

Communication Matters



AUGUST 2019 VOLUME 33 NUMBER 2

THE JOURNAL OF COMMUNICATION MATTERS / ISAAC (UK)

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- ALS App - Implementation - Literacy Journey - Reading Resources - AAC Journey -
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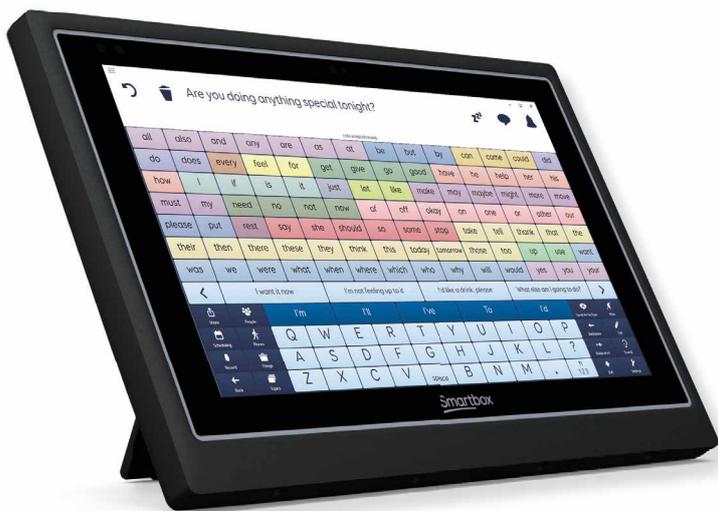
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Mr and Mrs Hewson
on their Wedding Day
on 12th July 2019!*

COMMUNICATION MATTERS JOURNAL
ISSN 0969-9554

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Registered Charity No. 327500
Company Registered in England & Wales No. 01965474

Editor
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Advertising and Overseas Subscriptions
Tel: 0113 343 1533
Email: admin@communicationmatters.org.uk

Copy submission
Preferred text format: Microsoft Word
Preferred graphics/photo formats: JPEG, TIFF
Copy deadline: contact editor
The Communication Matters Journal is the official
publication of Communication Matters / ISAAC (UK),
and is an ISAAC affiliated publication.

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Co-Chairs' Report

Toby Hewson & Ruth McMorran

It's hard to believe that this is the last time we'll be preparing the Co-Chairs' comments for the Journal. Where have the last three years gone?

As always at this time of year, we are busy preparing for Conference in September, but this year we have the added excitement of getting ready for the inaugural AAC Awards in October.

Have you thought about nominating someone for the AAC Awards? There are eight exciting categories, covering every aspect of AAC across the UK. Please have a look at the Awards website for more information - <https://eu.eventscld.com/aacawards>

We were sorry to say goodbye to our Administrator, Rita Haspel, who left us at the end of April. Rita has moved on to a new post at Leeds Beckett University and we wish her well in her new role. We are also very grateful to Matt Masters, who worked with us throughout May. 'Goodbyes' often mean there are also 'hellos' and, at the beginning of June, we were delighted to welcome Mary-Ann D'Sa as our new Administrator. Some of you will have already spoken to or emailed her, and many more of you will have the opportunity to meet her as she will be on the CM Stand at Conference.

We were so pleased to be able to run, in conjunction with CALL Scotland, another successful AAC & Literacy Best Practice Study Day in Dunfermline on 2nd May. There were plenty of positive comments about the range of presentations and speakers, and the variety and quality of the information on offer.

We also held three AAC Information Days in Wolverhampton, Belfast and Newcastle from late May to early June. Interest in our AAC Information Days has been very limited in all parts of England and Wales this year. For that reason, we are not planning any days in 2020, but we are looking at other opportunities. Roadshows/Information Days in Scotland and Northern Ireland continue to be really popular.

The draft Conference programme is now available online at <https://eu.eventscld.com/cm2019conf>. A few interesting facts:

- 26 people are presenting at Conference for the first time
- 23 AAC users and family members are delivering papers
- We received 110 abstracts from across the UK and, bringing an international flavour to Conference, from Australia, Brazil, Germany, Israel, Japan, Kuwait, the Netherlands, Norway, the Republic of Ireland and the USA.

It looks as though it will be a great Conference!

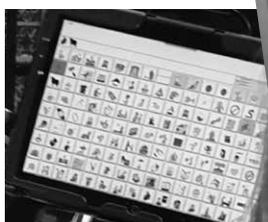
Thank you to everyone who has offered us support and advice over the last three years, especially to all of you who have served as a Trustee. Being a Co-Chair of Communication Matters has been a great, if sometimes challenging, experience.

We are looking forward to seeing you at the University of Leeds in September. If you haven't booked yet, there are still places available, so register now!

Over the last three years Toby and I have rarely represented CM at the same event. We made an exception in July 2017 when we went together to the 1Voice Residential Weekend at Derwen College. There Toby met Helen and, as they say, the rest is history!

It was wonderful to attend another event with Toby this July! This time at Holy Trinity Church in Sutton Coldfield for his marriage to Helen. It was a beautiful wedding – Helen wore a stunning dress and Toby looked dapper – with his pink tie, the exact colour of the roses in Helen's corsage! There were aspects of the day that were exactly the same as every wedding you attend but also there were features that were specific to this very special wedding. The Bride and Groom made their vows using their communication aids – if you look really closely you can see Toby's "I will"; Beth, who has been a friend of Toby's for many years, used technology to give a reading and Toby arranged, as a surprise for his new wife, for Kate and Sally from SignOutloud to perform a selection of Helen's favourite songs. All things that make this a wedding that all the guests will remember for a very long time.

The CM Trustees and Office Team wish Toby and Helen a married life full of love and happiness.



Management of iDevices in a Specialist AAC Service

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Background

The Kent and Medway Communication and Assistive Technology Service (KM CAT) is a specialist Augmentative and Alternative Communication (AAC) hub. The Children and Young Peoples (CYP) Team is additionally commissioned by Kent County Council Education and Social Care to provide on-going support to the CYP and the team of professionals around them. As part of this, the service has a bank of equipment which is loaned out to local therapists.

With an increasing range and quality of apps, accessibility options and customisability, iDevices are frequently used as an appropriate, commercially available and often cheaper alternative to dedicated communication devices, in particular for people with direct access ability and finer motor control.

As a Specialist AAC Hub, different banks of iDevices are held for staff, training

courses, assessments and short-and long-term loans, and there are also iPads provided to the caseload! Therefore, with over 100 iDevices in the service, it is necessary to keep tabs on them and manage apps without breaching licencing regulations.

In response to such needs, the KM CAT CYP Team recently implemented a Volume Purchase Programme (VPP) for apps and a Mobile Device Management System (MDM) to control groups of iPads, their restrictions and the distribution of the apps. The service they use is Lightspeed Systems Mobile Device Manager, which is built for education. Whilst this paper will focus on the team's experience of this particular MDM system, other systems are also available, such as AirWatch or Meraki. Many principles will apply across the board, as, "MDM offerings are all based around a core feature-set which is defined by Apple"¹. When deciding which MDM system to implement, the main

thing is to know which functions are of importance. It is worth checking if a free trial is offered prior to purchase.

Glossary

Here are the meanings of some abbreviations that are used throughout this paper:

VPP – Volume Purchase Programme

MDM – Mobile Device Management

HCS – Healthcare Scientist

KM CAT CYP Team – Kent & Medway Communication and Assistive Technology Service Children and Young People's Team

AAC – Augmentative and Alternative Communication

DUNS – Data Universal Numbering System

iOS – Operating system used by products manufactured by Apple

What is MDM and VPP?

MDM stands for Mobile Device Management and refers to a system that iPads are assigned to. The assigned iPads are managed remotely, allowing the team to add apps, set restrictions and so on. MDM systems often have the opportunity to manage other devices including Android and Windows, however the KM CAT CYP team only uses the service for iPads at this stage.

Closely related to the MDM system is the VPP, which stands for Volume Purchase Programme. This is from Apple and is for the bulk purchase of apps, which can be managed through the MDM system. MDM and VPP are separate entities but a token code links the VPP account to the MDM system for apps to be used.



Figure 1: Mobile Device Management Systems logos

Why is MDM helpful in a Specialist AAC Service?

- Problems can be solved efficiently and remotely without the need to remove a device from a child.
- Teams can easily see what restrictions each member has set on iPads, working as a more united team.
- Using a commercial system helps with continuity when team members move on.
- Apps can be recycled and do not need a new Apple ID each time a licence is required.

Mobile Device Management Explored

Within the MDM system, there are many different functions. Some of the most useful will be explored here.

Groups

In Lightspeed Systems' MDM, all restrictions, apps and settings are assigned to groups, which iPads are enrolled into, and iPads can be a part of as many groups as necessary. The KM CAT CYP Team have main groups for each equipment bank, which will then have sub-groups depending on whether the iPads need very individualised settings and apps or need similar settings and apps at the same time. (Table 1)

Table 1: Structure of KM CAT CYP Team's MDM group use

Hub Loan	Individual iPad Groups
Spoke Loan	Individual iPad Groups
Staff	Individual Staff Member Groups
Caseload	Individual Client Groups
Assessment	Bulk App and Restriction Groups
Training	Bulk App and Restriction Groups

Real-time restrictions

The restrictions set might not only apply to the individual, but to others in their environment, who may distract the child from communicating with the device. In the classroom, the people surrounding each individual could change frequently along with the restriction needs; MDM can change restrictions remotely within seconds.

Blocking apps

To help focus a user on communication, the Blocking apps option may be used.

This includes unnecessary apps like "Stocks" and "Music", or even "Camera" and "Safari" if deemed unhelpful.

Web Browser Based

Lightspeed Systems' MDM is Web Browser based, which means that members of the wider team can email or call whilst on a visit with a child. Wherever an MDM team member is, they can use a laptop, iPad or even a smartphone to make changes to an iPad remotely (providing they are connected to the internet!).

Clear Passcodes/Find my iPad

The option to clear forgotten passcodes for the device or restrictions, or Find my iPad/Lost Mode if a device cannot be found are helpful, as those working with children may have a number of students to work with and may have trouble dealing with all this information!

Transferable App Licences

Assigning and moving app licences between iPads using those bought through Managed Distribution on VPP (Section 5) is used extensively in the KM CAT CYP team. If an app is needed on 10 iPads for a training session and only 9 licences are available, the system shows where licences are assigned, enabling a suitable staff member's licence to be transferred over to the training iPad for the session!



Figure 2: MDM Graphic

Bulk App Distribution

This bulk app distribution greatly reduces therapist preparation time when preparing for assessments or training, removing the need to load apps on each individual iPad.

Update Check

MDM allows a team member to check for both updates on apps and the operating system, and send these out in bulk to whichever iPads need these updates.

The MDM system also gives information on each iPad, including when it last

"checked-in" (demonstrating if the device is connected to the internet and would be able to accept changes from MDM), as well as updates on which apps are installed, which are missing and which licences they have. Oftentimes, problems are solved by doing updates, so this feature is invaluable!

App Lock vs. Guided Access

App Lock on MDM is akin to Guided Access on the accessibility settings in iOS. Whilst both options allow an iPad to be locked to a single app, some differences between the two call for discernment on a case-by-case basis.

Guided Access

- A passcode can exit the single app mode, which is appropriate if a carer needs to edit a communication package, do an update, sign into a new WiFi connection, or connect a new Bluetooth speaker.
- However, Guided Access resets itself each time the iPad's battery runs out, thus opening the whole iPad back up to the user, which might be a problem if a client is with a carer who may not know how to reinstate Guided Access.

App Lock

- There is no way to get around the single app mode restriction unless revoked by the MDM system. Although this robust solution may be appropriate for some, if backups, updates or small changes are needed on the iPad regularly, it would require somebody with access to MDM to revoke the App Lock setting every time these things take place.
- iPads only receive changes made on MDM if connected to the internet. For the KM CAT service to implement App Lock well before equipment delivery, a therapist must connect to the WiFi at a school before calling an MDM team member to enforce the App Lock so changes could be made remotely in future.

One example of success through using MDM was that a client was able to take home her iPad after some time, as the MDM App Lock was secure enough to ensure that she and her family members were not able to be distracted from communication on the device when at home!

Challenges

It goes without saying that no system is perfect and it is definitely worth

acknowledging some challenges along the way! Initially, teething problems arose in learning how to set up iPads, name them consistently, assign apps to them, and set the right restrictions; this included an app being sent out to 50 iPads instead of 1, and blocking Bluetooth on a device that used a Bluetooth speaker case. Implementing the system on Staff devices only at the start helped understand challenges, and led to the writing of a step by step Work Instruction document to help all users in the team be on the same page when carrying out MDM tasks, thus resulting in far fewer mistakes. There are still some outstanding challenges though:

Moving Apps

Whilst moving apps between iPads is a great advantage of MDM, Lightspeed Systems' MDM's two-step process becomes time consuming for the MDM managers at busy times of the year!

Depersonalisation

When depersonalising iPads returned from loan, the secure wipe on iPads means that the whole set-up process of an iPad has to be followed each time.

WiFi

Sometimes in schools, being able to connect to WiFi can pose issues, and if an iPad is not connected to the internet, changes made through MDM will not take effect.

Unresponsiveness

Unfortunately, the system is not always responsive to changes, so it is necessary to check an iPad before giving it to someone to make sure an app has downloaded or a restriction has been applied.

Volume Purchase Programme Explored

As mentioned, the VPP is Apple's answer to bulk purchase of apps. This means that a service can remove the challenge of purchasing only one app license per Apple ID, or having to repeatedly make a case for buying iTunes vouchers or purchase card monthly limits! With VPP, credit is obtained from an Apple Authorized Reseller via Purchase Order and applied to the account with a code provided.

VPP is made of two sections, education and business. Most NHS AAC Services

will only be able to apply for the Business account with a DUNS number. However, those also commissioned by the local council to aid access to education, can use an Education account offering a 50% discount when purchasing at least twenty licences at one time - particularly helpful for many AAC apps around!

There are two ways to redeem an app: "Managed Distribution" and "Redeemable Codes."

Managed Distribution

This allows an app licence to be distributed and moved around on MDM without signing in to an Apple ID. This means anyone can still sign into a personal Apple ID, which is particularly helpful if a staff member needs a free app before recommending it to others, or if they wish to download apps they have purchased in the past.

Redeemable Codes

These are used to tie an app licence to a specific Apple ID. This can be used if a service does not have an MDM system or may want to gift an app to a client indefinitely.

In the KM CAT CYP Team, Managed Distribution is used for most iPads, but Redeemable Codes are used for the case-load's individual devices. This means that even when a child transitions from the service, they keep the communica-



Figure 3: iPad Sizes

tion app, but restrictions from MDM are removed. In both cases of purchase, the apps do not need to be used straight away; it is possible to buy a number of app licences to assign to iPads when needed.

The VPP has increased HCS Team involvement in App Management, as

Administration staff in the service previously purchased apps and distributed them, as part of their finance role.

However, although the VPP process has helped in terms of negating the drawbacks of a purchase card limit, it has increased the steps needed to be able to top up the app purchase account, requiring the code for loading the credit and original app requests to be communicated back to the MDM team, to buy the apps after finance has gone through.

Conclusion

It is hoped that this article has given a brief overview of some of the features, advantages and disadvantages of implementing a Mobile Device Management system and App Volume Purchase Programme in a specialist Augmentative and Alternative Communication Service. As mentioned, many MDM systems have similar features and the choice may just boil down to what is available to each individual service. MDM has made a real difference in iDevice management for the CYP AAC Team in Kent, with over 100 iDevices to manage. While this solution may not be right for every service, it is worth weighing up the pros and cons, and potentially implementing a better management strategy gradually.

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Where We Are Now: Old Challenges and New Opportunities in Literacy Instruction for Students who use AAC

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As it is traditionally known, *literacy* comprises all the skills and abilities that are required to read silently with comprehension and compose meaningful texts independently. Literacy is the foundation upon which anyone in a literate society accesses and engages in academic learning, relationships, and citizenship. As we endeavor to support the literacy development of all students, we have a critical responsibility not just to provide meaningful, evidence-based instruction, but also a mandate to continue to connect learners to the inherent purposes and pleasures of reading and writing. Today we recognize literacy as a process. This recognition matters a great deal to persons who use AAC in that it encourages us to view literacy in the context of ongoing human development. It also encourages us to set conventional reading and writing as the ultimate goal, regardless of a person's age, stage, or ability.

New developments have emerged in the last decade which make it more possible than ever to support students in their journey toward conventional reading and writing. The list includes, but is not limited to, new technological developments, a narrowing gap between research and practice, and a growing cultural consensus that underscores the fact that all children can become literate. These factors, together and in combination, require that we chart a new course with higher expectations for individuals who struggle. This paper defines emergent literacy, characterizes the relationship between language and literacy development, explores how these

barriers have shaped us, and how we might overcome them going forward.

Emergent literacy is the period in development that precedes conventional literacy. We use it to explain an individual's knowledge of reading and writing before they develop conventionally and independently. It signals a belief that, in a literate society, any individual is in the process of becoming literate (Whitehurst & Lonigan, 2001). There is a consensus that this foundational period begins at birth and perhaps even before, as we have recent evidence that a fetus can hear language even before birth (DeCasper & Spence, 1986). As with any new learning, emergent literacy requires engagement, particularly as it relates to high-quality, high-interest texts and materials, if learning is to be meaningful. For children to progress out of this period, they need the support and scaffolding of more knowledgeable others (Vygotsky, 1998). These individuals provide informative feedback as learners explore and interact with language, words, books and print. This kind of feedback allows students to refine their understanding and challenge their assumptions. Emergent literacy requires engagement both with the process and materials that support learning. These include accessible books, alternate pencils, and even opportunities to explore the forms and functions of letters, sounds and words.

It's also important to consider how the development of language and literacy support, inform and reinforce each other. Where we once thought of language development as a precursor

to the development of conventional literacy, we now understand that language and literacy develop concurrently, recursively and in mutually transactive ways (Koppenhaver et al., 1991). It means that the development in any one domain of reading, writing, communicating and listening, has the potential to benefit any or all the others. The impetus then, to deliver effective, engaging, and meaningful instruction is great.

Historically, the literacy rates of students who use AAC have been dismal. Providing access to the materials that support literacy learning has been among the most significant challenges that parents, teachers, and clinicians face. Learners who cannot turn pages, use a pencil or play with words, sounds, and letters often miss out on these kinds of critical, foundational experiences. Across the last several decades, parents, teachers and SLPs have developed numerous effective strategies to provide this access. Two good examples of access methodologies to support the exploration of books and writing are page puffers and alphabet charts, respectively. The former makes pages easier to turn, while the latter allows students to select letters in the context of creating or composing texts. Both low-tech methods are effective and have contributed to the literacy development of students, yet the limits they pose are real. Time is one such limit. Individually adapting books and creating letter-by-letter writing supports inevitably limits the number of materials a learner might access. Research reinforces this reality; beginning readers and

writers need access to hundreds of easy texts if they are to one day read and write conventionally.

The second barrier pertains to common practices in special education classrooms today. A readiness approach is one such practice in that it encourages teachers or practitioners to introduce literacy skills in a hierarchical, pre-determined sequence. While this approach is orderly, it does not reflect the more organic way that all of us have learned to read, write, and use language. Further, this approach is especially problematic for students who use AAC in that it puts a burden on them to demonstrate learning (when physical, intellectual or language impairments can make this especially challenging). Another common approach that limits progress is called 'functional literacy.' This approach typically supports students in learning literacy skills that pertain to vocational activities or civic participation. One can argue that the time and attention it takes to learn this fixed bank of sight words might be better spent focusing on how to use and manipulate the alphabet; which is the only code that allows us to say what we want to say, to whom we want to say it, when we want to say it.

The last and most insidious barrier to literacy progress is the belief systems of adults who support struggling learners. Students who use AAC tend to have complex learning needs, histories, and intellectual profiles. We exacerbate their struggle when we label them as 'too low,' or not capable of making progress, when the reality is the real struggle is accessing meaningful, evidence-based instruction. Additionally, academic progress can be incrementally slow and difficult to measure for people who use AAC. Often enough, when parents, teachers and SLPs don't see the progress they anticipated at the outset of a new program or practice, they abandon it. These factors all play a role in continuing to lower the expectations of the adults who support students who use AAC.

While the barriers identified above are real, historical and persistent, we have new reasons to be optimistic. For one, new technologies present immediate and future opportunities for students who use AAC. At the forefront is eye-gaze technology, which allows students to engage in the kinds of critical experiences (including accessing books, constructing knowledge of letters, sounds, and words, etc.) that establish the foundation of conventional reading and writing. Beyond this, there are emerging technological features that can greatly impact development. The list of such features includes, but is not limited to, word prediction, text-to-speech, and grammatical and syntactical supports. And, unlike the individual adaptations mentioned previously, such features do not require thousands of hours of preparation and learning to be effective. Through technological devices, programs and features, we are leveling the curricular playing field for students who use AAC. We can take what we know from best practices, either in general or special education, and adapt them so that all students can learn.

Another exciting change in the landscape is the increasing embrace of comprehensive literacy instruction as the most effective approach to teaching all students to read and write. After decades of exposing students to isolated interventions that teach limited skills in narrow contexts, we more widely understand that learning to read is a cognitive-linguistic process and one that is deeply individual. To one day read and write conventionally, learners must possess both skills (like phonological development) and understandings (like language comprehension). Both established and emerging research demonstrates that students need support, practice and instruction in a variety of routines that contribute to literacy and language development. These routines include independent and shared reading, independent and shared writing, alphabetic and phonological awareness development, as well as communication

support and instruction. When we support student learning in every domain and engage them in these routines every day (or as frequently as possible!), we set the foundation for later, independent reading and writing. Finally, as technology provides greater access to instruction and we expose students to more effective instructional practices, we see a cascade effect. Student engagement and motivation increases, and consequently, adult beliefs begin to shift. As students understand more deeply why literacy matters to their independent function and connect more deeply with the pleasures therein, we then see shifts in their perception about their ability. We all play a role in shaping these forces and beliefs so that together, we can chart a new course and support students who use AAC in becoming increasingly literate and independent.

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Access Methods for Assistive Technology and Integration with Wheelchair Control Systems

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Barnsley Assistive Technology Team

The Barnsley Assistive Technology (AT) Team provides regional specialised services for the assessment and provision of AAC and EC (Environmental Controls). The team covers Yorkshire & Humber and consists of Clinical Scientists, Speech and Language Therapists, Occupational Therapists and Electronic/Mechanical Technicians.

In this paper, we will be providing a summary of the options available to enable integration between wheelchair control and access to AAC, computers and EC. We will be using case examples to highlight some of the practicalities of providing integrated systems whilst making optimum use of the available access methods from both the client point of view and within device limitations.

Useful information to gather for the assessment

Consider if there will be a benefit to integrating wheelchair control with access to AAC, computing and/or EC. Some advantages of integrating a wheelchair controller with an access method to another device are:

- Single point of control using most reliable action.
- Less cluttered.

Possible disadvantages:

- Could be cognitively more demanding compared with separate systems where each input is directly matched to a target device.
- If one element fails in an integrated system, this could affect access to all devices being controlled.

It is ideal to be involved in the assessment when the chair and control system are being specified, as options to enable integration can be considered at this early stage. However, if the client already has a system in place, the following information would be useful to obtain:

Note what the base control system is. Is it from Dynamic (DX/DX2/Linx), Penny & Giles (RNET) or Quantum (Q-Logic)?

Note the controller model in place. Photographs can be helpful.

Find out who has funded the wheelchair and who maintains it. Obtain their permission if making changes to the system.

Establish who will cover the cost of equipment, installation and maintenance required to enable integration. It may be that the specialised AT service can fund additional items (such as a Bluetooth mouse module) or upgrade to a controller with built in infrared or Bluetooth. First line maintenance of the wheelchair control system, at least for mobility,

will usually remain with the original maintainer.

Physical, cognitive and practical considerations

If assessing whether wheelchair integration may be of benefit to the client, consideration of the following factors is useful:

- The skill in controlling a joystick for wheelchair driving is not necessarily the same for accessing other AT devices. Can a competent wheelchair driver also target cells with required accuracy when using a computer joystick, for example?
- Does the client require mouse emulation, one switch or multiple switches to access their target device(s)?
- What are the postural implications of repeated use of switches or a joystick for AAC/EC access in addition to wheelchair driving?
- Can the client navigate the wheelchair controller to select the required mode – i.e. for driving, other modes such as chair tilt, elevating leg supports, AAC/EC mode and back again?
- If wheelchair tilt in space is used can AAC/EC still be accessed?
- What is the AAC/EC access method when not in the wheelchair?

Overview of wheelchair integration options

The features of the most frequently used options enabling integration are outlined in Table 1, with images showing an

example product from each range. Please note that some products shown, such as the DX/DX2 range, including the DX-ECU module, iPortal and Q-Logic 2 are either no longer being developed or not available. Integration may still be an option if

the local service has the modules required in stock.

There are also several peripheral devices which could transform a wheelchair without built-in integration features into a possible solution, as shown in Table 2.

Table 1 - Controller systems with integration capability (shaded areas indicate available feature)

Controller	Dynamic DX/DX2 range	Dynamic Linx range	Penny & Giles RNET JSM	Penny & Giles RNET CJSM2	Penny & Giles RNET Omni	Penny & Giles RNET Omni 2	Quantum Rehab Q-Logic 2 & 3	
								
Input Options	Switch(es)	Some have built-in switch sockets for some functions, others require the DX ACC4/4B	Built-in switch sockets for some functions e.g. on Linx REM400 and 500	Some RNET controllers have built-in switch sockets for some functions, other will require the RNET input-output module			Via special control input module. Built into the enhanced display option	
	Controller joystick	Except G91S which requires a secondary remote or switch connected		RNET joystick (LED) or version with LCD display			Built into the hand control version. Enhanced display option without a joystick	
	Secondary or alternative joystick, e.g. chin, low force joystick, sip and puff.	Master remote required if using secondary remote			Sip and puff built in, can also connect another joystick	Sip and puff built in, can also connect another joystick	Via separate module. Built into the enhanced display	
Output Options	Bluetooth	Via iPortal (discontinued)	Bluetooth built into some Linx controllers.	Via Bluetooth mouse module	In RNET CJSM2-BT version	Via Bluetooth mouse module	Bluetooth built in	Bluetooth built in
	Bluetooth compatible with Windows/Android (no of connections).	Via iPortal (discontinued)		2	2 built in + 2 via Bluetooth mouse module	2	2 built in + 2 via Bluetooth mouse module	8 fewer in Q-Logic 2
	Bluetooth compatible with IOS (no. of connections)	Via iPortal (discontinued)		1	2 built in 1 via Bluetooth mouse module	1	2 built in 1 via Bluetooth mouse module	8 fewer in Q-Logic 2
	Built in IR for EC				IR inbuilt but not yet tested	Found that some IR could not be recorded	IR inbuilt but not yet tested	In enhanced display version. Can enable in hand control version Q-Logic3.
	Switch output(s) to external devices	Via DX ECU module	Via An Output module (DLX-OUT500)	Via RNET input-output module Scanning feature on chair limits single switch scanning access to other devices. May be more suitable for when the external switch(es) each have 1 function.				Via an ECN module – switch output relay output

Table 2 – Peripheral devices enabling integration to most powered wheelchairs

Device	Tecla Shield/Tecla e	Bjoy Ring	
Input options	Compatible with all wheelchair controllers? Switch inputs	Require a DX-ECU or RNET Input Output module from the wheelchair control system, therefore may not work with all wheelchair control systems. See table1 and check with wheelchair supplier for details Single or multiple switch inputs	Attaches over wheelchair controller joystick stem – available in wired and wireless versions. Will fit most joysticks Can connect 2 switches for mouse clicks or turning cursor movement off. User required to have wheelchair off or in non-drive mode and control joystick with Bjoy attached to control target device May need to be re-calibrated if chair tilted since last calibration
Output options and connectivity	Bluetooth or other wireless	Both Tecla Shield and Tecla e allow Bluetooth connection with Windows, Android, iOS and Chrome. Connects with 1 device unless re-paired Tecla e can control up to 8 devices and has integration with smart home technology	Wired USB or version with own wireless radio receiver

Case Studies

Pseudonyms have been provided in each case study to protect the confidentiality of the people discussed, who have consented to share the following information.

Sue

Sue has a powered wheelchair with a DX control system. She uses a GridPad Pro 11 to access environmental controls and text-based AAC in the Grid 3. She accesses this with a single head switch which is also used to control her wheelchair (see Images 1 and 2).

The chair has the Invacare G91S (scan) controller with DX-ECU Unit which enables her to output the switch control to the GridPad. To change modes between driving, seating and ECU mode, she takes her head off the switch and the G91S will scan through each mode to be selected by the switch (see Image 3). Short presses of the switch are then used to operate the switch in the ECU mode (see Image 4).



In drive mode, the G91S then scans through different directions when the switch is not activated. A press of the switch is used to select the direction to drive, and longer presses can be used to continue to drive the chair:

Images 1 (above) and 2 (below far left): Photographs of Sue's wheelchair and controls with the mounted head switch.

Image 3 (below left): G91S controller

Image 4 (below): Example of switch scanning in the Grid 3.



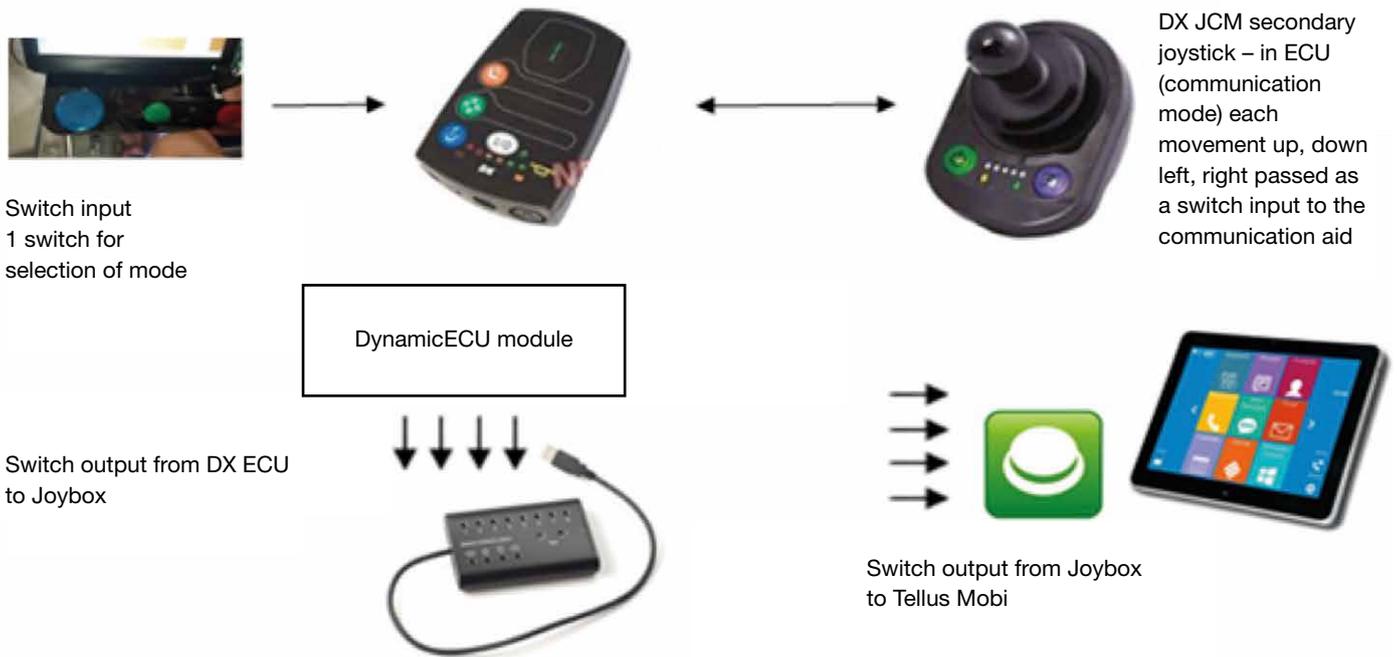


Image 5: Summary of Vicky's wheelchair integration system.

Vicky

Vicky uses a Mobi 3 communication aid to access AAC (Mind Express WordPower) and environmental controls. She has a powered wheelchair with a DX system (DX-REM41D).

It was agreed that a joystick would support Vicky's posture and provide optimal access to AAC. An integrated system was considered, as moving between two joysticks was physically effortful. She was a good wheelchair driver and when tried with a computer joystick, demonstrated good operation of the mouse.

We changed the master remote to a G91. Vicky switches between drive, attendant mode, seating and ECU mode using 2 specs switches. A secondary DX-JCM wheelchair joystick was added as she needed a low profile controller. The DX-ECU system links to the Mobi 3 via a Joybox and switch

driver software, enabling the joystick to operate as 4 directional switches (see Image 5).

First line support is from the Wheelchair Services but we have funded the G91 and secondary joystick. The AAC device cannot be operated in wheelchair attendant mode, therefore she also uses a computer joystick for these times.

Kate

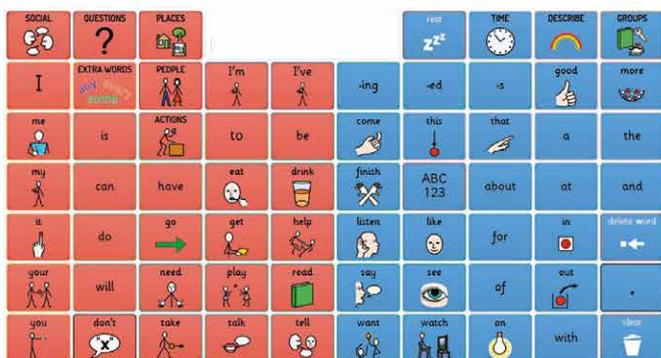
Kate had been using a pair of head switches in 2-switch elimination mode to access a GridPad Pro 11 with WordPower 60 in the Grid 3. Two-switch elimination was being used as this removes the timing required with single-or 2-step switch scanning, as each switch press halves the number of options available until a single cell remains (see Images 6 and 7). At the time, Kate was still developing the switch skills to use this method.

Kate acquired a new power chair, set up for control with head switches. The power chair had an RNET OMNI system with a Dual Pro head switch array: using left and right head switches to steer. An RNET input-output module (IOM) was in place, and set to output her switches to the connected GridPad (see image 8).

To reduce the load, the attendant would select drive mode or communication mode directly on the RNET Omni. This system does allow the option of the client choosing either mode independently with another switch if this is feasible.

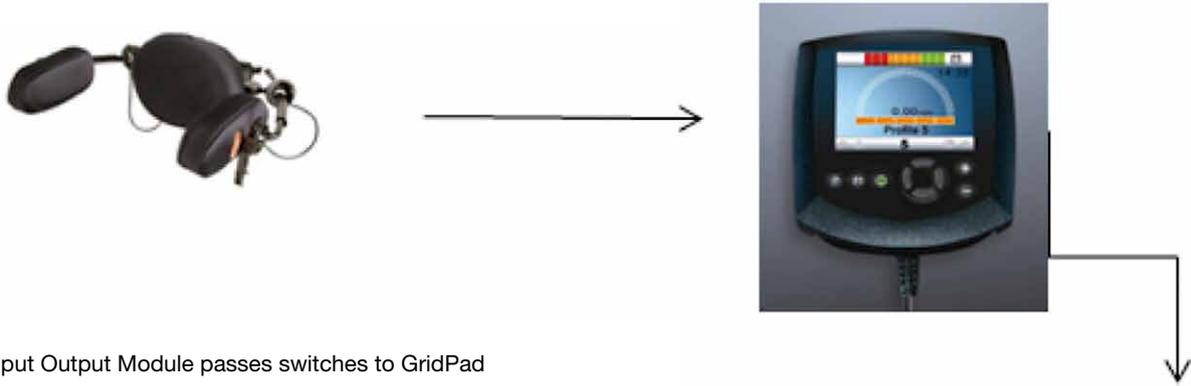
John

John uses a GridPad Pro 13 to access a customised AAC vocabulary package and environmental controls via Dwell Clicker and the Grid 3. John initially had a wheelchair with no option for integration (VR2 system). The most viable option for him



Images 6 and 7: Example of switch elimination scanning in the Grid 3.

Dual Pro Array head switches connected to RNET Omni



RNET Input Output Module passes switches to GridPad

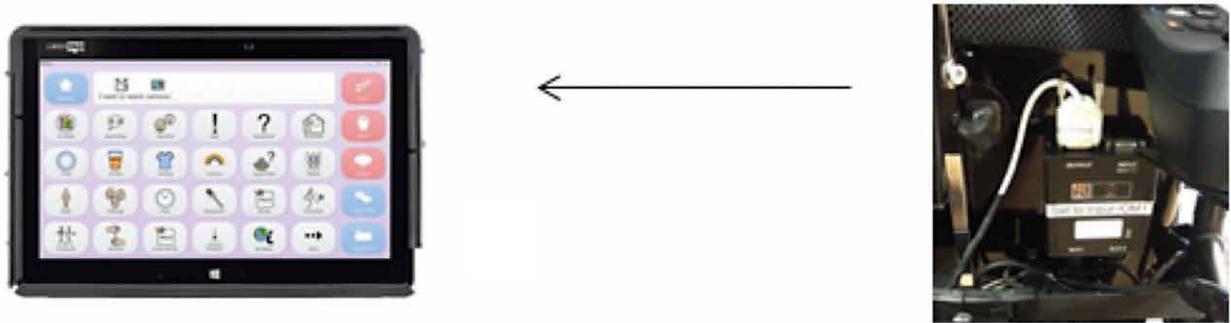


Image 8: Summary of Kate's wheelchair integration system.

was to operate a communication aid with a joystick. A BJOY ring was initially trialled as it was felt that positioning a separate joystick alongside the wheelchair controller would not be practical, and it enabled a neater solution.

John changed wheelchairs, which allowed the use of a joystick with built-in Bluetooth. He now uses a Quantum system with Q-Logic 3 controls (see image 9). This enables him access to the GridPad from his joystick to use the Grid

3 and other Windows applications. He switches between driving and accessing the GridPad using a switch.

Conclusion

This paper summarises our experience and current knowledge of wheelchair integration solutions available in the UK. The information provided was up to date at the time of writing this paper. Please note that assistive technology and wheelchair products can change regularly,

therefore it is recommended to check with the supplier first if considering a product for someone. Some suppliers offer training and product demonstrations of their services. For additional information and support, please contact the local wheelchair service and specialised AT service in your region.

Acknowledgement to the following for use of their resources

Dynamic Europe Ltd
www.dynamiccontrols.com

PG Drives Technology
www.pgdt.com/

Quantum Rehab
<https://www.quantumrehab.co.uk/electronics.html>

Smile Smart
<https://smilesmart-tech.com/>

Sunrise Medical
<http://www.sunrisemedical.co.uk/>

Smartbox
<https://thinksmartbox.com/>

Techcess
<https://www.techcess.co.uk/>



Image 9: Photograph of John's wheelchair controls with the GridPad Pro 13.

The App for People with ALS

ALONA MOROZ

Volunteer

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Recently, my grandfather has suffered from Amyotrophic Lateral Sclerosis (ALS). In the course of several months, he has turned from an energetic, talkative person to a helpless man, who can't move or communicate even his most basic needs. Unfortunately, this is what people affected by ALS face during the latter stages of the disease.

Being deeply affected by this fact, my brother-in-law decided to start working on an app which gives people with ALS, or similar motor neuron diseases, a chance to communicate their basic needs by interacting via a smartphone using eye-tracking.

A couple of months ago we were happy to release the "I Have Voice" app, which can be run on the latest iPhone models supporting TrueDepth Camera (X, Xr, Xs, Xs Max) and iPad Pro models (11, 12.9). The app is free and available for download on the Apple App Store: <https://goo.gl/iTWgKy>.

The app has already proved to be useful for those who have lost their voice and are unable to control a smartphone in the traditional way. It uses the latest advancements in eye-tracking to allow users to select actions like "Yes", "No", "I'm hungry", "I have pain" or similar, by pointing their gaze at an action and confirming it by either holding the gaze for a short period of time, or by blinking at an action. The app will immediately speak the selected action.

We have just released the new version, which now has the ability to add custom actions to the app. Our plans include a full-size keyboard, to allow people to

communicate in sentences by typing single letters, and to select suggested words based on the most-used words of each user.

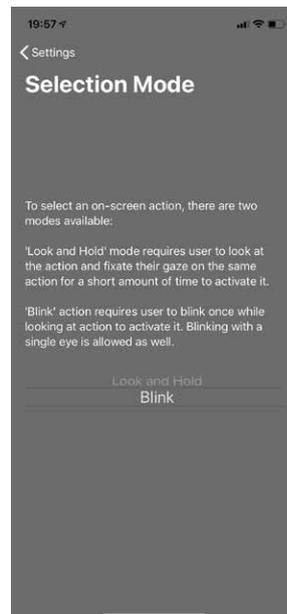
We believe that the app will bring enormous value to people keen to obtain a more affordable alternative communication solution than those currently available on the market.

We are grateful for support in spreading the word about "I Have Voice" to those who can benefit from it.

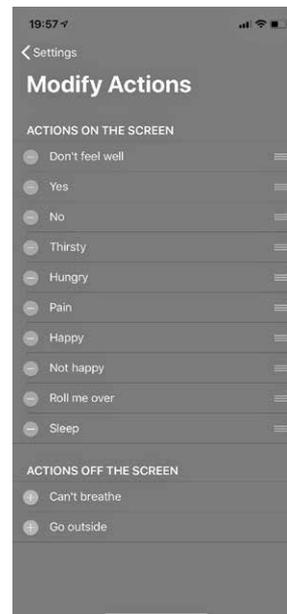
You can find more information about the app on <https://ihavevoice.app> and we would love to get your feedback at info@ihavevoice.app.



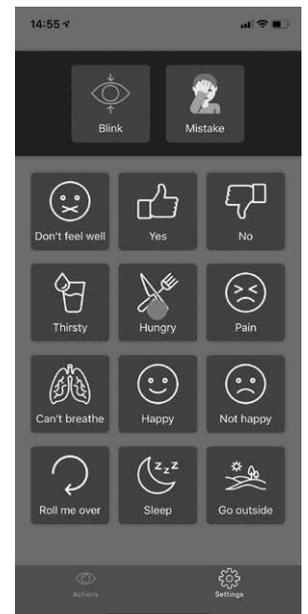
The app is available in 6 languages and more are to come



Two selection modes ('blink' and 'look and hold') allow accurate action selection



Custom actions can be added in addition to default ones



Good visible actions are easy to select using just eyes

Oldies but Goodies: Are we Stating the Obvious with Implementation?

EMILY GABRIELLE

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Let me start by introducing myself.

My name is Emily – I’m a Speech and Language Therapist working for Liberator Ltd. I’ve been qualified for almost 13 years and I’m lucky enough to have been involved with AAC since I first started my training.

Over the years, my career has taken me to different parts of the country, given me different caseloads and presented me with different demands and expectations. Through this, my knowledge and experience of AAC has grown – at times out of necessity in order to fulfil the needs of a role, and at times as a sheer happy consequence of being immersed in an AAC environment. My journey to this point has included self-directed learning, study days and most importantly, spending time with other skilled professionals and talented AAC users, who have guided me along the right path and helped me refine my skills at supporting someone who is using AAC; usually the guidance has been gentle but I’ve also had (well-deserved) dressings-downs by people at times (trust me – when this happens you don’t make the same mistake twice!). And whilst this has been happening, my enthusiasm for AAC has only continued to sky-rocket, encouraging me to always want to learn more. I now find myself at a place in my career where I certainly wouldn’t profess to be an expert in AAC – but I certainly wouldn’t consider myself a ‘newbie’, and many of the strategies I’ve learned over the years are such second nature that now I sometimes don’t even register that I’ve used them.

It’s the second-naturedness of using these ‘oldie’ strategies that got me thinking

about the topic I’m writing about today. When recently developing some training courses, I found myself doubting the content of what I had covered in the various packages – it seemed too simple; I feared I’d be laughed out of the room if I tried to talk to people about these topics whilst being subjected to the jeers of ‘Tell us something we don’t know!’.

In the coming months, I found myself talking to several teams and professionals about what skills they wanted to see others using when supporting someone to use AAC. Over time, it became clear that there was a recurring theme: professionals wanted to see others using the ‘basics’, the simple strategies which we (as AAC professionals) know to be so effective. I started to wonder why the ‘basics’ weren’t already taking place. They were common-sense strategies!

Or were they? Had we, as AAC professionals, become so comfortable with such strategies that we had forgotten there was a time when we didn’t perhaps use them as well as we do now?

The strategies included things such as:

- **Modelling** – using the aided language input approach to show clients where the words are in the vocabulary and how we can use them.
- **Core words** - Focusing on core vocabulary to ensure that clients have a bank of words which can be used flexibly for multiple meanings and a range of language functions.
- **Prompting** Following a prompt hierarchy to ensure we support clients just enough to achieve their goals.

- **Sabotage** Creating opportunities for language modelling through making small but subtle changes within situations.
- **Device Skills** Ensuring that those who support the person learning to use the device have sufficient device skills to do so confidently.
- **Recasting** Repeating back what is being said and providing subtle amendments to model correct forms of language.
- **Expanding** Expanding on what is being said by increasing either sentence length through one-upping, or adding language to expand how language can be used for multiple functions.
- **Pausing** Taking a minute before jumping in to fill the silence.
- **Babbling/exploration** Allowing time for free exploration of vocabulary to allow happy accidents to occur where we get to model new words and their meaning.
- **Natural Consequence** When new words are used, responding like it’s going out of fashion to reinforce the meaning of what has been said.
- **Questioning** Questioning in a manner which allows the person who uses AAC to respond without fear of failure. Diverting from the standard yes/no questions to allow opportunities to use more language.
- **Presuming Competence** Having those high expectations of those whom we support.

I started to ask myself – Is it actually the ‘obvious’? When I started my clinical work all those years ago, did I do all these

things? Was it in my nature? Or was I nurtured through experience, education and guidance? Certainly, I had enthusiasm for AAC in my early career, but when I look back, many of these strategies were developed over time.

That's the funny thing with AAC – those of us whose professional and/or personal lives include AAC largely feel confident supporting others who use AAC. But there is actually a whole world out there of people who have NEVER encountered AAC before – and not just in the general public but also in:

- **Medical/Therapy teams** Clinicians at an early stage of their career or those who have never encountered AAC previously may have limited experience in supporting those who use AAC.
- **Support teams** Changing staff teams around a client who is using AAC may mean that team members have limited or no experience of supporting those who use AAC. If induction training doesn't include communication strategies, then there may be limited opportunity for skill development.
- **Education** The educational setting can sometimes result in mixed experiences and skill sets relating to AAC. If a child is the only AAC user in a school, it may be that staff are unfamiliar with AAC in general and how to support it.
- **Family** For families, AAC can be a huge thing to get used to and will likely be a huge learning curve – this doesn't just apply to children but also families who have an adult family member who begins to use AAC.
- **Friends** Friends of someone who begins to use AAC may never have even seen a device before, and may be unfamiliar with factors such as the time demand in constructing sentences, and other factors which can impact on interaction – as such they may be unfamiliar with how to best support a friend who has begun to use AAC.

So, we know there's a whole HUGE group of people who interact with a person who is using AAC and who can play a role in supporting it. But does it really matter if we aren't all singing from the same sheet? Should we be aiming to support others in acquiring some of the strategies we've discussed?

It's easy to throw your hands in the air and proclaim, "we can't do it! The odds are stacked against us". But is this the

right thing to do, or should we be encouraging that culture change within groups? What does the evidence suggest?

Lund & Light (2007) discussed how supports to positive outcomes for those using AAC included a supportive, inclusive community, expectations of success, family involvement in intervention, competent and knowledgeable professionals, and training for families, facilitators, and teachers.

Light & McNaughton (2015), Kent-Walsh et al (2015), Therrien et al (2016) and Ganz et al (2017) all highlight the importance of communication-partner training on ensuring positive outcomes for those using AAC, and Light & McNaughton (2012) emphasise the need to ensure translation of AAC interventions to the everyday lives of individuals with complex communication needs.

So, we know that it's important for as many of those as possible who support someone who uses AAC to feel confident at doing so. It's also important that we acknowledge that everyone starts somewhere, and you only know what you know. What's important is that those of us for whom the strategies are second nature ensure we take responsibility for educating others in such strategies.

As a cohort of people who have skills in supporting AAC, we all have a role and responsibility in supporting the culture change. So how can we do this?

A few ideas I can think of include:

- Wherever possible, try to joint work alongside others in sessions to show how you use the strategies to help develop language. Take time to debrief people after sessions and talk about how you used strategies to help develop skills.
- We know we can find ourselves struggling for therapeutic time, so utilise the resources (and by resources, I mean man-power) you have around the person you support – how can you use your time to skill others up to support ongoing progress? The evidence suggests to us that the support around the person who uses AAC can be incredibly influential in determining either the success or failure of an AAC system – so think about how you can use time effectively to ensure the teams have the skills they need, whether this be training, mentoring or joint working.
- Be creative! I love the evidence about peer support and my wonderful

colleague Jane Odom talks often about peer groups she has supported in schools and how effective they can be. Keen siblings or family members such as cousins can also be incredibly useful as a resource.

- Don't forget your own journey with AAC – take things slowly when supporting new teams and don't worry about stating what you think may be the obvious – we all have those light-bulb moments when we think – I never thought of that!

So, in answer to the question "Are we stating the obvious?" – I don't think we are. Go out there, be the change you want to see, and support others to be as comfortable using AAC strategies as you are.

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My Literacy Journey

GREGOR GILMOUR

I started out on my communication journey like most other non-speaking infants, using picture charts. I then moved on to a symbol communication book. This grew with me and I developed a large vocabulary. I went to a special needs primary school. They helped to work on my communication, with my communication book. I used Clicker 3 and First Keys on the computer.

I got my first Dynavox aged 6; it was symbol based. By the age of 9, I made my mum remove all the symbols and replace them with words, as I could read very well. Some of the teachers realised that I was quite intelligent. At the age of 9 I had the reading age of a 16-year-old.

At the start of Year 5, I moved to a mainstream primary school. It was hard at first, but I soon got used to it. Some of my English sessions were 1-on-1 and some were taught in class. I was taught English and talking on my Dynavox at the same time. Looking back, these should have been separate lessons.

I went to a mainstream high school. I started off in the bottom set for English. The English teacher that I had did not know anything about AAC and did not seem to want to learn. I had him for two years. Then I got a new teacher in Year 9. She was the head of the English department. In Year 11, she moved me into the top set. Not based on my ability, but so I could see how the more able children did their work. This was a big help in getting me to pass my GCSEs. I managed to get an E, but this was with a lot of hard work. One of the things that really helped with my

English was when I started to do Spanish. This helped me to understand how sentences are formed. Really, I would have benefited from being taught English as a foreign language. I dropped a lot of subjects, like Music and Art. I used Clicker 4 and Pen Friend to do my work. Homework was hard. My mum would support me but with having two younger sisters she could not sit with me the whole time. I had a PA that would do some homework with me, but I didn't have many PA hours. The school had a homework club but there were no support staff there to help me. Looking back, my mum wishes that she had got me a private tutor for English.

Doing my English GCSE took me 5 days in total. I was switch scanning (switching) at the time; it was a lot of hard work and very time-consuming. There were 2 papers, with 5 questions. I did one question per day. I was in a room on my own. I was not allowed to speak to any of my friends for the 5 days in case they told me what they had put for the questions. I even had to get my mum to drop me off at school so that I did not talk to anyone on the bus about the paper. After school, I was not allowed any contact with friends or to go on social media in case I saw something about the paper. It was a long 5 days.

When I left school I went to a mainstream college. I did Level 1 Business and passed it. The following year I did Level 2. I found the work hard as I was still switching. One Christmas holiday, I had 24 pieces of work to do and I felt like giving up. I managed to pass the Level 2, but we all decided that Level 3 would be too much

for me. Although I had the understanding, the amount of written work was too much. As part of the Business course I had to do functional skills. I found the English writing part of this difficult as I did not get much support.

At the age of 18, I went to Beaumont College for three years. I really enjoyed my time here. I learnt some valuable life skills, like how to order a drink at the bar! But in terms of academic growth, I did not progress any more. The best thing at Beaumont was the Speech and Language team, especially Kate McCallum. She was the one who got me to use direct access. She worked really hard to find a suitable access method that would speed me up and stop the pains in my neck from switching. We talked about all the different access methods that might be possible. When I was switching, my control sentence was 1 minute 20 seconds. Now that I use direct access with a key-guard, my control sentence is 26 seconds. This has enabled me to complete English work 4 times faster than when I was switching.

When I came home from Beaumont, I enrolled at an adult learning centre on an Entry 3 IT course. This was good but a little easy. The following year I did the Level 1 IT course and enquired about doing an English course. They did an assessment to see what level my English was. Unfortunately, they said I could not do an English course there, as I was already at Entry Level 2 and I would not be able to manage any higher. I felt very disappointed that I had not been given a chance to even try. I asked again if I

could try the Entry 3 course as I felt that I could manage it. This time they said no because there was a written exam, and if I had someone scribe for me it would be classed as cheating. I explained to them that I do not need a scribe as I do my work myself on the computer. They came back to me with, "you can't do it because the room we run this class in is upstairs and it will be a fire risk", even though I was doing an IT course upstairs in the same building. I was starting to think they just did not want me in the class. Undeterred, I looked at other colleges.

I contacted Bolton College and went to do the same assessment there. They offered me an Entry 3 course. The teacher was amazing--she really went out of her way to ensure that I got the most out of the course. Most of the work was done on paper worksheets, and she would always get me an online version so that I could do the work independently. If there was not an online version, she would make one. If we were doing speaking and listening, she would email me the day before class so that I could program in some suitable words and phrases. Although she had very little experience of AAC, she really understood what I needed to be able to participate in class.

I passed and moved on to Level 1. I did the first year nonaccredited. This went really well: I had a good teacher, I was managing the work and was on track to do well the following year. Unfortunately, the second year did not go as well. I moved from the main campus to one of the community learning centres so that I could keep the same teacher. Sadly, she left after a few months. I had a further three teachers that year. Every time a new teacher started, we had to start again so they could see where we were up to. The course was broken up

in three sections. Speaking and listening, reading, and the hard one for me, writing. I did my speaking and listening with the second teacher just after Christmas. This went well, we did it as a group discussion with teacher number two. I then got my third teacher; she was a temporary teacher from an agency. She had no idea how to book exams or put in for extra time. I was starting to panic as it was getting closer to exam time.

The teacher assured me that she was going to arrange everything. She left nine weeks before the end of term and I had still not done my exams. I got in touch with the exams office myself to find out what was happening. We had a chat to arrange how I was going to do it. We agreed paper-based would be best so that I could have rest breaks. I got letters from my doctor as to why I needed extra time, and was finally getting somewhere. I then got teacher number four, who started again with myself and the others in the class who had failed their first exam. She said she would do four weeks' practise and then we would do our exams. I told her all about my extra needs and gave her the email address of the lady in the Exams Office, so they could arrange all this together. Unfortunately, she did not contact her and when I turned up to do my exam, I was unable to do so as she had booked an online exam, not a paper one. I was very disappointed as I had got myself all ready to do the exam on that day. The Exams Office said it would be at least three weeks to get a paper exam. I would have to go back in the summer holidays to do it. I spent every free day in the summer practising for it. When the day came, I got there early so I could get set up. My teacher turned up half an hour late to tell me that there was no invigilator, as he had a hospital appointment and she forgot to

tell me. She said I would not be able to do the reading exam that day and would have to come back next week. I was so frustrated. We refused to leave, and the lady from the exams board could see how much I had been messed about. She said she would invigilate for me. Despite all the setbacks, I managed to pass all three parts.

The main thing that I struggle with in English is spelling, as I do not say the word out loud, so I do not hear the letters that are in it. This makes me hopeless when it comes to phonics. The pace at which English is taught in class can sometimes be too fast for me. I can't always keep up with the work, and have to finish it at home. This is not because I do not understand the work, it is simply because of the time it takes me to write with my device. It can be frustrating in group discussions when we are doing speaking and listening. By the time I have typed out what I want to say, the group have moved on. I sometimes get given the topic of what we are going to talk about before class so that I can prepare, but this has still gone wrong as the others in the group have taken the conversation in a different direction.

I think the best ways that I have been taught are when I have been sent the lesson plans before class so that I can plan first, and when I have had all the notes from the lesson emailed to me, so that I can complete my work at home at my own pace.

This year, I will be doing English again as it is an area that I need to improve on, especially spelling, for me to be able to communicate to the best of my ability. My aim is to get to GCSE level A to C, or 4 and above as it is now. I am doing a two-year GCSE course, which will hopefully enable me to reach this aim.



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CALL Scotland – Developing Shared Reading Resources for Children with Speech, Language & Communication Needs (SLCNs)

CLAIRE HARRISON

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www.callscotland.org.uk

The Scottish Context

In Scottish schools, young people from ages 3-18 follow 'Curriculum for Excellence' (CfE), which is 'intended to help children and young people gain the knowledge, skills and attributes needed for life in the 21st century, including skills for learning, life and work'. The purpose of CfE is often summarised as helping children and young people to become:

- Successful Learners
- Confident Individuals
- Responsible Citizens
- Effective Contributors

For young people with additional support needs, including Speech, Language and Communication Needs, we can ask the questions:

- How can you be a *successful learner* if you can't read books and learning materials?
- How can you be a *confident individual* if you depend on others to read to you, write for you or talk for you?
- How can you be a *responsible citizen* if you don't have access to information?
- How can you be an *effective contributor* if you can't speak, write or communicate?

CALL Scotland working with The Scottish Book Trust

In working with the Scottish Book Trust,

CALL Scotland have sought to address some of these questions by providing accessible books and learning materials for learners with additional support needs.

The Scottish Book Trust is a charity which promotes literature, reading and writing in Scotland. One of its aims is to reduce the attainment gap by helping children and their families develop a love for books and reading. They provide four free bags of books to every child in Scotland during their first five years. Families can attend free story, song and rhyme sessions ('Bookbug Sessions') in libraries and community venues throughout Scotland.

The Bookbug Picture Book Prize

One of the Scottish Book Trust projects celebrates the very best of Scottish picture books. Each year during 'Book Week Scotland', every Primary 1 child is gifted a bag containing the three shortlisted books. The winning picture book is voted for entirely by children across Scotland.

Accessible Digital Books

CALL Scotland has worked with the Scottish Book Trust, and the authors and publishers, to create accessible digital versions of the shortlisted 'Bookbug Picture Book Prize' books. Children and young people with physical, visual and reading or dyslexic difficulties, who can't read or access the paper books, can use

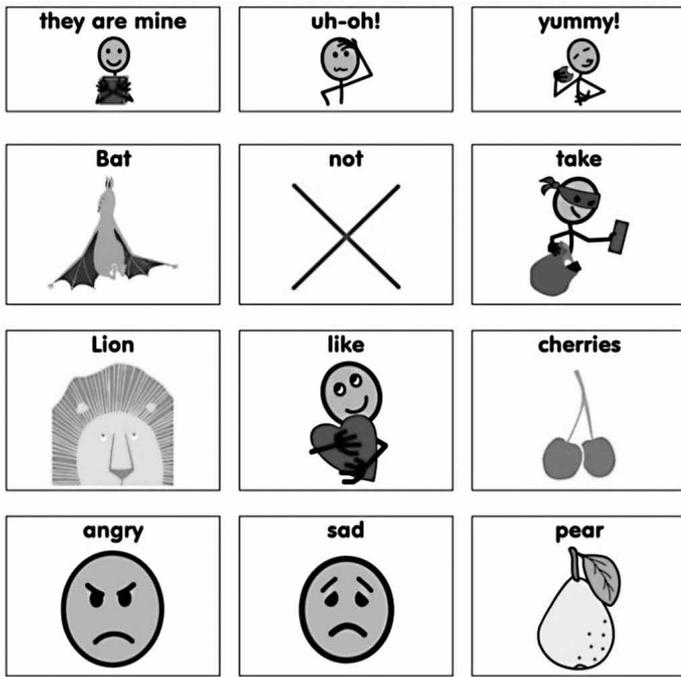
the digital books. The digital books are available as PowerPoint files or Keynote files (for iPad). The PowerPoint digital versions are set up to be accessed via a switch (the 'switch prompt' versions) or via touchscreen (recorded narration versions). The digital versions are only available to learners in Scotland and can be requested from the 'Books for All' website. <https://www.booksforall.org.uk/Finding-Books/Scottish-Book-Awards/Request-Digital-Copy/>

Symbol Resources

Since 2014, CALL Scotland have produced symbolised resources to accompany each of the short-listed books in the Bookbug Picture Book Prize. Using symbols from the SymbolStix symbol set, each book has the following resources:

- **GoTalk 9+ overlays**, which can be used with a GoTalk device or printed out to use as a low-tech symbol board, which a child can point to as they talk about each story.

The vocabulary selected for the overlays is designed to create communication opportunities for a child sharing a book with an adult, allowing them to join in with the text, comment and ask questions. There are a mixture of core words and fringe words specific to each picture book, which can be used as single words or joined together to create 2-3-word utterances. For example, 'Not Take Cherries' (*see figure 1*).



Story and Illustrations © Morag Hood 2017. Published by Two Hoots. © 2018 SymbolStix LLC. Created by CALL Scotland using MatrixMaker (by Inclusive Technology Ltd).

Figure 1

Symbol labels for BIGmacks and LITTLEmacks for repetitive phrases in the story.

Symbol labels for single-message devices, such as BIGmacks and LITTLEmacks, enable children to join in with a story by using a device to speak a repeated line aloud. Children with complex communication needs can learn through using repetitive lines in this way (see Figure 2).

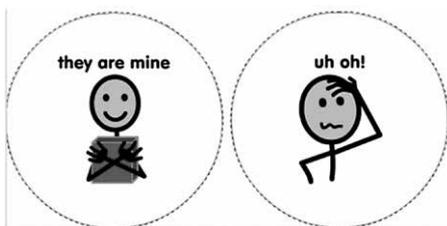


Figure 2

Sounding Board files for use within the free AAC 'Sounding Board' app, available for iPads.

The Sounding Board files are digital talking versions of the GoTalk 9+ overlays. The speech is pre-recorded so that it can



Figure 3

be used straight away after downloading, and opened in the Sounding Board App. These boards can be used in exactly the same way as the GoTalk 9+ overlays (see Figure 3).

In addition, there are vocabulary sheets to go with each book to help parents and staff record and use the appropriate vocabulary for each story, and a symbolised teaching activity and vocabulary sheet to go with each story book, adapted from the Scottish Book Trust's Teacher Pack.

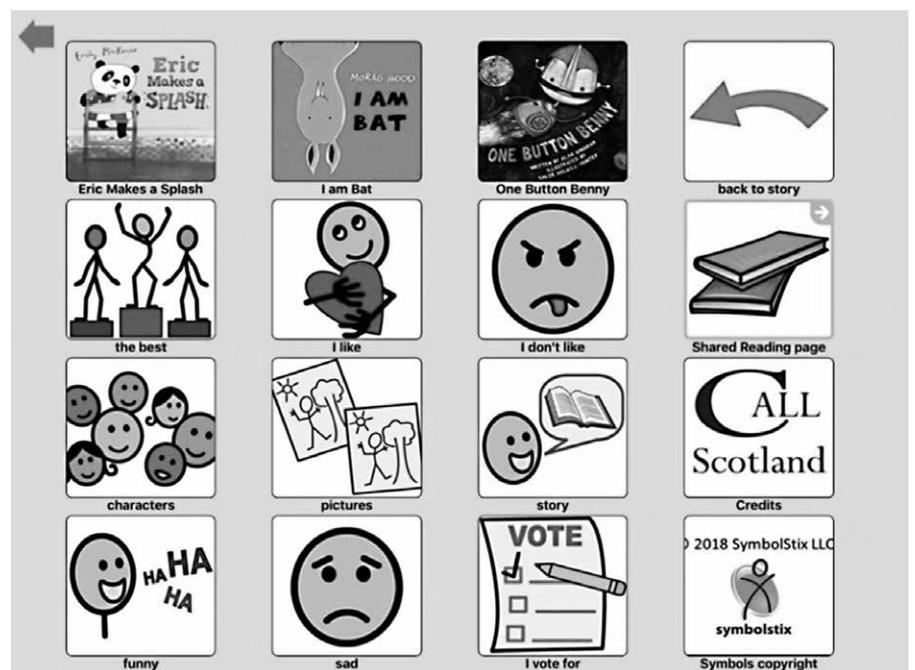


Figure 4

Children can communicate their voting choices by saying which book is their favourite using the voting overlays for GoTalk 9+ and Sounding Board boards (see Figure 4).

They can also comment and ask questions about any picture book using the general 'Shared Reading' overlays for GoTalk 9+ and Sounding Board boards.

All of the symbol resources can be downloaded by anyone for free from:

<https://www.symbolsforall.org.uk/bookbug/primary1-pack/>

Inclusive Literacy

The late Dr Penny Lacey coined this term to re-frame early literacy experiences for children with additional support needs. She argued that a broader view of emergent literacy was needed in order to include learners who could be excluded from stories and literacy experiences because they might not (yet) be able to interact with text. Using the Bookbug symbol resources creates inclusive shared reading experiences by providing access to stories for children with Speech, Language and Communication Needs. The use of symbols provides built-in support by giving visual prompts to help children understand and learn vocabulary. More information about Inclusive Literacy can be found in the 'AAC in Education' modules, which are freely available on the AAC Scotland website: <https://www.aacscotland.org.uk/modules/>

Guy's AAC Journey

GUY CARTER

SARAH SEAMER

Consultant Speech and Language Therapist, Lincoln EAT Service

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In Guy's own words:

My name is Guy Carter. I am twenty years old and I have quadriplegic cerebral palsy. I can't sit up or walk, I can't use my hands and I can't talk. I live at home with my parents and my younger brother who is 17; I also have an older brother and sister who are married with children.

I was referred to the Speech and Language Team when I was a few months old so that I could be given exercises to help me learn to use my lips and mouth better when I was eating and drinking. This led to exercises to help me talk. My parents were determined that everything should be done to support the possibility of my being able to talk and make myself understood. Throughout these early years, the SALT team supported us as a family and gently nursed us towards realising that communication aids of some sort would be needed.

My mum went on a Makaton course and a Hanen course. Makaton is simpler than British Sign Language and we knew that even this would be tricky for my hands. However there were signs that I was able to use, for example, *shower*, and others that I had my own version of, that my family and friends understood. During this time I also developed the use of my eyebrows...which can still be interesting for those around me... and I used eye-pointing a lot to direct people to what I wanted or needed. Those who knew me well were incredibly tuned in, but it was difficult for everyone.

The use of picture symbols was introduced. I didn't really like the black and

white standard symbols, and often they were not quite like the real thing in my house. My parents photographed just about everything in the house, laminated the pictures and ordered them in a folder. There were family pages with my immediate family, and then all my extended family with their names next to them, so that anyone else using the book with me was using the correct words. Every room in the house was photographed and then items within it were photographed and labelled. There were pages for numbers, colours, people's cars, cars in general, TV programmes, food, drink, clothes, toys, books, DVDs, favourite TV characters, kitchen utensils, animals...everything that I had cause to know about. The folder came everywhere with me. I am told that for a kid who couldn't speak I was very good at getting my own way!

I went to a mainstream nursery with a carer, and later to a mainstream primary school with a carer. The SALT team worked closely with my teachers and 1-to-1 care assistants and continued to work with us at home. I joined the Early Years class at school and like everyone else I was taught about phonics, letters and learning to read. Even though I couldn't make the sounds, Mum practised the phonics with me, making the sounds, and read my school book with me every night. She would read to me and later I would track her finger as I read. If I didn't know a word I would ask for help. We would talk about the books afterwards; I thought Mum was just really excited about books, but really she was checking that I understood the words. Gradually I learnt to read. When

I was 6 I got my first electronic communication aid. The symbols were available on pages in the machine and Mum spent time keying in all my favourite words, and I always had my own picture folder with me. Topic word pages were created and even a French word page. I loved French and Mum was able to make almost all the words that I used sound like the French version. To access the computer, I had to use hand switches to step and select. This was slow because my hands wouldn't work properly.

I wanted to produce work like the other children. I listened carefully and understood the lessons but it was really hard to show what I knew. By the time that I was 7 in school I would use Close pro techniques, where sentences are created and key words are selected and put into the sentences from a group of words. This can demonstrate knowledge and spelling and reading ability. I would eye point and nod to indicate the correct choice of word whilst people pointed at each option. At least I could now print my work.

Then SALT and the Electronic Assistive Technology (EAT) team suggested trying head switches. This was much easier once I had got used to the switches but still a very, very, slow process.

I started to want to write the words out myself, actually spelling them. My parents would run through the alphabet and I would nod when they got to the correct letter and they would note it down. It was very slow but it meant I could say what I wanted to say. We got an iPad at home and this made it a little quicker, because

dad would ask which row of the keyboard I needed to be on and then step across to the right letter. Although it was slow, it was much quicker than me on the head switches, and I didn't really like using the equipment... I think they called me a reluctant user.

When I was 9 I moved to a 2-day dual placement at St Francis Special School alongside 3 days in the mainstream school. My parents felt that the special school had the experience and technology to support me, along with the SALT and EATS, whilst the speed of mainstream meant that I was exposed to more general knowledge and a wider vocabulary.

At 11, I moved to the special school on a full-time basis. It was decided that I was capable of taking an English Literature GCSE and Maths GCSE. English essays took days to write and were a massive effort. Halfway through the course, when I was 15, I was given my first eye-gaze communication aid. This was life changing. The access and process of writing was quicker. I learnt to use and enjoy using the aid. I continued to expand my vocabulary and realised that I could be very funny and a bit of a smart arse. I added lots of inappropriate words, the type teenage boys use, and got found out!

Since then I haven't looked back. I passed my exams and have taken lots of B-Techs. I have now left school and enjoy going out to tell my story in schools, to trainee teachers and trainee Speech Therapists. Basically I will talk to anyone who will listen!

Since leaving school, I have also taken private lessons in phonics. Although I still can't make the sounds, I realised that because I hadn't been able to do so when I was younger I was making fundamental spelling errors. I have reworked all the early phonics lessons and I think my spelling has improved. The eye-gaze does have predictive text but I like to challenge it with new words too!

Communication is, of course, a two-way thing. For communication aid users, there are some fundamental differences from those having a spoken conversation. There also some things that we need from our communication partners.

We need partners who are interested in what we have to say, because then they are patient and give us time to type what we are going to say- it takes a little longer than talking. They also have to remember what was being discussed, especially when there are a few conversations going on with different people at once, for example, family tea times in our house can have 12 adults and two babies at the table. It's complicated to listen and keep up at best!

It's important to remember that anyone can read the screen, so it is good manners not to read it but to wait for it to be said. And on that point, when you are out and about, for example filling days in Costa or Starbucks, it's best to sit with the screen in a discreet place to prevent passers-by from reading it.

Sunlight can be a problem as sometimes it can interfere with the aid reading my eyes, so shaded areas are easier to work in.

I have worked hard to understand how to maximise the potential of my eye-gaze; I can calibrate my own screen, alter volume, alter the speed that it speaks at and I know how to navigate through the different apps, documents, dictionary, the camera, music, and the internet without any help. In my new house, which I am currently building, it will operate doors and televisions, and I am looking into having my own mobile phone.

My eye-gaze means that I can make myself understood, not just in everyday conversation, but when it is important. I can explain what I need in new wheelchairs, if I am ill, what could be done to help me when I travel, what I want to do

and where I want to go. It also means that there is no excuse for people not getting my jokes or realising that I am hilarious! This summer I researched, planned and organised a trip to Wales with my brothers.

I never forget the difference that Sarah and the EATS team have made to my life through their support, knowledge and experience, and I will always be grateful.

Speech and Language Therapy Perspective

In supporting Guy with this presentation it has been necessary to review his case notes and consider the factors that have contributed to his success in terms of his communication skills.

It is felt that early intervention, parental support, establishing a personalised low-tech system, access to technology and Guy's strategic competence,¹ and the internal factors of motivation and resilience,² were all key to his success.

The early support and advice was vital in ensuring that family and early support staff had appropriate expectations in terms of communication from the beginning. The family were equipped to take the lead role and this had a significant impact on success.

Guy's determination to develop his literacy skills and the support of word prediction has enabled him to become a very effective communicator who has achieved the ultimate AAC goal of being able to *say what I want to say, to whoever I want to say it to, whenever I want to say it.*

References

- 1 Light, J., (1989) Toward a definition of communicative competence for individuals using augmentative and alternative communication systems
- 2 Light, J., & McNaughton, D. (2014). Communicative competence for individuals who require augmentative and alternative communication: A new definition for a new era of communication?

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My review of Communication Matters Conference!

SOPHIE BEAM

Treloar College student

Sophie attended the Communication Matters Conference for the first time in 2018, as a co-creator and co-presenter of a poster presentation titled: "Sophie's Journey to Becoming an 'AAC eye-gaze Pro'". This poster described Sophie's role in making decisions about her AAC access method and equipment needs, including her extensive practice to develop eye-gaze skills, and self-directed research into how different devices could meet her specific needs. Sophie has developed a range of programming techniques to personalise her device and programme to suit her needs and preferences, to speed up her communication and to enable her to communicate remotely, as well as in person, using her AAC.

I went to the Communication Matters Conference on 9th to 11th September. It started on Sunday afternoon, so me and my parents set off from home at about ten o'clock. It took approximately three hours to get there. When we got there, we had to register and then I had a brief chat with Toby, who is the Chair of Communication Matters.

After we got things sorted in our room, I went back down to chat to people, while my parents unpacked. I had my phone, so I could phone up if I needed help. At about five o'clock, I saw Emily and Caroline, SLTs (Speech and Language Therapists) from Treloar, and had a quick chat with them before they got registered. I chatted with some other people. I met some people from Liberator and I talked about my AAC (which is a Liberator Accent 1400).



Then I looked at workshops that I wanted to do. I went through it with Emily, my SLT, before we went to the AAC Technology Hub, where all the AAC companies were based. I literally had a technology overload! We went to the dining room for supper, and then my parents said "we need to go to bed now" but it was only 9:30pm! I was like "do I have to?" but I went to bed anyway.

Monday morning - I didn't sleep well so I got up earlier than I planned. My parents and I went to breakfast before trying to find Emily and Caroline to chat. Then we went to the Welcome and Keynote speech. Toby, who is the Chair of Communication

Matters, welcomed us and then he handed over to the team that did the Keynote speech. They talked about children and adults getting new AAC devices. They had a vote for what different types of people want an AAC device to be like. I was interested in that because I am interested in how people are getting new AAC devices. I commented on it. Then I went to the communication aids in the business stand and that was interesting. They revealed the symbol for business. That means that they got trained to be helpful for us, people with communication difficulties. I had to leave early to get to my poster.

I had a full-on 45-minute conversation to



lots of people about my poster, which I liked because I was talking about my AAC and how I became a pro with it.

Then I had a break from everyone and I went back to my room. Then it was lunch time, so I was by my poster again, where I was busy talking to people. After that, I went over to Smartbox, which is the company who made the Grid 3 (the communication programme that I use). I told them that I have made a Communication Matters Conference grid set, which they were impressed by. Then I went to a meeting with other AAC users, where all the AAC pros were just talking about stuff. I really liked it. One of the topics that most people got heated about was the battery life on AAC devices. There were a lot of charging devices in that meeting including mine!

Then the fun evening came!

I had only enough time to change my hair style and I couldn't be bothered to dress up. While I was waiting for the party to start, I asked when the "Lost Voice" guy was going to do his performance (he won the Britain's Got Talent Show). Unfortunately, they told us he wasn't able to make it. We had drinks before dinner and my AAC was on charge back in my room. I had a brief chat using my MegaBee, with someone who was familiar with it. We went to the dining room for dinner and I managed to get all of the people who I got on with on my table. There was not a lot of food that I could have. Once I'd had a drink, I tried to talk but it was way too loud!

Next, it was chocolate time!!! It was something that I could have and I enjoyed it very much.

Toby came to chat, which we did with Mum being our microphone for us. It was getting late, so I decided it was time for bed.

Tuesday - I had a better night's sleep. I went to breakfast and I tried to find Emily and Caroline to chat. Then I went to the talk about living independently, which was led by Toby and his wife-to-be. They talked about the challenges they had to overcome and their experiences. It was interesting because I want to live independently when I leave Treloar, and it

can actually be possible too! Then it was break and I hung around the Liberator stand, chatting to them, which was great. Then I went to the Mentor Summer group. There were mentors talking about mentoring and I realised that I wanted to do it. Then it was lunch and we had to leave to get back to college, so I quickly went back into the Tech Hub to say "bye" to people who I got on well with.

I enjoyed Communication Matters Conference and if I could, I would like to go again.

I am proud that I was on the front of the November edition of the Communication Matters Journal!



Language, Literacy and Learning: Strategies and Tools for Supporting Early AAC Users

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Daisy Clay is a Speech and Language Therapist and is AAC Resources Manager for Smartbox Assistive Technology. She is the author of Simple AAC and developed the Super Core vocabulary for Grid. Kerry is a teacher and AAC Implementation Manager for Smartbox. She has worked in mainstream and special schools, primary and secondary, in a teaching capacity and in developing the use of assistive technology and AAC.

Introduction

There are so many things we can do when supporting early AAC users to learn, develop language, and begin the journey to literacy. It can also be quite confusing to know where to start, so here is a simple overview of strategies that anyone can use with the AAC learners they work with.

LANGUAGE

To start with, let's think about how we can support AAC users to develop their language skills. We now have the luxury of an online world full of information, resources and advice for supporting AAC learners. That said, we still find ourselves faced with school staff and families who feel overwhelmed. Where do we start? What do we have to do? What if we do it wrong?

We also often work with professionals and families who have so many other things to worry about, that they just want

a simple explanation of what to do first, in a way that will fit into their busy everyday lives. And that's why Simple AAC was created.

During AAC Awareness Week in 2017, Smartbox launched the "Simple AAC" blog series, to demystify and simplify the things that anyone can do to support AAC learners. The original blog series, with accompanying downloadable resources can all be accessed here - <https://thinksmartbox.com/news/simple-aac/introducing-simple-aac/> - but we will provide an overview of the strategies for you now.

Show. Point to symbols as you talk to model language. It's okay to make mistakes and you don't have to point to every single word – just the important ones!

Interesting. Keep things fun and relate your teaching to the AAC learner's favourite things to keep them interested. We all learn more when we are interested and motivated!

Months and Months. Learning AAC takes time, and some learners will need months and months of modelling before they are ready to start using AAC themselves. This is okay!

Pause. Learners might need longer to process what you say and respond, and a pause also shows it's their turn to talk. Try counting to ten in your head to make sure you pause for long enough!

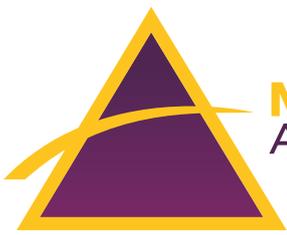


Language. Remember all the reasons we use language and teach different types of words. Not just names of things! Give learners the language to comment, protest, ask questions and more!

Explore. Give learners time to explore their AAC device and see what all the symbols and cells do. This is an important part of learning AAC.

Always available. It may sound simple, but we need to make sure the learner's AAC system is available! This can be a high-tech device, or a low-tech communication book.

Add words. Once a learner begins to use their AAC, support their language development by adding words to what they say, using their AAC. If they say one word, repeat it back and add another word.



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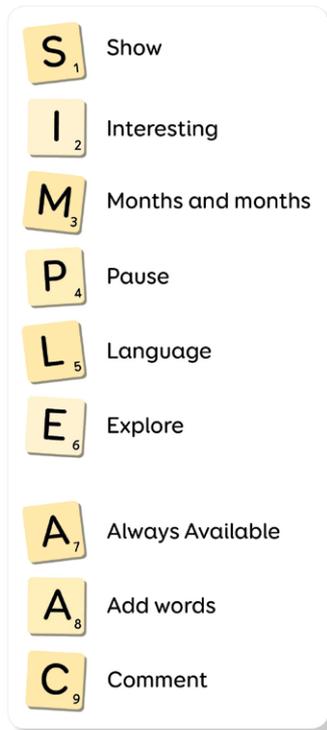
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Comment. Questions can feel like testing, not teaching. So instead of asking questions we know the answer to, say the answer instead, or just comment on what is happening.

Whilst this does not replace the need for regular, specialised intervention tailored to each learner, the Simple AAC framework is a manageable and accessible tool to help anyone get started.



LITERACY

Having talked about language development, it makes sense to talk about literacy – because every opportunity to develop language is an opportunity to develop

literacy. When talking about literacy, it’s important to consider the very early experiences which lead to literacy development. These include:

- Holding a book
- Turning pages
- Requesting repeated readings
- Selecting a story
- Exploring the cover
- Joining in repeated lines
- Learning that text flows left to right

It is our role to enable learners to have these early experiences, which can be achieved in several ways.

Supporting learners to choose

We can start simply by giving learners experience of physical books, with support to choose the story they want to read. You could point to each book and wait for a response from the learner. Or print pictures of the different book covers to offer as choosing cards. Or provide the language they need to choose the book on their AAC system.

Talking about books

We should also ensure we provide our AAC learners with the opportunities to talk about the books they are reading. This could be as simple as creating a low-tech communication board that enables users to express their opinions about the book, whether they want to finish or read more.

Talking during reading

As we saw from the first part of Simple AAC, ‘Show,’ we can also use communication boards to model or ‘show’ language

throughout shared reading time. This might mean creating grids within the AAC learner’s communication software, which allow learners to do things like join in repeated lines as the story is being read.

Having access to the character names, repeated lines and key elements of the stories will allow a learner to join in with story readings in the same way we would see a verbal child joining in reading as they develop literacy (see figure, bottom left).

Supporting literacy with a learner’s AAC vocabulary

In making sure that learners have access to the language they need within their AAC vocabulary, we first need to look at what relevant vocabulary is already available. Then we must make sure we know where that vocabulary is, so we can model it. What core and fringe vocabulary is the user already familiar with? Examples of vocabulary which could easily be used



during story reading are below:

Learners should be able to express an opinion on a character, talk about whether they find it funny, sad or boring. Depending on which vocabulary your learner is using, they may well have access to this language already.

Opportunities for sound play

Another key part of literacy development is sound play, but AAC learners often don’t have the same opportunities for this as their verbal peers. Providing learners with a vocabulary on their device that has access to a phonetic keyboard will help encourage exploration of letters and sounds at any level of literacy development. This will enable learners to listen to individual sounds, put them together and build words, as well as participating in focused phonics activities.

Selective use of symbols

Smaller words such as ‘to’, ‘is’, ‘a’, ‘the’ and several others, do not necessarily require symbol supports. This is because the word itself is small and it would be



Going on a Bear Hunt grid from Super Core

simple enough for most learners to learn the grapheme or shape of the word rather than the symbol that represents it. Small adjustments like this can be easily implemented in any vocabulary as an aid to literacy development.

LEARNING

Finally, let's consider how we can support learning for early AAC learners. Simple AAC is relevant here too, as well as features of an AAC vocabulary which can support learning. These features could also help to guide the topic-based symbol boards we create.

1 Consistently located vocabulary – Just as we can find our house keys or wallet much more quickly when we keep them in the same place, the same is true for words! It makes sense not to move vocabulary around, particularly if it appears multiple times within an AAC vocabulary.

2 Repetition of high frequency vocabulary – For anyone learning a language, it helps us to hear the same words over and over again, and practice using them in different sentences and situations. The same is true for AAC learners. So, having the opportunity to use the same words again and again in different contexts is key.



3 Careful selection of symbols – We need to choose a symbol that represents the word well. We can support learning further by choosing symbols the child is already familiar with, or those which can easily be made meaningful by how we teach them.

4 Easy access to concept vocabulary – Concept vocabulary includes words such as those related to colour, shape, size, time and location. We know these

words are used all the time within the classroom and that they are important for early learning and educational outcomes. Research shows that many AAC vocabularies either don't include these words, or arrange them so it takes several selections to get to each concept. We can support learning by making sure concept words *are* included and are easy to get to!

5 Organising words semantically and by frequency – By grouping words which are similar or related, we can make sure the most useful words can be found more quickly. We don't want learners to have to scroll through dozens of other words they don't want, to find the word they *do* want. Speed and motivation are key.

Outside of an AAC vocabulary, it's important to be able to bring everything together in a meaningful way. This allows our AAC learners to participate and learn. Here are some more ideas to support this:

1 Fun! It may seem obvious, but we have to make sure that AAC learning is fun and motivates our learners, just as Simple AAC's 'Interesting' highlights.

2 Play. We know that children learn through play and their experiences. We teach communication by how we respond to their communication. Think back to Simple AAC and 'Show.' Using play as the basis for interactions and learning will motivate and engage learners.

3 Meaningful. Teaching AAC within everyday activities provides lots of opportunities for modelling functional language and repetition. Find out what language is available in your learner's AAC vocabulary to support everyday activities. These may be play activities or more functional activities like eating, toileting, and sleeping/bedtime.

4 Controlling the environment. This can be a real motivator to help the learner realise just how powerful their AAC is. Even simple activities can allow a user to control their environment, such as telling teddy to do different actions, or an adult following the commands 'go', 'come', 'hi' and 'bye'. Lots of fun can be had with this!

5 Involving peers. Research indicates that children who use AAC interact with peers much less often than classmates without disabilities, yet this can be so motivating! Using AAC within play activities, using whole messages



as well as single words, can enable learners to participate alongside their peers. Encouraging typically developing peers to also use AAC and model language has been shown to be an effective way to teach AAC learners.

In conclusion, the aim is to provide ourselves with a toolkit of strategies to support our AAC learners in developing their language and literacy skills. We may not use all these tools every day, but having a wide range to draw on will allow us to provide lots of opportunities for learning, participation and communication.

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The Story of Core

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Core words are an integral part of Augmentative-Alternative Communication (AAC) systems. Including words such as 'want', 'like', 'not', 'more', 'I' and 'that', etc. is important because they are the most frequent words we use, and make up such a large part of what we say (approximately 80%). Yet many of us are unaware of their history. When did core words become part of AAC? How were they selected? Why are they organized according to the *Fitzgerald Key*? What is the *Fitzgerald Key* and who developed it? Let's take a quick journey into the past to discover the story of *Core*, and consider how it informs AAC now and how it might do so in the future.

When did core words become part of AAC?

Core words appear to have been part of AAC from very early on. The first mass-produced communication board appeared in 1921 and contained letters of the alphabet, several frequently used phrases/sentences (prestored messages), and common single words. Called the '*F. Hall Roe Communication Board*' after its original user, the single words on the board were many of those we include as core words today.

How are they selected?

It is not clear how the single words on the *F. Hall Roe Communication Board* were chosen but perhaps they made use of another resource published in 1921: Thorndyke's '*The Teacher's Word Book*'. This book identified the 10,000 most frequently used words in American English texts, to suggest that they be prioritized in literacy learning. Interestingly, the most frequent words in Thorndyke's list match the core words we use in AAC today.

The study of word frequency did not stop

there. Rather, it reached a new level in 1967 when Francis & Kučera published the first language corpus of American English using computer analysis. Known as the '*Brown Corpus*', Francis & Kučera's methodology was later (1970s) used to analyse British English texts, resulting in a corpus known as the '*LOB (Lancaster-Oslo-Bergen) Corpus*' and now as the '*Frieberg-LOB Corpus*'. These works were used for many years as resources in determining core vocabulary for AAC.

Since then, frequency of word use has been studied for particular age groups, environments, and languages (see additional references below) with the specific aim of informing the selection of core words for AAC. The results of these studies suggest several key points:

- A small set of core words (about 300) makes up approximately 80% of what we say throughout our day (Balandin & Iacano, 1999).
- Core words are useful across topics, activities, and contexts (Balandin & Iacano, 1999).
- Core words are used in conjunction with fringe (situational) vocabulary as well as prestored messages. For example, we might say "Excuse me." [prestored] followed by "Do you have any" [core], then end the sentence with "peaches?" [fringe]. (Todman et al, 2008).
- Children's written language includes a core vocabulary that is similar to spoken language (Clendon et al, 2013).
- Core words are quite similar from language to language (Boenisch & Soto, 2013; Robillard et al, 2014).

The most recent leap forward in core words has been the work of the Center

for Literacy & Disability Studies at the University of North Carolina at Chapel Hill (Dennis, Erickson, & Hatch, 2013). This research looked not just at the frequency of words, as previous studies have done, but also at the flexibility of words in a social and academic environment. For example, the word 'more' is more flexible than the word 'again'. Both words can be used to communicate repetition but only 'more' can also be used to mean "greater than" or "in addition to". This makes it useful in social interaction but also in academic subjects such as science, maths and history. The results of this research help us to select core words that serve users in more real-life and linguistic contexts.

Why are core words organized according to the *Fitzgerald Key*? What is the *Fitzgerald Key* and who developed it?

Selection of core vocabulary is certainly one chapter in this story; however, organization for efficiency and growth must be the next (Blackstone, 1993; McCoy et al, 2011), and the *Fitzgerald Key* is synonymous with the organization of core words around the world.

The original Key was developed in 1929 by Edith Fitzgerald. As a teacher of deaf and hearing-impaired students in the United States, she developed it for the purpose of teaching her students to speak using grammatically correct English sentences. The original Key comprised words classified by purpose (e.g., who, what, when, whose, etc.), then, later, parts of speech (e.g., subject, verb, direct object, etc.) written in yellow chalk across the top of a blackboard with the words of sentences written in white under the appropriate header. It was widely used for many years in the US for its original purpose before being adopted by

the AAC community in 1973 as a result of an article written by McDonald & Schultz. They suggested using a modified version of the Key as an organizational strategy for single words on low-tech, text-based communication boards. Their suggestion was implemented and further applied to picture symbol-based AAC as we see today.

In recent years, the *Fitzgerald Key* is often referred to as a colour-coding system for core words. However, colour-coding was not part of the original Key nor McDonald & Schultz's modified version; rather, various colour-coding schemas have been developed over the years, in which colour selection was largely arbitrary. These schemas have since been adopted regionally and/or organizationally. Interestingly, while there is research available and ongoing on colour-coding, no research was available (that this author was able to find) specifically on the effectiveness of the *Fitzgerald Key* as an organizational strategy for core words. Perhaps that part of the story is yet to be written.

What is the next chapter in the story of Core?

As we consider next chapters in the story of *Core*, it appears that there are a couple in process, one of which is more academic in nature, while the other is about successful implementation. From an academic standpoint, we look forward to further information on the selection of core words and the usefulness of colour-coding. We also hope to see research on the effectiveness of the *Fitzgerald Key* as an organizational strategy. On the other hand, implementation of core words is receiving a lot of attention currently. There are a number of resources available to teach partners effective strategies (e.g. modelling, etc.) as well as tools to teach core words to the user (see free teaching resources below).

Yet, we must remember that the story of *Core* is not just an historic, academic, or implementation tale. Perhaps the most important chapters of this story are personal ones about the lives of the individuals using core words to make friends, share news, and accomplish their goals. Ultimately, the story of *Core* is about the individuals that use it.

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Free Teaching Resources

- Project Core – www.project-core.com
- Core First Learning – <https://www.tobiidynavox.com/en-US/software/windows-software/snap/#Resources>
- Pathways for Core First – Windows 10 or iPad from <https://www.tobiidynavox.com/en-US/learn/pathways/?redirect=true>; see Top Tips and Build Skills sections
- Pathways for Core First Lite – online from <https://www.tobiidynavox.com/en-US/learn/pathways/?redirect=true>; see Learn Partner Skills section

Evaluating the impact of a 12-week training programme for teaching assistants in using Aided Language Stimulation (ALS)

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Introduction

The Seashell Trust (SST) is a specialist provision in the North West of England comprising of a non-maintained special school, Independent Specialist College and 17 residences. It offers support to children and young people with Learning Disabilities, Autism, Multi-Sensory Impairment and complex communication needs.

The majority of the 47 students at SST's school use Alternative and Augmentative Communication (AAC) methods to express themselves. AAC systems rely on consistent, skilled implementation to promote use of functional vocabulary in various environments, often using an Aided Language Stimulation approach (ALS); commonly referred to as 'modelling'. Elder and Goosens (1994) describe ALS as being when 'A facilitator highlights symbols on the user's communication display as he or she interacts and communicates verbally with the user'. ALS therefore requires specific skills and confidence to support use of AAC systems smoothly, naturally and effectively.

The SaLT (Speech and Language Therapy) team at SST work closely alongside educational staff in school to demonstrate how to use ALS, in order to maximise progression of AAC users' skills. This 'embedded'

model of service delivery aims to consistently promote the use of ALS across all environments, supporting generalisation of communication skills.

Despite using this model of service delivery, the SaLT team identified low confidence amongst teaching staff in employing ALS with students using both low and high-tech AAC. Moreover, there was limited use of AAC systems across a range of environments in school when a member of the SaLT team was not present. The SaLT team were therefore motivated to positively impact student progress by supporting educational staff to be upskilled in using ALS and AAC.

Twelve 'AAC champions' were identified to attend a training programme – one teaching assistant from each class group in school. The 'AAC project' was born, with the key aims of upskilling AAC champions in using ALS, enhancing communication opportunities for students and promoting broader understanding and acceptance of a range of AAC systems in school.

How was the training delivered?

A series of four training workshops were designed and delivered to the AAC champions over a twelve-week period. Between workshops, champions were encouraged to implement skills learned.

Two models were used consistently throughout the training:

1. Money and Thurman's (1994) 'Means, Reasons and Opportunities' model
2. Elklan's (2013) core modelling principles 'Repeat, Expand and Emphasise' Champions were encouraged to apply these models when evaluating their own practice in workshops.

Workshop 1 introduced broad AAC principles and Elder and Goosens (1994) definition of ALS. Champions were provided with an 'AAC pack' containing various resources and relevant literature freely available online. Champions left Workshop 1 being encouraged to begin using ALS with a range of AAC users in the weeks between workshops.

Workshop 2 focussed on video footage of a member of the SaLT team using ALS. Champions were asked to evaluate the SaLT's skills by watching the video and asking:

1. Was there a relevant **means** of communication for the student to use?
2. What were the clear **reasons** for communication?
3. What communicative **opportunities** were there? Were any **opportunities** missed?

Champions were also asked to evaluate the SaLT's specific use of ALS in terms of Elklan's (2013) modelling principles:

1. Did the SaLT **repeat** anything the student communicated?
2. Did the SaLT **expand** on the student's language use?
3. Did the SaLT **emphasise** anything the student had tried to communicate?

When critically evaluating the SaLT's practice, champions were encouraged to thoroughly analyse the use of ALS and evaluate videos using the above literature. The use of honest self-reflection aimed to encourage the champions to reflect in a similar way and increase their confidence to positively appraise their own practice with the catch phrase 'there's no such thing as a perfect session!'

By workshop 3, champions were being asked to critically evaluate baseline videos of themselves using ALS with students before they had received any training. The same literature was applied to video analysis and structured the champions' self-evaluations.

Workshop 4 was consistent with the established, structured analysis of videos. This time, videos were of the champions working with students after receiving three workshop sessions. The SaLT reviewed and reminded champions of the relevant literature and concluded the workshops positively; highlighting the increased confidence and skills demonstrated by the champions when using ALS.

How was the training evaluated?

A 10-point Likert scale was used to rate champions' confidence before and after completing the four training workshops. Questions related to champions' confidence in supporting high and low tech AAC users and in supporting others to use ALS.

Video samples of the champions supporting AAC users before and after the training were captured by members of the SaLT and Assistive Technologist (AT) teams. Three members of the SaLT team and an AT rated the videos, counting the number of occurrences of ALS as defined in Elder and Goosens (1994) and McLachlan et al's (2013) description of modelling.

At the end of the project champions were asked to complete a questionnaire relating to their understanding of their role as champions and how they planned to

implement their learning.

Three members of the SaLT team completed a thematic analysis of the responses given on the post-training questionnaire. First and second level codes were identified independently; the team then reviewed coding and agreed on global themes.

Quantitative findings

Confidence

Responses provided on the Likert scale showed a mean increase in confidence across all questions. This indicated the champions felt more confident in supporting low and high tech AAC users and in sharing knowledge with peers. Champions demonstrated higher levels of confidence in supporting low tech AAC users than high tech AAC users.

Behavior

A high level of intercoder agreement was present within findings from the video analysis, indicating reliability in methods used. Some champions demonstrated increased use of ALS in post training videos. However, certain factors that could not be controlled are likely to have influenced these findings. These included the range of communicative contexts and types of AAC used in the videos which influenced the amount of ALS required to effectively support communication opportunities. Champions were aware of the aims of the project and therefore likely to use more ALS when being filmed by members of the SaLT team. Some challenges in defining ALS and seeing the screens of AAC devices also impacted on the rater's ability to accurately capture ALS use.

Qualitative findings

Three global themes were identified (Figure 1.)



Figure 1

1. Culture

Champions highlighted that a culture which supported AAC was essential to enable successful opportunities to communicate. This required staff to be aware of AAC and view it as important. One champion stated that their role was to:

'Champion the use of AAC and Total Communication by mentoring ... other staff thus facilitating greater communication.'

Champions indicated an awareness of how to enable their colleagues to learn about supporting AAC users effectively. Their responses indicated a good grasp of what good practice looked like and the challenges that may be faced, stating they would:

'Encourage students and staff to create an environment where communication isn't a barrier.'

2. Learning process

Champions identified that a positive AAC culture promoted opportunities for staff and AAC users to develop their skills. Champions described specific approaches they would use to support AAC users to do this.

Terminology used by champions included 'personalisation', 'sabotage', 'core words', 'prompting', 'tactile support' and 'processing time'. This demonstrated confidence using the evidence base and applying it appropriately to practice.

Champions also expressed a clear understanding of the skills AAC users needed to acquire to be proficient communicators:

'Being able to use a range of communicative functions.'

'Core words, words meaningful to them [the student], how to express thoughts, needs and ideas.'

Generalisation was also identified as a factor to consider when supporting AAC users:

'By modelling to the staff and student. Trying to model during snack time, free time etc.'

Champions understood that student progress could be maximised if they could share their skills with others:

'How to share how to use AAC whether it's low or hi-tech. I can now help other members of staff to help their student.'

3. Barriers

The final global theme related to barriers

faced by champions. Staff not valuing AAC was perceived as a significant barrier to promoting effective use of AAC. Some champions used strong language in relation to this:

'Hostility to different methods of communication.'

It was also highlighted that frequently insufficient time is available for staff in an educational environment to attend training.

A barrier which the SaLT team had not anticipated was the rigidity of roles, responsibility and hierarchical structure within an educational setting. Champions were comfortable acting as role models but the suggestion that they could upskill their colleagues was met with some challenges. One champion stated that a response they anticipated was:

'Possibly resistance to being told what to do.'

Staff retention was also a barrier cited which, within this field, presents as a constant challenge when trying to upskill the broader workforce.

Conclusion

Triangulation of the data described above indicates that positive outcomes resulted from participation in the training workshops. Staff expressed they felt more confident in using ALS and demonstrated increased knowledge of how to successfully support AAC users. In her review of the evidence base for using training as an intervention, Judy Clegg (2018) highlights

the lack of literature relating to measuring the impact of training. It is acknowledged that the process of impacting change on staff behavior is complex; the ultimate impact on service user's communication is even more difficult to predict. The use of video modelling within this project was felt to be a key factor in supporting change in champions' behavior. Staff engaged enthusiastically in training sessions and reflected on their own practice through watching videos of themselves and their colleagues. The 'Means, reasons and opportunities' model (Money and Thurman, 1994) encouraged champions to consider how to support AAC user's communication holistically.

Future directions

Ultimately, all interventions used by the SaLT team aim to promote increased opportunities for successful communication. A focus for development is therefore to identify ways of measuring change in AAC user's skills. This will inform the development of further training and support packages for staff. The AAC scale of the Therapy Outcome Measures (TOMs) has been piloted at SST and will continue to be used alongside SMART target setting and evaluation. Clements and Bigby (2007) highlight that culture change requires staff to be supported and mentored to enable a vision to be realised. Champions will therefore continue to be guided in their roles through ongoing training and coaching. Additional champions will also be identified within school and other services at SST. This

will establish a network of peer support to extend the benefits of the project to a wider range of AAC users. Plans to introduce an AAC Policy across SST will aim to increase accountability in relation to supporting AAC users and clarifying roles and responsibilities for champions.

The success of the AAC champions has highlighted that with careful design and implementation of training, rooted in the evidence base, change can be seen in staff's behaviour. This ultimately leads to further communicative successes and opportunities for AAC users.

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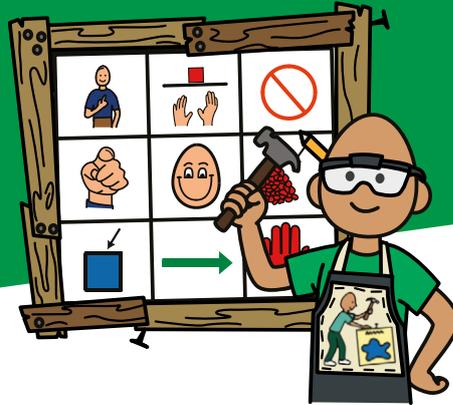
Could **you** be recognised for brilliant skills in art, drama, poetry, dance? Do **you** know a teacher, therapist or parent who deserves recognition for their commitment to AAC? Do **you** attend a group, school or club that supports AAC users in a unique way?

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Compatible with the Hey_ speaker



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Second display for face-to-face communication



Protective rubber case



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Smart 3



Zingui 2



Mobi 3



Tellus 5



Tellus i5



Allora 2