackstone & Hunt-Berg, 2003; Money & Thurman, 1994) will also be helpful.

Resources generated by the I-ASC project are available to aid the decision-making process, and Barnsley AT Team have published a guide for local therapists on assessing for AAC .

Using AAC can be challenging for all concerned, so approaches grounded in compassionate practice as well as motivational and coaching approaches can be used to support the AAC journey.

Blackstone, S. & Hunt-Berg, M. (2003). Social networks: A communication inventory for individuals with severe communication challenges and their communication partners. *Verona, WI: Attainment Company.*

Light, J. (1989). Toward a definition of communicative competence for individuals using augmentative and alternative communication systems. *Augmentative and Alternative Communication, 5, 137–144.*

Light, J. (2003). Shattering the silence: Development of communicative competence by individuals who use AAC. *In J.C. Light, D.R. Beukelman, & J. Reichle (Eds.), Communicative competence for individuals who use AAC: From research to effective practice (pp. 3–38). Baltimore, MD: Paul H. Brookes.*

Money, D. & Thurman, S. (1994). Talkabout communication. *Royal College of Speech & Language Therapists Bulletin, 504, 12–13*

The Right Environment

A supportive environment is key to an individual's success as a communicator when using AAC.

The environment needs to support the means, reasons and opportunities (Money & Thurman, 1994) to communicate (see Figure 2). For example, it is important to ensure:

- There are appropriate AAC resources in place. These should match the cognitive, linguistic, social and physical abilities of the user and be able to develop alongside them.
- There are people who are capable of supporting the individual to develop their communicative competence.
- There is something to communicate about and a receptive audience to communicate with.
- There is the time and space to communicate using AAC.
- That all people in the environment are aware of the AAC systems being used and how to support them.

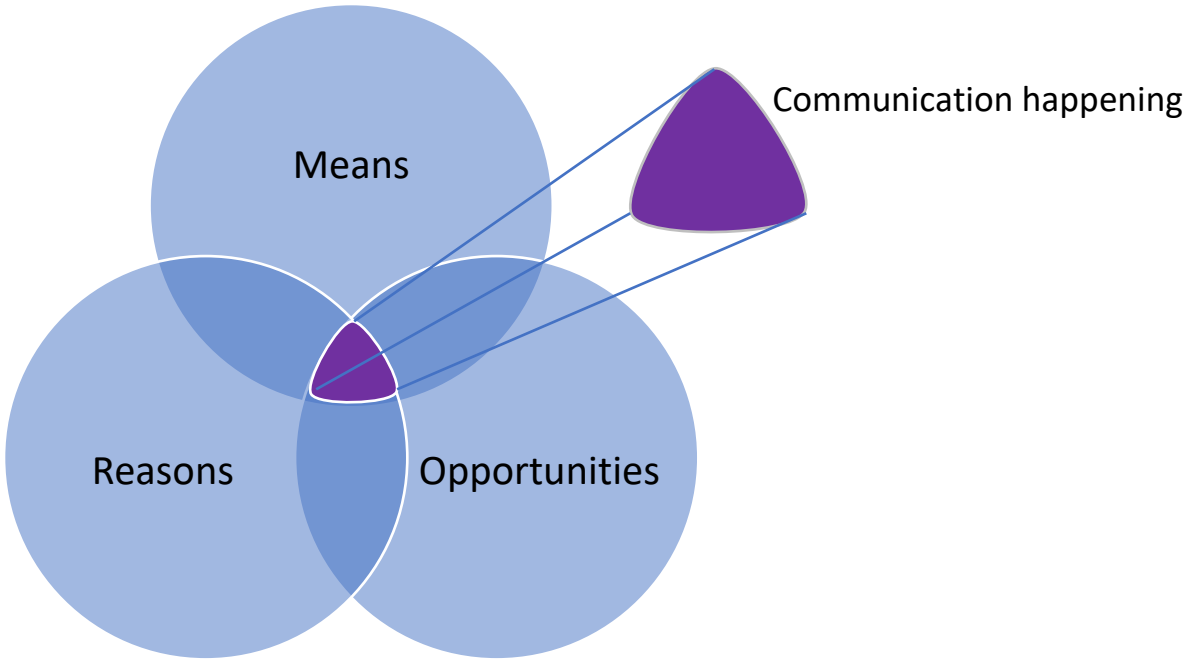


Figure 2: Means, reasons & opportunities model (Money & Thurman, 1994)

Another useful model to explore an individual's environment and their interactions within it is Blackstone & Hunt-Berg's (2003) Social Networks model.

The Individual

Knowing about an individual's attributes in the following areas will help with the development of appropriate AAC strategies. Assessing these can help identify potential facilitators, and barriers, when developing various AAC strategies.

Language skills

A primary aim of AAC is to reduce a significant communication gap, where an individual can understand more than they are able to express. Knowledge of a potential AAC user's receptive and expressive language skills is, therefore, essential. The receptive language skills of an individual using AAC will correlate with what they are able to meaningfully express, including using AAC. For example, an individual who understands one concept at a time would not meaningfully express beyond single concepts using AAC.

Physical access skills

The ability of an individual to physically access an AAC system will determine the access method used. Be aware of tone, reflexes, seating, posture and their impact, and the physical support a competent partner can provide. There are many different ways of accessing AAC which embrace the various physical (and also cognitive and sensory) attributes of an individual.

Cognitive skills

Consider the cognitive skills of an individual using AAC. How will their memory and learning skills influence the AAC system they are able to use?

Sensory skills

Does an individual AAC user have visual or hearing difficulties? Could this impact on the AAC method chosen, or on its design?

Motivation

Consider what motivates an individual using AAC and their reasons for communicating. This can be used to inform the vocabulary available on the AAC device. If the vocabulary is not motivating or does not match what an individual wants/needs to talk about, they will be less likely to use it.

Psychological factors

Consideration of an individual's psychological state is important. For example, if they are depressed or anxious, this may impact on motivation, as well as their ability to process information, interact, or learn new skills.

Support

Support using AAC is essential. Consider with whom and where an individual will be using AAC and if the people regularly assisting them would benefit from some training.

Consider the demands on those supporting an individual using AAC. They may have many demands (e.g., financial, social, caring) which could be stressful to manage. Referral and signposting for support with these may enable them to better support the individual to use AAC.

Cultural considerations

Cultural factors should be considered to ensure AAC strategies are developed which are culturally sensitive and responsive. For example, choosing images appropriate to the life experiences of the individual and showing sensitivity to images that may be offensive, which differs across cultures.

Access Methods for AAC

The terms 'access' or 'access method' when discussing AAC often refer to the means used by an individual to control a powered AAC device, or indicate their selection on a non-powered aid. AAC could be accessed directly by the individual using it (e.g., with their finger), or the individual may be supported by a communication partner. Individuals using AAC may use differing access methods, depending on which AAC tool they are using. Access abilities can also be different at any given time and can change over the course of a day, or day-to-day.

AAC display

The term 'AAC display' is used in this section to refer to the array of pictorial symbols and/or text which an individual has in front of them. The term 'item' is used to refer to each square or discrete area containing a pictorial symbol and/or text. For example, in the illustration in Figure 3, the AAC display has 16 items arranged on a 4x4 array.

In order to make a choice from the AAC display, the individual using AAC will utilise one of the access methods described below.

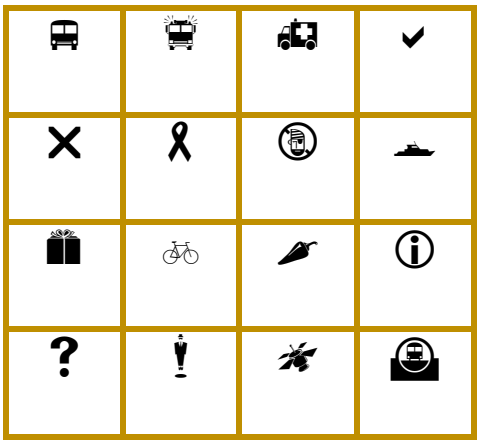


Figure 3: 4x4 item AAC display

Direct selection

Where an individual using AAC physically touches an item on an AAC display with a part of their body, a stylus or a pointer to make a selection, this is referred to as 'direct selection' or 'direct access' (see Figure 4 for an example). You can see a demonstration of using direct selection on our website.

Figure 4: Example of direct selection

An individual using AAC should be able to consistently and reliably access an AAC display using this method. They should also have an alternative method of selecting items if their physical access skills are variable (e.g., due to fatigue, changing muscle tone or medication).

AAC displays can be adapted to support a range of abilities of direct selection accuracy. For example, by increasing the target size, colour-coding or using a key guide.

Eye-pointing

Eye-pointing is used as a person-based AAC strategy and also as a means of accessing paper- and power-based AAC devices. When interacting with an AAC aid, the individual indicates their message by intentionally looking at the AAC display to direct the attention of their communication partner towards an item (see Figure 5). Colour-coding can increase the number of items an individual is able to select using this method.

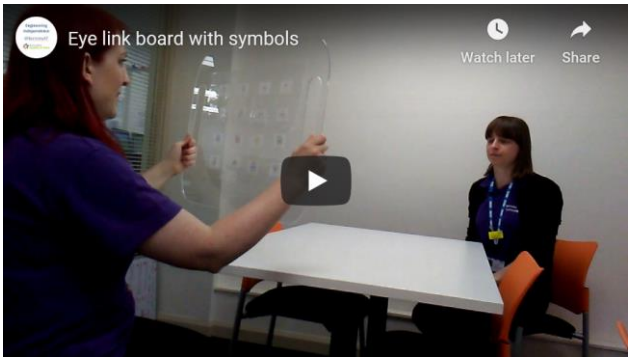


Figure 5: Click on the images to see demonstrations of using eye-pointing selection (on our website)

University College London and Great Ormond Street Hospital have useful resources available to assist with investigating eye-pointing skills.

Listener-mediated (partner-assisted) scanning

Scanning is the action of progressively working through the items on an AAC display. We may all have some experience of scanning. For example, when using a TV remote control to scan through menus or choices of programmes to select one to watch.

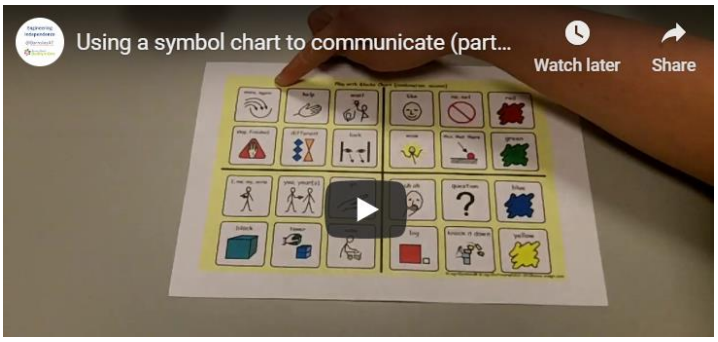


Figure 6: Videos demonstrating partner-assisted scanning are on our website ('How To' videos section of our website - linear and row/column scanning)

Listener-mediated scanning involves the listener (communication partner) progressively working through the items on an AAC display (see Figure 6). The listener-mediated scan can be visual, auditory, or both.

The listener scans through items on an AAC display by consecutively and consistently pointing to them (visual scanning) and/or saying them aloud (auditory scanning).

The listener may scan an AAC display in the following patterns:

- Linear – by indicating each item individually in a consistent linear sequence (see Figure 7).

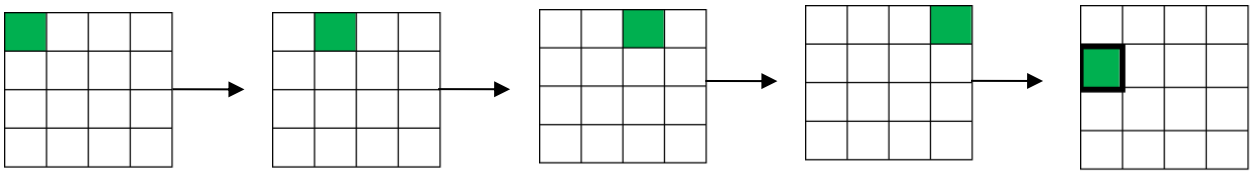


Figure 7: Linear scanning pattern

- Row-column or column-row – by indicating each row/column until selected, then scanning each item linearly along the row/column (see Figure 8).

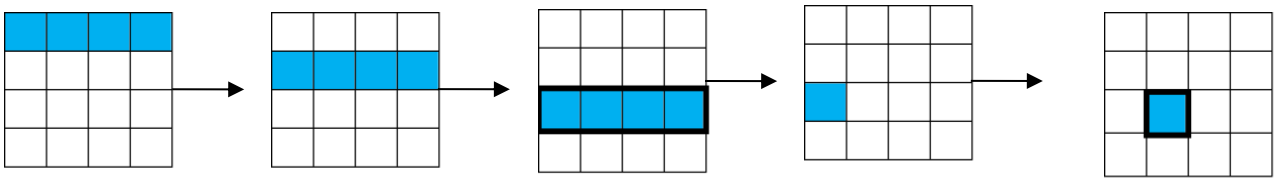


Figure 8: Row/column scanning pattern

- Block scanning – by scanning sections (blocks), then when the block is selected, by row/column and finally scanning each item linearly when the row/column is selected (see Figure 9).

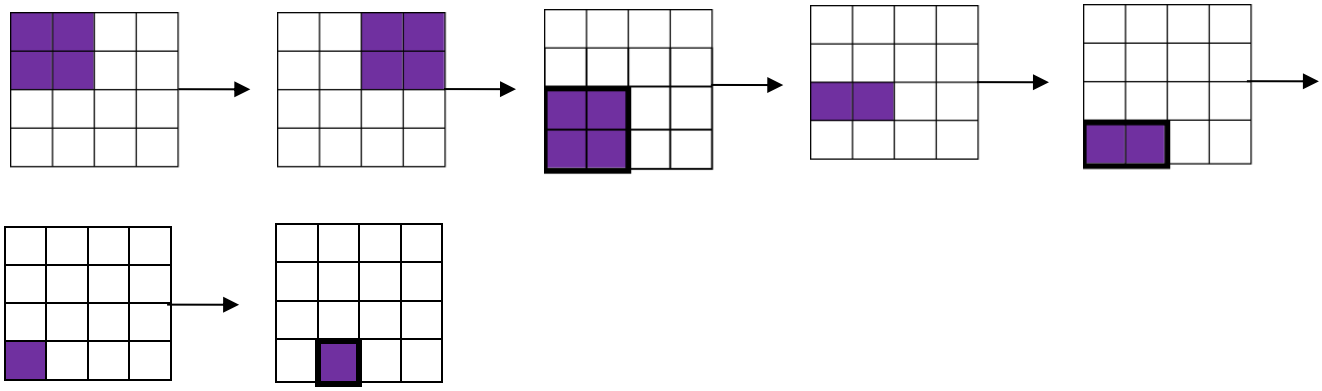


Figure 9: Block scanning pattern

The exact scan pattern used is dependent on the number of items to scan and the abilities of both the individual using AAC and the listener. Linear scanning is simpler, but generally takes longer than the other two methods. Block scanning can be useful where there are larger AAC displays (much larger than 4x4 cells) or where it is useful to divide a display into distinct groups or areas.

To make a selection, the individual using AAC indicates 'yes' (or 'select') as the listener is scanning over the intended item on an AAC display. The 'yes' indication could be vocal or non-vocal, e.g., an eye-blink, smile or other body movement (the listener watches for this signal). See below for further details of indicating yes, no and choices.

Further detail on scanning patterns can be found in 'Switch access to technology: A comprehensive guide'.

Scanning efficiency

Consider the position of items on a page when they are intended to be accessed via scanning. Place high frequency items where they can be accessed most quickly – these are represented in Figure 10 for row-column scanning (when beginning from the top left item). The numbers indicate how many times the individual using AAC needs to indicate 'yes' in order to select a particular item on the AAC display (a low number = quicker to access).

2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10
6	7	8	9	10	11

Figure 10: Illustrating the number of passes required to select an item

For text-based spelling charts, there should be consideration of whether a frequency of use (e.g., EARDU) or more familiar layout of letters (e.g., AEIOU alphabetical or QWERTY) would be most functional for an individual.

With any AAC display, positioning of non-letter items, e.g., [space], [yes], [no], [wrong] should account for their frequency of use. Example AAC displays are included later in this guide.

Colour-coding

Colour-coding is used to increase the number of items an individual is able to access from a single AAC display when their access method is not accurate enough to target individual items. It can help an individual identify their item of choice by a two-step process: first selecting the cell group the target cell is in and then identifying the colour of the chosen cell.

Colour-coding can be used when people are eye-pointing, and also where an individual is able to directly select larger areas accurately, but struggles to access smaller individual items.

It may help to consider the following worked-out colour-coding example:

1. This AAC display (Figure 11) has four closely-spaced items. **The individual is able to target an area the size of the purple shaded area**. They are therefore unable to target separate items in the group, because they are too close together.

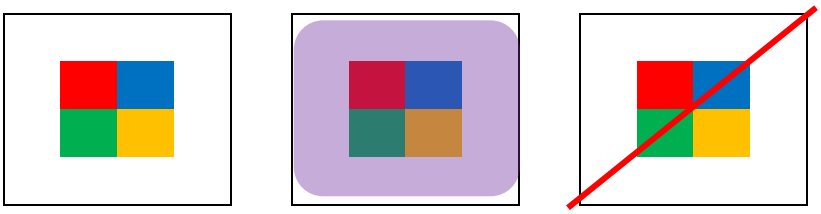


Figure 11: AAC display with closely-spaced items

2. The AAC display on the left has four items. The individual is now able to target the four items separately because they are spaced sufficiently far apart. The individual could also target each corner border of the AAC display shown on the right. (See Figure 12.)

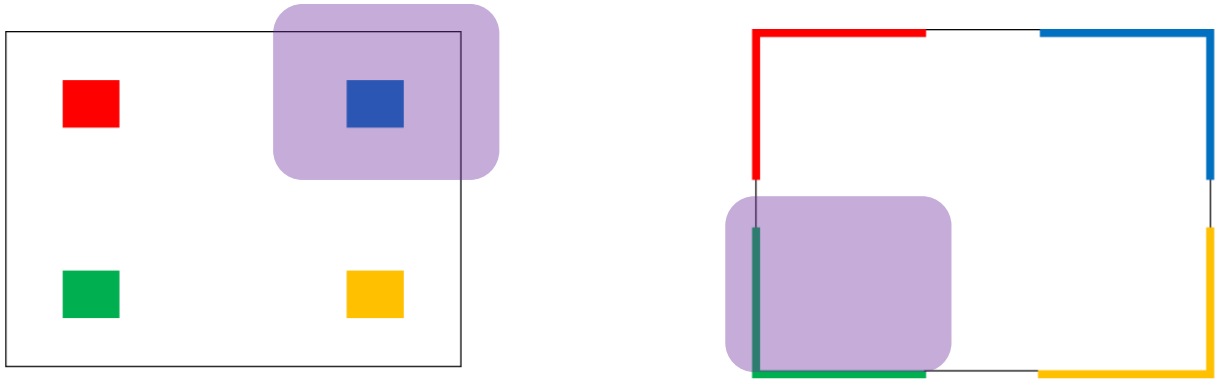


Figure 12: AAC display with widely-spaced items

3. The individual would like to have more than four items to choose from. This AAC display (Figure 13) has 16 items. The individual is able to target each group of four items, but is unable to select individual items within each group. The individual is unable to use this AAC display.

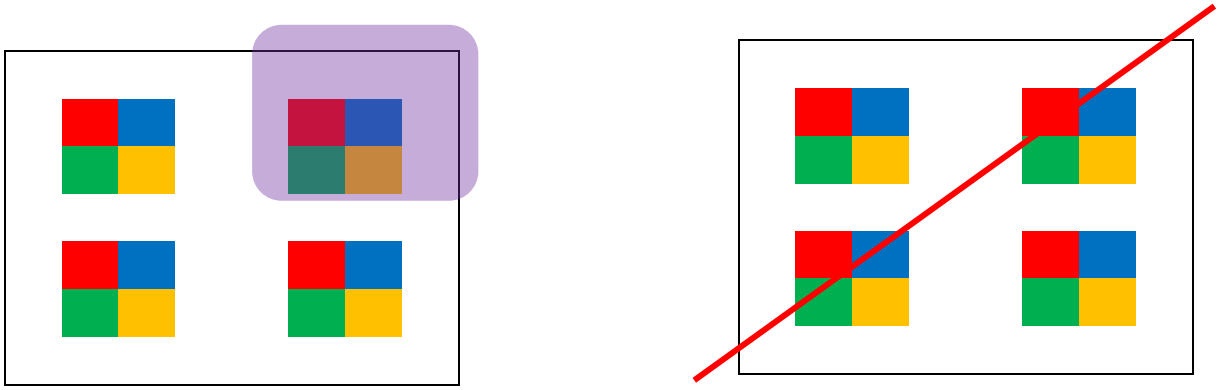


Figure 13: AAC display with groups of closely-spaced items

4. This AAC display (Figure 14) also has 16 items, but in addition, it has four differently-coloured borders on each corner. The position of each coloured corner matches the position of each coloured item within each group of four items – 'red' top left; 'blue' top right; 'green' lower left; 'yellow' lower right.

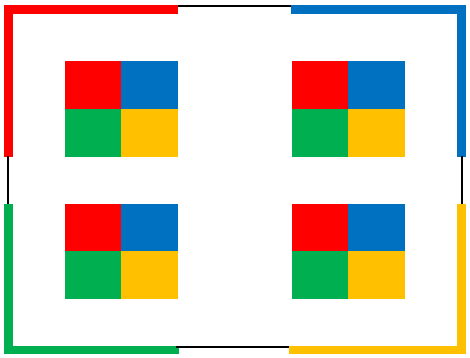


Figure 14: AAC display with groups of closely-spaced items and coloured borders

By combining the targeting of a group of four items with targeting a coloured corner, the individual using AAC can select separate items within each group of four items using a two-step method (illustrated below).

How to use this common colour-coding layout:

1. Select the group of four items containing the target item (using your preferred selection/access method). N.B. Target item is marked **X**.

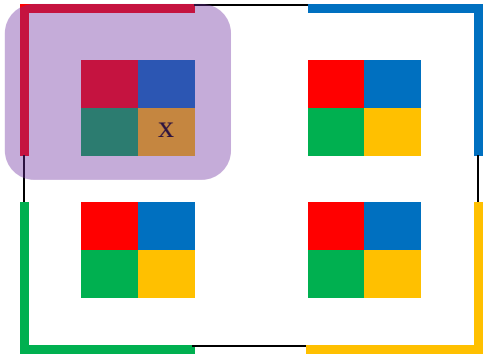


Figure 15: Example of colour-coding (selecting the group of four items)

2. To indicate the colour of the target item cell, select the relevant border colour matching the target item (in this example, yellow).

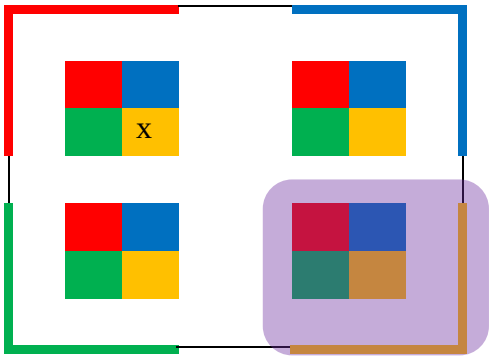


Figure 16: Example of colour-coding (selecting the relevant border colour)

This colour-coding arrangement is common in commercially available and self-produced e-tran frames.

Symbolic Representation

An individual using symbolised AAC will understand that a symbol has an associated referent. The symbol could represent (refer to) an abstract concept or a physical object, for example:

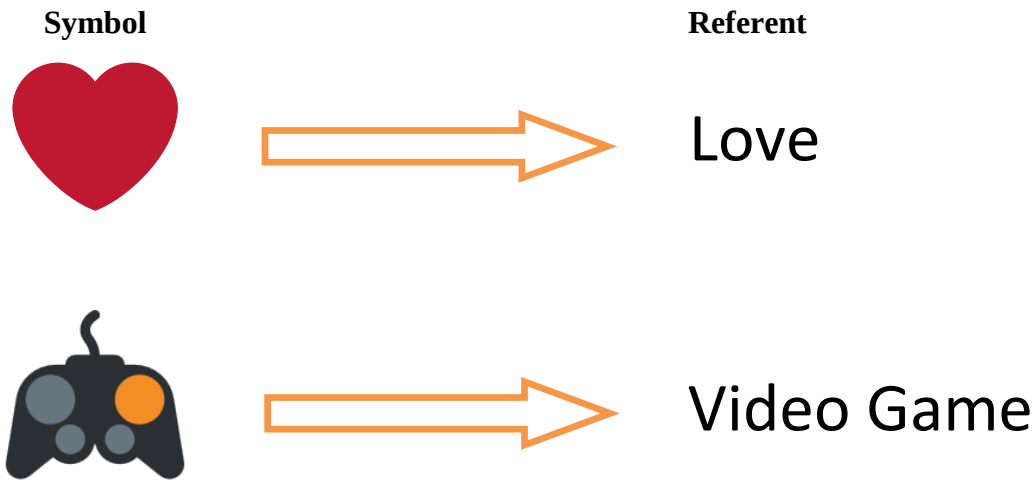


Figure 17: Symbol and referent

The symbols (text included) chosen for AAC will depend on various factors, including the needs and skills of the user and their communication partner(s). You do not need to follow a representational hierarchy when introducing symbols. For AAC to be successful, it is important that the symbols used are understood by all partners involved in communication, i.e., they have a shared vocabulary. **This is especially pertinent when using paper-based AAC, where symbols are not converted into (synthesised) spoken output.**

A shared vocabulary is not a shared language. Language also includes wider elements of communication and the social and cultural context they are used in. For example, using body language and facial expression, using a symbol sarcastically, or having alternate meanings for the same symbol depending on who it is used with. This is where symbols can be used powerfully among people who have a shared understanding of their meaning.

Common symbolic representations in non-powered AAC include:

- 'Multi-meaning' symbols, e.g., Bliss, Minspeak
- Real objects or representational objects
- 'Single meaning' symbols, e.g., SymbolStix, Widgit, Makaton, PCS
- Text, e.g., letters, written words, or written phrases
- Photos
- Emoji symbols

Royalty-free symbols are available, e.g., via Open Symbols or SEN Teacher. Please remember to reference your sources (for example, Love emoji and Game controller emoji) and relevant licence (e.g., Creative Commons Licence).

Vocabulary

Vocabulary can be classified as 'core', 'fringe' and 'personal' vocabulary (see Table 1). Core vocabulary refers to commonly-used words and *generally* consists of verbs, pronouns, adjectives and prepositions. The strategic use of core vocabulary is often recommended, as core vocabulary words make up a large proportion of utterances and can be applied across multiple contexts. Using core vocabulary can enable an individual using AAC to use a small number of words flexibly to communicate a range of messages.

Fringe or personal vocabulary, on the other hand, will apply to fewer contexts than core vocabulary, but may convey more meaning. Fringe vocabulary tends to consist of nouns. When fringe and core words are combined, clearer and richer meaning can be communicated.

Intended meaning	Utterance using fringe word	Utterance using core word(s)	Combined utterance	Function
I want a banana	Banana	Want	Want + banana	Requesting
I like bananas	Banana	Like + it	Like + banana	Commenting
I don't want a banana	Banana	No	No banana	Refusing
That go-kart is going fast	Go-kart	Fast + go	Go-kart + go + fast	Commenting

Table 1: Core and fringe vocabulary utterances

Personal words are words that are specific to an individual's own experience, and may be commonly used when communicating, e.g., names of people, pets or football teams. They are likely to be used more often than individual 'fringe' words. Table 2 below provides a few examples of core, fringe and personal vocabulary.

Core	Personal	Fringe
Me	Mrs Roberts	Chips
You	Orla	Banana
Want	Komodo So-do	Go-kart
Go	Wonky Donkey	Yoghurt
Stop		Beach
Like		Towel
More/again		Wind

Table 2: Core, personal and fringe vocabulary

Vocabulary can be organised in various ways in a communication aid, such as by category (e.g., fruit, animals, adjectives), by activities (e.g., snack time, after school page), alphabetically or by visual scenes. When deciding on the vocabulary to include, it is important to consider what the individual using the communication aid may like, need and want to communicate about. It is also useful to consider if the individual can already communicate certain messages in other ways. These words could still be part of

their vocabulary, but placing too much focus on using their communication aid to say these messages could be frustrating for the individual.

There are various core word and other vocabulary lists available, e.g., core vocabulary comparison list and AAC vocabulary lists, which may help guide some of your choices when developing AAC vocabularies for individuals. This mind map from Speak for Yourself is a useful tool to support language building by identifying motivating topics and associated core and fringe vocabulary.

Literacy Development

For all individuals who use AAC, literacy development is particularly pertinent. An individual who can spell can say more, and be less constrained by, their AAC vocabulary. Using spelling can reduce the number of pictorial symbols required, and thereby limit the size of pre-prepared vocabulary needed.

Choice-making and Preference

Making choices is part of what we all do throughout life, and can be as simple as indicating 'yes' or 'no' to a single item, or it can be something much more complex. Being able to indicate a preference, and this being responded to, enables an individual to have agency and begin to learn to make choices. Even if an individual appears not to fully understand, this will help to develop their ability to make choices and understand the consequences. Making choices is part of what we do throughout life, so it is important that opportunities to practise choice-making are always available and appropriately supported.

Supporting choice-making abilities

It can be useful to complete a preference assessment, in order to understand the individual's preferences before offering choices between items.

- Ensure you understand how the individual expresses 'yes' and 'no' and makes a choice.
- Offer choices which are appropriate and motivating.
- Consider introducing a preferred item with a non-preferred or neutral item, to encourage intentional choice-making.
- Present multiple choices simultaneously.
- Physically support and model choice-making initially.
- There should be a natural consequence to the choice an individual makes. When a choice is acted upon, even if the choice may appear to be unusual, or an error on the individual's part, this is the natural consequence of making that choice.
- Develop choice-making to extend beyond, "What do you want?" as the individual progresses. Ask questions such as, "Which is your favourite?", "Where shall we put this?" or, "Who would you like to sit with today?".
- It can often be helpful to verbally clarify with the individual the choice they have made, for example, "You have chosen juice, do you want juice?".
- This video demonstrates an individual making basic choices. Choice-making should also aim to lead on to broader communication. Praactical AAC have a blog about developing this.

Part 2 – AAC Tools

This section describes various paper-based and some partner-based AAC tools. It is intended as an introduction to these, not a comprehensive 'how to' instruction for each one. We hope that this information is sufficient to provide the reader with a basic understanding of each AAC tool, to enable them to identify any which may be of use in a given situation. Links to further information regarding each tool are provided within the text.

Indicating 'Yes' and 'No'

The ability to successfully communicate 'yes' (or an affirmative signal) is a key communication strategy for many people who rely on AAC.

To be able to successfully communicate 'yes' requires the communicator to:

- Understand what they are saying 'yes' to and the consequences of saying 'yes'.
- Make choices – what to say 'yes' to and what ***not*** to say 'yes' to.

It also requires the communication partner to:

- Respond to the 'yes'.

The same principles apply to saying 'no'.

Examples of the use of 'yes' and 'no'

- To respond to closed questions – being able to indicate 'no' is helpful here too.
- In response to choices presented one-by-one by a communication partner – respond 'yes' to desired choice (see also assisted scanning above in Part One).
- 'Yes' and 'no' might be indicated in various ways, for example, a whole-body movement, part of a body, a vocalisation, different vocalisations, facial expressions or blinking.

Using 'yes' and 'no'

All AAC users should be supported to develop a reliable 'yes' and 'no' message. Praactical AAC, 'Getting to Yes' signposts a series of blogs exploring 'yes' and 'no' response development and use.

Ensure that all communication partners are aware of how an individual indicates 'yes' (this may be subtle and/or non-vocal). Record these signals so they are available to communication partners.

Be aware that the 'yes' signal may vary if the presentation of the communicator varies, e.g., due to fatigue, drug regimes, or changes in tone.

Consider whether the individual has the required understanding of language and the situation to be able to meaningfully respond 'yes' (or 'no') to your question. Might the individual tend to respond with 'yes' as a default to all questions they do not fully understand?

Using 'yes' and 'no' as responses to closed questions or presented choices is likely to be a useful strategy for anyone. It is good practice to always support the individual to expand on what they can communicate by developing their means of, reasons for, and opportunities for communicating.

A yes/no question prompt sheet can be useful to use with an individual who is communicating 'yes/no'. This can structure the interaction to cover the main areas about which the individual wishes to communicate, and should help narrow down the subject to enable further, more specific, questions.

Objects of Reference

The use of objects for supporting communication originated as a strategy used with individuals with dual sensory impairment. Objects can be used to indicate what is about to happen or for choice-making. If an individual learns that a specific object has an associated meaning (it takes on symbolic significance for the user), it can be used as a means of communication. Objects of reference do not have to be limited to objects, and could incorporate sounds, smells and tactile sensory experiences (sometimes referred to as 'sensory cues').

In their simplest form, objects form part of the event they refer to, e.g., [usual cup] to signify 'drink'. The next step would be to use an object which has a concrete relationship to the action or event, but is not part of the event, e.g., [seatbelt clip] to signify 'car journey'. Using a more abstract representation can be a transition into using a symbol system, e.g., [toy car] to signify 'car journey'.

It is the strength of association or special meaning that an individual makes between the object of reference and its referent that makes it functional. This means the process of introduction needs to be systematic to ensure that the individual has attached meaning to the intended object of reference.

Appropriate objects need to be selected when introducing objects of reference. It is best to start using an object which represents something that happens frequently in the individual's life, so that it is used regularly, meaning that there is more learning opportunity. The connection between the object and the activity needs to be learnt, and this time frame to competence varies from person to person.

Using objects of reference

The following links give information on how to use objects of reference:

- CALL Scotland – Quick guide to objects of reference.
- Communication Matters have a brief guide.
- Oxfordshire Inclusive Communication.

If the individual has consolidated their use of objects of reference, they may be able to use symbols or pictures. However, not all individuals will move away from using actual objects.

Communication Passports

A communication passport is a document which provides key information about an individual who has complex communication difficulties and cannot easily speak for themselves. It is a document which can be used alongside other AAC tools to enable more consistent and person-centred communication.

A communication passport may be used to describe the following and much more:

- The way that the individual communicates through aided and unaided methods.
- Strategies and tools which can support the individual's communication.
- Strategies for supporting the individual's understanding of language.
- Information about the individual's likes, dislikes, people in their life, routines.
- Other key information which may be useful to consider.

Communication passports are useful for many individuals who have a communication difficulty, who may find it difficult to express to others what their communication methods are and what a partner can do to support them.

Communication passports are also a useful tool to consider when an individual is transitioning between settings, going to a less familiar environment or when new people are coming into an individual's life (such as new carers).

Tips for using communication passports

Communication passports should be developed as a collaboration between an individual and the people who know them well. The individual should be supported to develop the book.

A communication passport belongs to the individual and should be easily available to be referred to. The communication partners in the individual's environment should consult the communication passport for support, information and guidance about how best to support the individual's communication.

A communication passport is a living document and should be kept up-to-date so that it accurately reflects the changing profile of the individual. It can still be useful even when an individual is able to communicate their personal information to others, and could be curated by the individual themselves.

Further information and useful resources can be found at Call Scotland and Oxfordshire Inclusive Communication. Pamis in Scotland have developed a Digital Passport.

Visual Scene Displays

Visual scene displays (VSD) are aimed at supporting early-stage communicators and individuals with significant linguistic and/or cognitive limitations. They are intended to provide a context and information that can be shared with a conversation partner, who would actively support their use. They often consist of photographs depicting a scene where the subjects are engaged in an activity (see example in Figure 18).

Figure 118: Example visual scene display with symbols

Visual scene displays may support those individuals who are able to use the context of the whole picture to make sense of the individual parts. VSDs can also be used with adults with aphasia in a supported conversation context.

Tips for using visual scene displays

Ensure that visual scenes are high in context, interaction, relevance and clarity. Aided language input can be used to teach the use of visual scenes. They can be especially useful for social communication around a story, as well as for other language functions. The visual scene display should be positioned so the individual and partner can see and access it.

Visual scenes aim to support a conversation between an individual and a partner. The partner should verbalise and interpret what the individual is indicating on the scene, and they should also verbalise and expand on what the individual is pointing at.

Other AAC options should be considered if the individual using AAC requires access to more extensive language options, and is able to access symbols on an AAC display consisting of an array of cells. Hybrid systems (symbols and visual scenes) could be used to aid the transition. The intention of the latter is for the remaining visual scene to provide additional context when using the symbols. The University of Nebraska-Lincoln has a number of visual scene resources available.

Supported Conversation

Supported conversation is useful when an individual has difficulties with receptive and expressive language.

Supported Conversation for Adults with Aphasia (SCA™) 'is a communication method that uses a set of techniques to encourage conversation when working with someone with aphasia…' (Aphasia Institute, 2015). The principles are not limited to use with individuals with aphasia, as they can be useful to support a range of individuals with communication difficulties.

Supported Conversation comprises a set of techniques including:

- Spoken and written keywords
- Gesture and body language
- Hand drawings
- Photographs/pictographs designed to support conversation on complex topics (see also Visual Scene Displays)

The conversation partner should support the individual to reveal their competence by ensuring that:

- The message is clear
- The individual has a way to respond
- The message is checked to make sure it has been understood

As outlined above, a range of alternative representations of language are used by competent communication partners. These are deployed to match the level of support required within each conversation. The conversation is a shared endeavour, with the conversation partner supporting some of the conversational load by implementing the techniques above. An example of supported conversation being used can be seen in this video. The Aphasia Institute website has more information.

In addition to the use of supported conversation, other strategies may be accessible, dependent on the abilities of the individual with communication difficulties. For example, their communicative ability may improve sufficiently to be able to access language (aided or unaided) with more independence.

Talking Mats

Talking Mats™ is a communication tool which enables individuals to express their views with the support of symbols (see Figure 19). Symbols are organised on a display under headings, to support an individual to express their opinions, to indicate choices and preferences, or to establish their understanding of a situation.

Examples of Talking Mats being used

Talking Mats might be prepared around certain topics such as:

- Discussing rehabilitation goals and life decisions
- Discussing an individual's views on intervention
- To support an assessment of an individual's understanding of situation (e.g., capacity assessment)
- Discussing preferences for care, therapy, discharge from hospital or treatment
- Discussing likes and dislikes of food, drink, music, activities etc

Figure 19: Example Talking Mat (PCS® symbols © Tobii Dynavox)

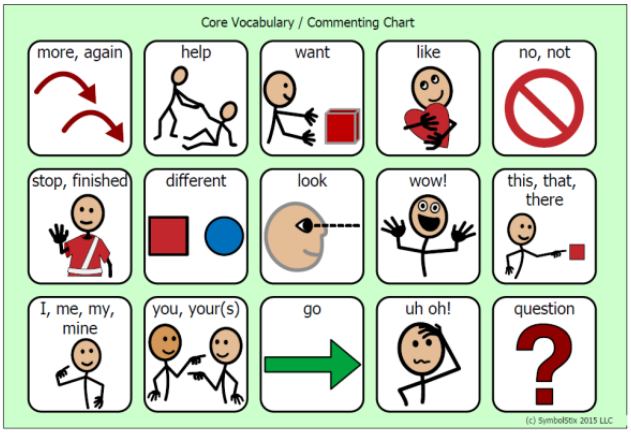
Pictures for topics (as above) can then be selected by the individual to be placed under headings; this is called the top scale. The top scale needs to match the main topic being explored, for example: [like]; [dislike]; [manage]; [not manage]; [maybe]; [not sure]. Talking Mats can be used as a paper-based tool and is also available in digital format. More information, access to training and details of relevant projects and research studies that use or evaluate Talking Mats can be found on the Talking Mats website.

Picture (Symbol) Charts

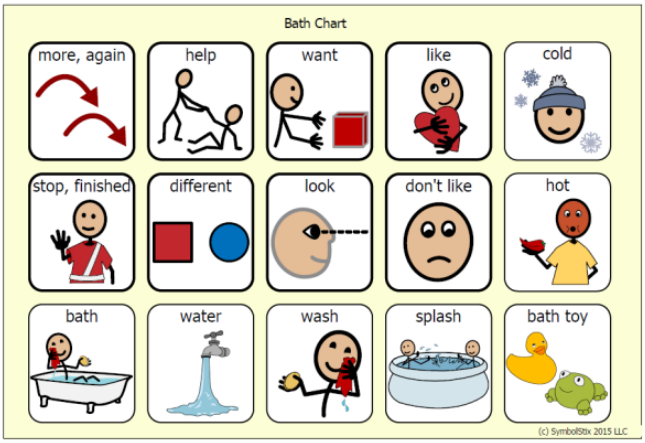
Picture charts or activity boards are single sheets of symbol/pictorial vocabulary. They are usefully deployed to support communication where access to specific vocabulary is required. These single-sheet charts can be used in situations ranging from the more general (e.g., core word charts), to more specific activities (e.g., vocabulary chart for use in a cookery session). Picture charts can provide access to additional vocabulary which might not form part of an individual's regular AAC system, or access where environmental conditions make the use of their regular AAC system challenging, e.g., in water.

Examples of picture charts (© ACE Centre 2020):

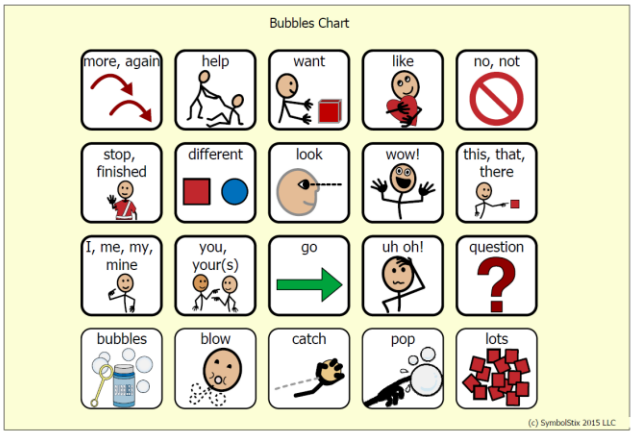
- Core vocabulary charts



- Site-specific charts – e.g., menus in canteens/cafes; hydro pool; bath time



- Activity-specific charts – craft area; seaside; toys/games; books



When to consider introducing picture charts

- Can be an introduction to choosing between an increasing number of multiple symbols for an individual, especially as the vocabulary can be closely matched to the context it is intended to be used in.
- May be useful in situations where multiple communication partners are involved in supporting an individual e.g., personal care.
- Can be used to ensure that vocabulary is available to support certain activities accessed by more than one individual using AAC, e.g., physiotherapy session.
- Where the use of an individual's usual AAC system (e.g., a book or VOCA) is impractical, e.g., swimming/hydro; bath time; sandy/messy places.
- The use of picture charts can also reduce the need for all vocabulary to be in a single place, for example, the chart can be placed/kept in the context of a specific activity. This can also help to prevent an individual's communication book becoming too cumbersome.

Tips for using picture charts

- Picture charts should be located where they have been designed to be used.
- Ensure that charts are accessible to the individual. This requires consideration of: symbol/picture type; number of symbols per sheet; spacing between symbols; colour-coding and contrasts; matt laminating finish; language level; access support (e.g., partner-assisted scanning); and access method (e.g., eye-pointing).
- Support the individual to develop the competencies required to use picture charts, and adapt the charts if required to improve overall accessibility.

Picture Communication Books

Picture communication books are designed to support individuals with limited or emerging literacy. They contain pages of picture-based vocabulary which can be organised in a number of different ways. These include: taxonomically (in categories), schematically (by activity), alphabetically, or a combination of these. An alphabet chart, word or phrase list could be incorporated if appropriate. There may be anything from a single symbol to many symbols on a page, and books can vary in size (physical dimensions as well as number of pages).

Communication books can be tailored for people using AAC at different stages of language development or levels of language impairment and can be used during supported conversation. In general, the use of core vocabulary across a communication book is recommended. Specific topics depend on the interests of the individual and can be highly personalised (see Figure 20).

Examples of communication books

- ACE Centre communication book
- Symbols on key rings
- PODD book

For people using powered AAC, having a communication book is recommended as an additional strategy, and can be a back-up in the event of the powered AAC not being available.

Figure 20: Example communication book

Tips for using a communication book

- Obtain information about the individual's routine, the people in their life, their occupation, interests and their reasons to communicate, in order to identify vocabulary to include.
- Consider the skills and abilities of the individual when deciding how many pictures to have on a page.
- Consider how the individual will access the book. This could be via direct selection, listener-mediated scanning or eye-pointing.
- Core vocabulary is important to include as well as specific topic words.

There are many resources available to support the development of communication books. These include, Developing & Using a Communication Book from the ACE Centre and Praactical AAC for advice regarding formatting.

Additionally, there are many software tools for AAC resource-making:

- Boardmaker®
- Clicker Communicator
- Grid 3
- Matrix Maker
- InPrint 3
- Saltillo Word Power™ templates
- Praactical AAC lists some free resources

PODD

PODD stands for Pragmatic Organisation Dynamic Display.

- ***Pragmatic*** **–** the ways that we use language socially.
- ***Organisation*** **–** words and symbols arranged in a systematic way.
- ***Dynamic Display*** **–** the page changes depending on the word or symbol selected.

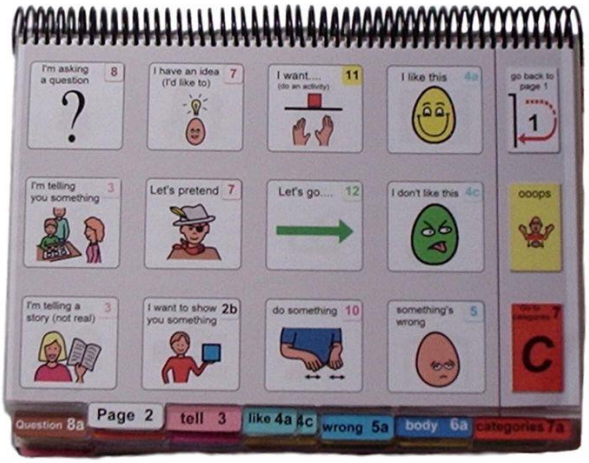


Figure 21: Example PODD book (PCS® symbols © Tobii Dynavox)

A PODD book (see example in Figure 21) contains a wide variety of core and fringe vocabulary organised by topics. PODD is available as a template from a CD rom as referenced below. PODD is also available on some powered AAC devices.

A PODD book can provide access to a wider variety of messages than a picture chart or simple communication book. The layout is intended to support navigation through the book, beginning with the whole concept that the user is trying to convey, e.g., 'something is wrong', whilst constructing a phrase at the same time. A PODD book is supported by the communication partner and is highly interactive, which may be particularly motivating for some individuals. Because of this, a PODD book can reduce the demands on an individual who is communicating, and provide a tool for modelling the use of symbols for communication.

Tips for using PODD

Pre-made PODD books can be purchased from some suppliers. To make a PODD book yourself, you will need access to:

- PODD resource CD or templates
- Boardmaker® software (to print each PODD page from the CD)
- Colour printer
- Standard or weatherproof paper
- Laminator and laminating pockets
- Scissors
- Binder and binding coils

The PODD book can be accessed by an individual by direct selection, listener-mediated scanning or by eye-pointing.

For use with listener-mediated scanning, the communication partner points to and reads aloud each message selected by the PODD user, including the operational commands, e.g., “turn the page”, “oops”, and so on. The individual indicates a ‘yes’ to their communication partner when selecting, e.g., a vocal “yes”, a recorded switch message, a body movement, a smile or a blink. The individual leads the message construction and where the communication partner should go next in the book. The communication partner gives a verbal summary of the message at the end.

PODD requires good support from communication partners and the wider environment to be successful.

PECS®

The Picture Exchange Communication System® (PECS®) was initially conceived to help some autistic individuals to develop an understanding and means of communicative exchange. It is now used beyond this group of individuals to support those who have a wide variety of complex communication needs (see Figure 22 for an example PECS® board).

PECS® teaches an individual to give a picture or series of pictures (a sentence/phrase) to a communication partner. The partner reinforces this action by exchanging the picture with the item or outcome that the picture represents, e.g., a picture of a book is exchanged for a story. The communication partner should 'honour' the exchange as a request. PECS® use is supported with reinforcement. The system expands through stages, which develop increasingly more complex means of using pictures for communication.

There are 6 phases of PECS® (Frost & Bondy, 2002; 2012):

PHASE I – Physical Exchange
Students learn to exchange single pictures for items or activities they really want.

PHASE II – Distance and Persistence
Still using single pictures, students learn to generalize this new skill by using it in different places, with different people and across distances. They are also taught to be more persistent communicators.

PHASE III – Picture Discrimination
Students learn to select from two or more pictures to ask for their favourite things. These are placed in a communication book—a ring binder with Velcro strips where pictures are stored and easily removed for communication.

Figure 22: Example PECS® board
(Image provided with permission by Pyramid Educational Consultants (www.pecs.com). All rights reserved)

PHASE IV – Sentence Structure
Students learn to construct simple sentences on a detachable sentence strip using an 'I want' picture followed by a picture of the item being requested.

Attributes and Language Expansion
Students learn to expand their sentences by adding adjectives, verbs and prepositions.

PHASE V – Responsive Requesting
Students learn to use PECS to answer questions such as, 'What do you want?'.

PHASE VI – Commenting
Students are taught to comment in response to questions such as, 'What do you see?', 'What do you hear?' and 'What is it?'. They learn to make up sentences starting with 'I see', 'I hear', 'It is a', etc.

When to consider introducing PECS®

PECS may be a useful tool to consider with an individual to develop their intention and motivation to use symbols to communicate. The individual is required to have, at least, an understanding of cause and effect, understanding of single concepts, and the potential to understand pictures or photographs as symbolically representational.

Training and resources are available from Pyramid Educational Consultants.

Consider other strategies if the individual using PECS is demonstrating the ability to communicate beyond basic requests, comments or questions, and/or if using PECS is insufficient to meet their communicative potential.

Links to related resources

The Logan Proxtalker combines individual pictures which can be linked on a strip with voice output.

Various apps (for iPad and Android) utilising individual pictures which can be linked on a strip are available.

Frost, M.S. & Bondy A. (2002) *The Picture Exchange Communication System® (PECS®) Training Manual, 2nd Ed.* United States: Pyramid Educational Consultants

Frost, M.S. & Bondy A. (2012) *PECS® Basic Training Workshop, Version 12.* Brighton: Pyramid Educational Consultants

E-tran Frames

An eye transfer, or e-tran, frame is a frame positioned between the individual and their communication partner (see example in Figure 23). Messages are generated by the individual eye-pointing to the relevant location on the frame, and are then recorded by the communication partner. Such devices are designed to support individuals who have limited ability to use direct selection methods, but who have the ability to point with their eyes. A functional eye-gaze assessment is worth considering to gauge an individual's ability to eye-point.

Figure 23: Example e-tran frame

E-tran frames (including the Megabee and Speakbook) can be used with pictures, symbols or letters, and with or without colour-coding systems.

The Megabee is a battery-operated version, which electronically records the message as the communication partner presses a series of coloured buttons corresponding to where the individual is eye-pointing to (see example in Figure 24).

Figure 24: Megabee - an electronic e-tran frame

Speakbook from the ACE Centre is a series of paper-based e-tran frames bound in a book.

When to consider introducing an e-tran frame

- May be useful to introduce for choice-making, and for developing the use of eye-pointing as an access method.
- When an individual can eye-point between at least 2 choices.
- As a quick tool to set up and use, instead of a powered AAC device.
- When eye-gaze technology is difficult to use, e.g., due to the environment/lighting.
- To use alongside other AAC systems.

Tips for using an e-tran frame

- Before using an e-tran frame, the individual and their conversation partner should establish an agreed method for the individual to indicate they are 'ready', 'finished', and to indicate 'yes' and 'no'.
- The communication partner holds up the e-tran between themselves and the individual so that they can make eye contact in the middle of the frame.
- The individual looks at the item they wish to choose.

- The communication partner confirms the selection that has been made, often verbally and sometimes by pointing to the item themselves.

For colour-coded e-tran frames, the selection method has additional steps:

- The individual looks at a grouping of letters or symbols on the device containing their target item.
- This selection is confirmed by the communication partner.
- The individual then looks to the coloured area or frame matching the colour of their target item.
- The communication partner confirms the selection made by the individual, to ensure they have correctly identified which letter or symbol has been selected.
- If selecting multiple items (e.g., to spell a word or link symbols) the selected letter or symbol is recorded, either by memory (very demanding to do and not advisable), by writing down or by using the buttons on a Megabee to electronically record the message.

Using such a system is likely to be a useful AAC method to use alongside other systems.

Call Scotland have a more detailed guide to eye-pointing and using an e-tran frame, and there is also the useful Look2Talk resource from the ACE Centre.

EyeLink

An EyeLink is a transparent frame with (usually) letters on, positioned between the individual and their communication partner. Messages are generated by the individual eye-gazing at one letter at a time on the frame to spell out words.

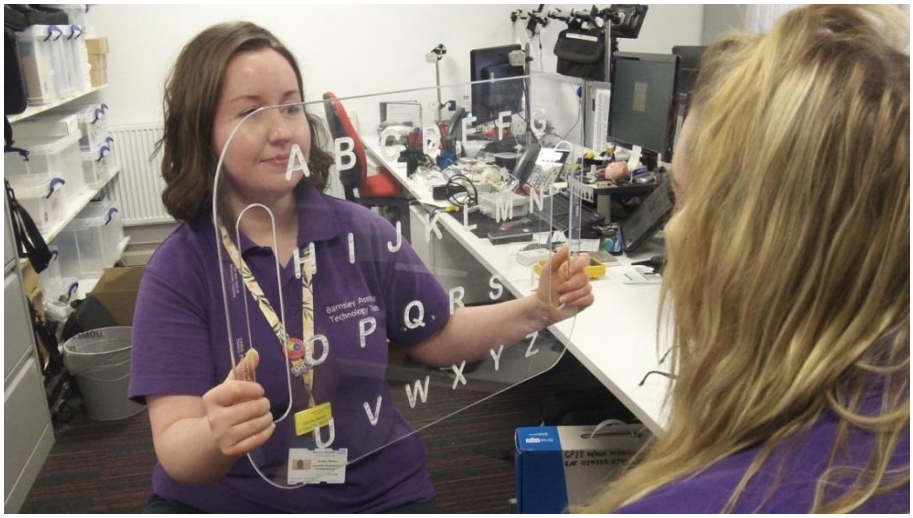
When to consider introducing EyeLink

- An EyeLink could be used by individuals using AAC who have limited hand function but the ability to point with their eyes and fix and track their gaze on a moving point (e.g., a letter) across the area of the frame.
- The EyeLink may be useful to introduce for early choice-making and developing the use of eye-pointing, e.g., when an individual can eye-point between at least two choices.
- The EyeLink is often text-based but can be adapted to use pictures.

Tips for using EyeLink

- Before introducing this method, the individual and their communication partner should agree a method for the individual to indicate when they are 'ready', 'finished' and to indicate 'yes' and 'no'.

- The communication partner holds the board up in front of the individual.



- The individual focuses their eyes on the target letter or symbol.

- The communication partner moves the board until their eyes meet the eyes of the individual and both people are looking at the same item.

- The communication partner confirms with the individual that they have correctly understood which item has been selected.
- This item is recorded, often by writing it down.

An instructional video can be found here.

An EyeLink is likely to be a useful AAC method when used alongside other AAC systems.

Digital Notepads

There are various screen-based notepads with a stylus for writing messages or drawing pictures. They work in a similar way to pen and paper, or a whiteboard and marker.

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When to consider introducing a digital notepad

When an individual can use writing or drawing to support their message, and where the features of being able to clear images at the press of a button or share images digitally are useful.

Tips for using digital notepads

- The individual uses the stylus to write or draw onto the writing pad.
- Images can be erased when finished with by clicking a button on the device. Some models can transfer the image wirelessly to a phone, tablet or computer.
- If an individual is finding it more difficult to physically operate the equipment given the dexterity required, a communication chart, communication book or eye-pointing system may be more appropriate.
- A digital notepad or pen and paper system can continue to provide a useful AAC method to use alongside another system.

Related resources

There are a number of different screen-based writing pads available commercially. For example:

- Boogie Board
- ACECAD PenPaper 5x8
- XP-Pen Star05; E-More LCD Graphic
- Sony DPT-RP1/B 13.3”
- Cyberpad 8.5X11
- SolidTek DM-L2 11-Inch
- Wacom Bamboo Slate Smartpad

Spelling Charts

Spelling charts are single sheets that include the letters of the alphabet. Whole phrases may be included to aid ease and speed of use.

Examples of spelling charts

Spelling chart layouts generally account for the following three factors: access, familiarity and frequency. These have varying degrees of influence on the layout.

- Alphabet/ABC charts – ordered according to the sequence of the alphabet. These are used with direct access or listener-mediated (partner-assisted) scanning access methods. With charts for use with listener-mediated scanning, it can be helpful to organise the chart with AEIOU down the left-hand side (when facing the chart/individual's view). This keeps the chart relatively square. (See Figure 25.) The squarer the chart, the faster the scanning-through can be done. Other charts can be organised according to the individual's direct access ability (see colour-coding).

Figure 25: Alphabet chart

- Frequency scanning charts – designed for use with the listener-mediated (partner-assisted) scanning access method. The most frequently-used letters in English (or relevant language) are positioned nearest to the scan start point. The least frequent letters are positioned furthest away from the scan start point. This ensures that the use of the chart is as efficient as possible, with the fewest possible scans required to access the letters and make up the words used. (See Figure 26.)

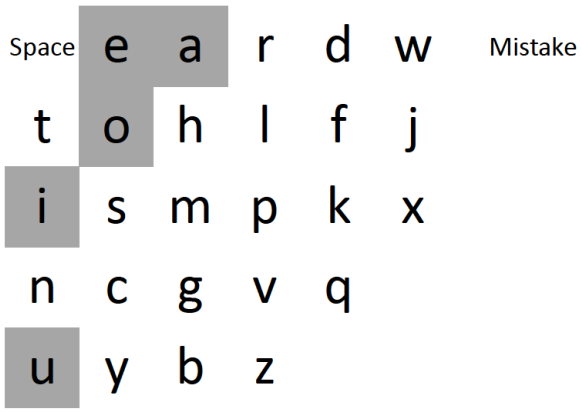

Figure 26: Frequency scanning chart

Letter frequency can be derived in a number of ways. For example, from the frequency of letters in a complete vocabulary (e.g., the Concise Oxford Dictionary) or the frequency of letters in a large sample of words in a language. Additionally, word-initial letter frequency might also be useful to consider if using word prediction to support AAC use (powered or non-powered). Consideration of digraph frequency (e.g., 'wh', 'th', 'sp'), especially in word-initial position, could also be helpful. Consideration of these variables and their relation to individuals, means that there is no standard frequency layout. Further information on letter frequency can be found here.

- Charts for use with single finger or pointer direct access could utilise the FITALY layout. This enables an individual to access the most frequent letters within a small area, reducing the amount of movement and reach required when spelling words. (Figure 27.)

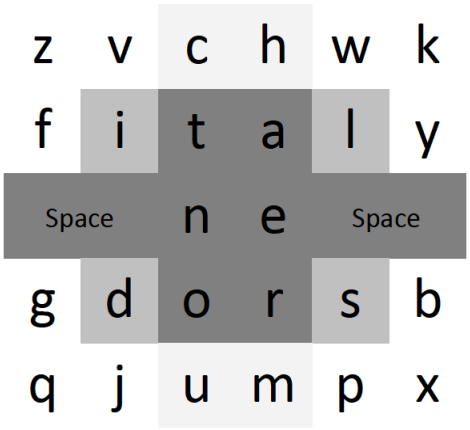

Figure 27: FITALY chart

- QWERTY layout. Used by individuals familiar with the standard keyboard layout of letters, and who are able to touch the chart with their fingers.

- Virtual spelling chart – a chart layout with which both an individual and their communication partner are very familiar could be accessed virtually, without a physical chart being present. Both people communicating would have a 'mind's eye' representation of the chart, enabling the communication partner to perform an auditory scan through rows and columns, e.g., saying rows 'A; E; I; O; U', and the individual then indicates their choice by selecting a row and then the subsequent item along the row.

When to consider introducing spelling charts

Spelling charts can be suitable for individuals who are literate or are developing literacy. They can be designed to accommodate an individual's access needs, including vision and hand function. They can be used with direct access, with listener-mediated scanning or with eye-pointing.

Tips for using spelling charts

- The individual using AAC spells out words by selecting letters, and the communication partner records words as they are spelt out, confirming back to the individual using AAC what they are recording.
- When spelling words, selected letters are best recorded by writing them down as each one is communicated. Attempting to memorise strings of letters whilst concentrating on new letters being communicated can be very demanding to do, and therefore is not advisable.
- 'Being a Communication Partner' is a guide from the ACE Centre to having conversations with individuals who use alphabet charts to communicate.
- See also the listener-mediated (partner-assisted) scanning method of access.

Spelling charts are a useful tool for an individual who uses AAC and has sufficient literacy to spell words, and as an aid to developing literacy. Further resources are available from the ACE Centre – Designing and using alphabet charts and Alphabet Charts & Books

Word/Phrase Charts

Word and phrase charts are single sheets of written vocabulary and/or phrases. They are usefully deployed to support communication where access to specific vocabulary is required. These single-sheet charts can be used in situations ranging from the more general (e.g., core word charts), to more specific activities (e.g., phrase chart for use in a personal care routine).

These charts can provide access to phrases and vocabulary for daily situations, and are useful where phrases are used repetitively. This saves the individual from building all phrases from single letters. They are also useful where environmental conditions make the use of a more complex or powered AAC system challenging, e.g., in water; during physiotherapy sessions; or when being hoisted or supported during everyday living tasks (e.g., dressing or toileting).

When to consider introducing word/phrase charts

Word/phrase charts can be used where the individual using AAC has sufficient literacy to read words and phrases on the chart. Introduce these when situations have been identified where a chart would be more functional than a powered AAC device or communication book.

Tips for using word/phrase charts

- The individual using AAC selects words or phrases, and the communication partner confirms these with the individual using AAC as they are selected.
- If combining several words, the selected words are best recorded by writing them down, not trying to remember them, as this can be very demanding to do and is not advisable.

See also the listener-mediated (partner-assisted) scanning method of access.

Word/phrase charts are a useful tool for an individual who uses AAC and has sufficient literacy to read words and phrases and as an aid to developing literacy. The ACE centre listener-mediated chart with phrases is a useful resource.

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Changelog

Date	Change	Owner
26/02/2021	Final draft	JM
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